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LEARNING AND LABOR

DIRECTIONS FOR REGISTRATION

First Semester, 1930-31

ANNOUNCEMENT
OF NEW COURSES

TIME TABLE

PUBLISHED BY THE UNIVERSITY, URBANA

Illinois
1930/31 - 1930/37

REGISTRATION CALENDAR

1930-1931

1930	First Semester
Sept. 10-13, Wed.-Sat.	Entrance examinations (get programs and permits at the Registrar's Office)
Sept. 19, Fri., 8 a. m.	Meeting for freshmen with officers of their respective colleges
Sept. 19-20, Fri., 9 a. m.-5 p. m., Sat., 8-12 a. m.	Registration for freshmen
Sept. 19-20, Fri.-Sat.	Registration for Graduate School
Sept. 22-23, Mon.-Tues.	Registration for Upper Classmen
Sept. 23, Tues., 4 p. m.	Freshman assembly for men and women
Sept. 24, Wed., 8 a. m.	Instruction begun
Sept. 29, Mon., 12 m.	Latest date for change of study-lists without fee
Oct. 4, Sat., 12 m.	Latest date for rebates in full
Nov. 1, Sat., 12 m.	Latest date for announcement of subjects for all theses
Nov. 20-22, Thurs.-Sat.	High School Conference
Nov. 22, Sat., 12 m.	Latest date for rebates of one-half fees Latest date for removal by seniors graduating in February of last semester or summer session failures, and for substitutions in courses
Nov. 26, Wed., 11 a. m.	Thanksgiving Recess begun
Dec. 1, Mon., 1 p. m.	Instruction resumed
Dec. 22, Mon., 11 a. m.	Holiday Recess begun
1931	
Jan. 5, Mon., 8 a. m.	Instruction resumed
Jan. 16, Fri.	Special examinations not allowed after this date
Jan. 27, Tues.	Semester Examinations begun
Feb. 4, Wed.	Semester Examinations ended
Feb. 4-7, Wed.-Sat.	Entrance examinations (get programs and permits at the Registrar's Office)
	Second Semester
Feb. 9-10, Mon.-Tues.	Registration Days
Feb. 11, Wed., 8 a. m.	Instruction begun
Feb. 14, Sat.	Time limit on special examinations expires
Feb. 16, Mon., 12 m.	Latest date for change of study-lists without fee
Feb. 21, Sat.	Latest date for rebates in full
Apr. 2, Thurs., 11 a. m.	Easter Recess begun
Apr. 7, Tues., 1 p. m.	Instruction resumed
Apr. 11, Sat., 12 m.	Latest date for removal by seniors of first-semester failures, and for substitutions in courses Latest date for rebates of one-half fees
May 21, Thurs.	Special examinations not allowed after this date
May 28, Thurs.	Military Day
June 2, Tues.	Final Examinations begun
June 10, Wed.	Final Examinations ended
June 17, Wed.	Sixtieth Annual Commencement
	Summer Session, 1931
June 22, Mon.	Registration Day

DIRECTORY OF REGISTRATION OFFICERS

Information Office.....157 Administration Building

Registrar's Office.....100-A Administration Building
George Philip Tuttle, Jr., B.S., *Registrar*
Levi Augustus Boice, *Recorder*
Donald Ashway Grossman, LL.B., *Examiner*

OTHER GENERAL UNIVERSITY OFFICERS

Comptroller.....257 Administration Building
Lloyd Morey, A.B., B.Mus., C.P.A.

Bursar.....100-B Administration Building
Horace Ballou Ingalls, B.S.

Dean of Men.....152 Administration Building
Thomas Arkle Clark, B.L., Litt.D., *Dean*
Fred Harold Turner, A.M., *Assistant Dean*
George Herbert Smith, A.M., *Assistant Dean for Freshmen and Foreign Students*

Dean of Women.....100 Woman's Building
Maria Leonard, A.M., *Dean*
Mary Trenchard, B.S., *Assistant to the Dean*
Irene Dorothy Pierson, A.B., *Assistant to the Dean*

Director of Physical Welfare.....104 New Gymnasium
George A. Huff, B.S.

Director of Physical Education for Women.....110 Woman's Building
Louise Freer, A.M.

Health Office.....Health Service Building
Joseph Howard Beard, M.D., *Health Officer*
Maude Lee Etheredge, M.D., *Professor of Hygiene and Medical Adviser for Women*

Commandant.....107 Armory
Charles W. Weeks, Colonel, Infantry, D.O.L.

OFFICERS OF COLLEGES AND SCHOOLS

College of Liberal Arts and Sciences
Kendric Charles Babcock, Ph.D., LL.D., *Dean*.....304 University Hall
Waldo Shumway, Ph.D., *Assistant Dean*.....304 University Hall

College of Commerce and Business Administration
Charles Manfred Thompson, Ph.D., LL.D., *Dean*.214 Commerce Building
Laurence Everette Kline, B.S., *Asst. to the Dean*.214 Commerce Building

College of Engineering
Milo Smith Ketchum, C.E., D.Sc., *Dean*.....300 Engineering Hall
Harvey Herbert Jordan, B.S., *Assistant Dean*.....300 Engineering Hall

College of Agriculture

Herbert Windsor Mumford, B.S., D.Agr., *Dean*.....101 New Agriculture
Fred Henry Rankin, B.S., *Assistant Dean*.....104 New Agriculture

College of Education

Walter Scott Monroe, Ph.D., *Dean*.....104 Administration

College of Law

Albert James Harno, B.S., LL.D., *Dean*.....301 Law Building

School of Music

Frederic B. Stiven, B.Mus., A.A.G.O., *Director*..100 Smith Memorial Hall

School of Journalism

Lawrence W. Murphy, A.M., *Director*.....101 University Hall

Library School

Phineas Lawrence Windsor, Ph.B., *Director*.....222 Library Building
Frances Simpson, M.L., B.L.S., *Assistant Director*....322 Library Building

Graduate School

Arthur Hill Daniels, Ph.D., *Dean*.....109 Administration Building

GENERAL DIRECTIONS FOR REGISTRATION

To Every Student:

You should at once look over the HEADINGS, at least, of ALL the paragraphs, numbered 1-22, which follow. It is certain that one or two of them, and probable that several others, are OF VITAL IMPORTANCE to YOU individually at this time.

Special Note to Freshmen: *All freshmen should consult the program for Freshman Week printed separately.*

1. New Students WITHOUT Permits to Register

A new student *who has not yet secured a permit to register* should proceed at once to the Registrar's Office, 100-A Administration Building, taking with him his credit statements from all former schools attended (high school, academy, normal school, junior college, or college), and make application for a permit.

The foregoing direction applies to all new students without permits except:

(1) LIBRARY SCHOOL STUDENTS—see page 69.

(2) APPLICANTS FOR ADMISSION AS "UNCLASSIFIED STUDENTS"—see paragraph 10.

(3) STUDENTS DROPPED FROM OTHER INSTITUTIONS—see paragraph 8.

2. New Students WITH Permits to Register

A new student *who has already received a permit to register* need not go to the Registrar's Office, but will receive his study-list, together with further detailed instructions, at one of the following points, according to the college or school which his permit entitles him to enter:

College of Liberal Arts and Sciences—at the head of the main staircase, University Hall

College of Commerce and Business Administration—Commerce Building

College of Education, including the Curricula in Athletic Coaching and Industrial Education—Room 104 Administration Building

College of Engineering—Engineering Hall

College of Agriculture, including the Curriculum in Home Economics—New Agricultural Building

School of Music—Room 100 Smith Memorial Hall

School of Journalism—Room 101 University Hall

College of Law—Room 301 Law Building

Library School—Room 331 Library Building

Graduate School—Room 109 Administration Building

Students in the Colleges of Liberal Arts and Sciences, Commerce and Business Administration, Education, Engineering, and Agriculture should see the posters on University bulletin boards regarding "Order of Registration."

3. Former Students in Attendance Last Semester

A former student *in attendance the second semester of the year 1929-30,* and in all respects in good standing (see paragraph 5), should call for his study-list at one of the points mentioned in paragraph 2, according to the college or school in which he is enrolled.

Students in the Colleges of Liberal Arts and Sciences, Commerce, Education, Engineering, and Agriculture should see the posters on the University bulletin boards regarding "Order of Registration."

4. Former Students Not in Attendance Last Semester

A former student *not in attendance the second semester of the year 1929-30,* but in all respects in good standing (see paragraph 5), must first secure a permit to re-enter, if a man, from the Dean of Men, if a woman, from the Dean of Women, and must then obtain a study-list at the Registrar's Office.

A former student who has withdrawn from the University within the last three weeks of his last term of attendance may register again only with the approval of the Council of Administration.

5. Former Students Not in Good Standing

A former student, whether or not in attendance the last semester, *if not in good standing,* either—

(a) Because he has been registered for two years as an *unclassified student* without matriculating; or—

(b) Because he has been *dropped for poor scholarship* or *dismissed on disciplinary grounds*—

may not register except on the recommendation of the dean of his college and with the approval of the Council of Administration, evidenced by a permit from the Secretary of the Council. Such a student should go first to see the dean or the assistant dean of his college.

6. Students Changing Colleges or Curricula within the University

A student who desires to transfer from one college or school of the University of Illinois to another college or school of the University must (1) secure from the dean or director of the college or school in which he was formerly enrolled a statement of his record therein; (2) secure from the Registrar's Office a statement of his entrance credits; and (3) submit these papers to the dean of the college or the director of the school which he wishes to enter; except that students transferring to the College of Law, the College of Education, or the School of Journalism from one of the undergraduate colleges of the University, need only a permit from the Registrar's Office.

A student who wishes to transfer from the curriculum in which he was last registered to another curriculum *in the same college* must consult the dean or the assistant dean of his college. He must also register the change with the Registrar in order to determine whether or not he is able to meet the requirements for admission.

7. Students with Advanced Standing

A student transferring from another university, a college, a normal school, or a junior college must submit his credits from that institution, or his "Estimate of Advanced Standing," if he has already obtained an "Estimate" from the Registrar, to his adviser when consulting the latter about his curriculum. Then, whether he has already had an "Estimate" made or not, he should call between October 1 and October 15 at the Registrar's Office to file a formal petition for transfer of credits. For the rules governing such transfers see the *Regulations for the Guidance of Undergraduate Students,* Appendix III.

8. Students Dropped from Other Institutions

A student who has been dropped from another institution may be admitted to the University of Illinois only on the recommendation of the dean of the college or school of the University which he desires to enter, approved by the Council of Administration. Such a student must first see the dean or the assistant dean of the college of his choice. If admitted, it will be with the understanding that he shall be on probation and in addition shall be required to pass with a grade of C or better at least three-fourths of the work for which he is registered for the first session after admission, as a condition of further registration.

9. Students Earning Their Way

Students who are earning their way, in whole or in part, during the school year should state that fact to their advisers when registering. Such students should carry light work.

10. Unclassified Students

Persons over twenty-one years of age may be admitted as unclassified students, provided they secure (1) the recommendation of the instructors whose courses they wish to take, and (2) the approval of the dean of the college in which the course is given. They must give evidence that they possess the requisite information and ability to pursue profitably, as unclassified students, their chosen subjects, and must meet the special requirements of the particular college in which they wish to enroll.

An unclassified student is not matriculated and must pay a tuition fee of $7.50 a semester in addition to the regular incidental fee of $25 a semester for Illinois students, or $37.50 for non-Illinois students.

No one may enroll as an unclassified student for more than two years, except by special permission, application for which must be made through the dean of the college.

An unclassified student in any college desiring to take a course in another college of the University must obtain the approval of the dean of the latter college.

A person desiring admission as an unclassified student must first see the dean or the assistant dean of the college he wishes to enter (see the directory on pages 4 and 5).

11. Number of Hours[1] Prescribed

Every student must pursue studies aggregating *not fewer than fifteen nor more than eighteen hours,* except in curricula requiring more than such number of hours in any semester; and except further that a student who has received grades of A in not less than one-half of his work for the preceding semester with no grades lower than B may take for the semester studies aggregating not more than twenty hours. A student may be permitted to take more or less than the amount of work prescribed above only by permission of the dean of his college or the director of his school.

A student who cannot devote his entire time to his studies because of illness, or outside work necessary to meet expenses, or for some other good reason, may be required by the dean of his college or the director of his school to take fewer than fifteen hours.

12. Required Subjects Take Precedence

Any required subject in which there is a failure must on the first recurrence of such subject take precedence over all other subjects.

13. Credit Forfeited by Reregistering

By reregistering in a subject for which he has received credit, a student forfeits his credit. When a course is thus repeated the grade given at the end of the repetition becomes the official grade.

14. Candidacy for Graduation

A candidate for graduation must have completed by the beginning of his final semester (or summer session) all studies required for the degree, *except those to be taken in class during that semester (or summer session).*

It is provided, however:

(1) That special examinations to remove failures incurred *during the preceding semester* may be taken at any time before the beginning of the tenth week of a student's final semester; or, if the final period of attendance is a summer session, at any time before the beginning of the fifth week.

(2) That, similarly, substitutions for courses required for the degree may be made as indicated for special examinations in (1) above.

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[1]Credit is reckoned in "semester hours" or simply "hours." An hour is one class period a week for one semester, each class period presupposing two hours' preparation by the student, or the equivalent in laboratory, shop, or drawing room.

15. Courses with Variable Credit

In registering for a course with variable credit hours (e.g., Animal Husbandry 24, 2-5 hours), a student must put down on his study-list the number of hours for which *he* intends to take the course; e.g., not 2-5, but 2, or 3, or 4, or 5.

16. Military Training and Physical Education for Men

(a) The Requirement in Military

All male students, except those specifically exempted below, must register in Military, and, unless properly excused, must take the full basic course therein, whether they intend to graduate or not. To have any credits received for basic military work count for graduation, the full course (basic) must be taken. The classes of students exempted below may take military work, if they so desire, by registering for it, except that no student who is not a citizen of the United States and no student who holds a Reserve Corps Commission will be permitted to register.

Exemptions:

a. Students over 22 years of age when entering the University.
b. Students entering the University with junior standing.
c. Students who are not citizens of the United States.
d. Students who have had two years of military work in other Senior Units of the R.O.T.C.
e. Students holding Commissions in the Reserve Corps, United States Army.
f. Students holding certificates of eligibility for commission in the Reserve Corps.

A deposit of fifteen dollars ($15) with the Bursar is required before equipment is issued.

For full directions for registration in Military, see under Military in the Description of Courses and Time Table in the colored section of this book.

(b) The Requirement in Physical Education (Men)

All freshman and *sophomore men* take physical education throughout the year. Freshmen must also register for *Hygiene 1.*

Freshmen who do not pass the health examination will be required to register for *Physical Education 11* (*12* the second semester), five times each week, which gives 1½ hours of credit. Sophomore men with pronounced physical deficiencies should register for *Physical Education 21* (*22* the second semester), which also gives 1½ hours of credit. While enrolled in these courses they will be excused from Military, but when transferred to the regular work in physical education they will be required to make up the work in military science in so far as that may be practicable.

17. Physical Education for Women

Freshman women have Gymnasium Practice three hours a week throughout the year, and lectures on Hygiene throughout both semesters. Directions for registration will be found under the department announcements in the colored section of this bulletin.

18. Late Registration

A late registration fee of five dollars is charged all former students registering later than the registration days.

A student is not registered until his fees are paid. *A student who pays his fees on the first day of instruction or thereafter instead of on the registration days will, therefore, be charged the late registration fee.*

19. Week Old Study-List Invalid

A study-list becomes invalid if not filed at the Bursar's Office within one week after the date of its issue.

20. Changes in Study-Lists

Permission to change study-lists after registration may be obtained only from the dean of the college or the director of the school in which the student is enrolled. No changes can be made on the registration days.

Changes in study-lists should be completed and filed at the Bursar's Office not later than 12 m. on the Monday following registration. After this date a fee of $1 is charged for each change except that the total charge for the rearrangement authorized on any one change slip shall not exceed $2. The Registrar is authorized to waive the fee for change of a study-list in cases where the change is required by a University officer.

21. Fees Payable in Advance

All fees are payable in advance at registration.

A student who is in debt to the University at the end of any semester is not permitted to register in the University again, and is not entitled to receive an official statement of his credits from the Registrar, until his indebtedness has been discharged.

22. Hospital Fund

Every student should, on the registration days, join the Students' Mutual Benefit Hospital Fund. A payment of three dollars insures care in a hospital, without hospital fees, for any period of illness not exceeding four weeks during the semester. Apply at the office of the Dean of Men or of the Dean of Women.

THE COLLEGE OF LIBERAL ARTS AND SCIENCES

I. DIRECTIONS FOR REGISTRATION

1. Study-Lists

(1) Read the General Directions for Registration, pages 6-10.

(2) Obtain your study-list as prescribed in the General Directions.

(3) Read the directions printed on the back of the first coupon of the study-list.

2. Advisers

You will receive with your study-list a room ticket, indicating the number of the room where you will find your class adviser. Do not write anything on your study-list until you have consulted with the adviser. New students must bring with them a permit to register and show it to the adviser. *Be sure to obtain his signature before proceeding further.*

Juniors and seniors in the General Curriculum before consulting the class adviser must obtain from a representative of the department in which they will do their major work a statement of the courses in the major and minor subjects recommended for the coming semester. They should, also, bring with them the summary of their record mailed from the college office during the summer.

Transfer students from other institutions and other colleges of the University must bring with them a transcript of their record or the Registrar's "Estimate of Advanced Standing." They are given credit for all courses which are coordinate with the requirements of the curriculum in which they register.

3. Curricula

The College of Liberal Arts and Sciences offers the following curricula:

(1) The General Curriculum leading to the degree of Bachelor of Arts or Bachelor of Science (see below).

Note: Under this curriculum students may take their major work in home economics, leading to the degree of Bachelor of Arts or Bachelor of Science (see page 16).

(2) The degree of Bachelor of Science in Chemistry or Chemical Engineering (see page 16).

(3) The degree of Bachelor of Science in Applied Optics (see page 18).

(4) Students preparing for law will register in the general curriculum for at least three years.

(5) A two-year curriculum preparatory to medicine, which satisfies the minimum requirements for admission to the College of Medicine of the University. After two years of residence and the fulfilment of specified requirements, that college will grant the degree of Bachelor of Science in Medicine (see page 19).

(6) A two-year curriculum preparatory to journalism which fulfils the requirements for admission to the School of Journalism (see page 19).

II. DIRECTIONS FOR STUDENTS IN THE GENERAL CURRICULUM

1. Freshmen

Freshmen will register under the new requirements, taking all subjects prescribed in Group A, and selecting one subject from each division in Group B.

2. Sophomores

Required subjects each semester: Physical education, military science (for men).

Note: Sophomores may elect to graduate under the new requirements.

3. Juniors

Juniors are expected to devote approximately half of their time to work on major and minor subjects.

4. Seniors

Seniors must complete in the first semester all requirements for graduation except those to be taken in class during the second semester.

Note: Most courses in the College of Liberal Arts and Sciences open to freshmen suffer reduced credit when elected by seniors—see Time Table.

Requirements for the A.B. Degree

(*Effective for students entering after September 1, 1929*)

University Requirements.—Each candidate must meet the general university requirements with respect to registration and residence, and must also secure credit in approved courses amounting to 130 hours, an hour being one class period a week for one semester. Each class period presupposes two hours of preparation by the student, or the equivalent in the laboratory or drawing room.

A. *Prescribed Subjects*

To be commenced in the first semester of the freshman year, except as otherwise provided, and to be continued until the completion of the requirements.

1. Hygiene—1 hour
2. Physical Education—4 semesters
3. Military Science (for men)—4 semesters or the equivalent
4. Rhetoric—2 semesters. This requirement may be satisfied by either of the following methods:
   (I) Passing Rhetoric 1 and 2.
   (II) Passing a proficiency examination[1] equivalent to that of an examination in Rhetoric 2.
5. Foreign Language—A reading knowledge of a foreign language (French, German, Greek, Latin, Spanish, or Italian) equivalent to that obtainable after four semesters of a foreign language when commenced in college. This requirement may be satisfied by either of the following methods:
   (I) Passing French 2b, or a more advanced course;
   German 5 or 6, or a more advanced course;
   Greek 4, or a more advanced course;
   Latin 1a, or a more advanced course;
   Spanish 2b, or a more advanced course;
   Italian 2b, or a more advanced course.
   (II) Passing a proficiency examination[1] equivalent to the final examination in any of the courses mentioned in 5 (I).

B. *To be taken prior to the senior year.*

1. *Liberal Arts*—English literature, foreign literature (based on the first two years of college work in the language chosen, or its equivalent), economics, history, political science, philosophy, and sociology: a total of 15 hours chosen from at least three departments, including one course in English or foreign literature, or in the history of philosophy.
2. *Science*—Astronomy, bacteriology, botany, chemistry, geography, geology, entomology, mathematics, physiology, physics, psychology, and zoology: a total of 15 hours chosen from at least three departments, including one course with a minimum of four hours' laboratory work per week.

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[1]*Note on Proficiency Examinations.* Proficiency examinations in rhetoric and foreign languages will be offered before the end of the second week in each semester. Students expecting to take these examinations will register for the courses in these subjects indicated by their previous preparation, and apply to the departments concerned for examination. If such examinations are passed, students will apply to the Office of the Dean to be transferred to other courses, as they are permitted to do by present regulations. No University credit hours will be earned by passing such proficiency examinations, but the successful applicants will be excused from taking the parallel courses, thereby increasing the number of free electives which they may offer for graduation.

In any curriculum in which fewer than 15 hours of laboratory science are required a student who enters without at least one unit of laboratory science shall be required to substitute 5 hours of laboratory science for 5 hours of free electives in the requirements for graduation.

C. *To be taken after the freshman year.*

1. In the major subject as defined by departments with the approval of the faculty, 20 hours. See page 14.
2. In the minor subjects, 20 hours in one or two departments designated by the department in which the major subject is pursued, and approved by the faculty, with not less than 8 hours in each department, if two subjects are chosen.
3. Thirty hours of the work taken in the junior and senior years must be in courses not open ordinarily to freshmen or sophomores.

D. *Electives.*

1. All courses offered by the departments of this college except those exclusively for students in other colleges.
2. The total credit in Art and Design is limited to 20 hours.
3. Not more than 36 hours' credit toward graduation will be given for courses offered in other colleges and schools of this University, aside from the first year's work in the College of Medicine, and courses acceptable for major and minor credits. Such courses must be selected from a list approved by the Faculty. See page 14.

E. The degree of Bachelor of Science will be granted in lieu of the degree of Bachelor of Arts to students whose major is in mathematics, a science, or home economics, upon petition to the Dean not later than six weeks preceding the granting of the degree.

Requirements for the A.B. Degree

(*For students who entered before September 1, 1929*)

A. *Prescribed Subjects.*—Rhetoric 1-2; Physical Education through the first and second year, and Hygiene 1 and 3 for men; Physical Education 7a-7b, 8a-8b, and Hygiene 2 for women; Military Science (4 hours) for men.

B. *Group Requirements.*—Students are expected to complete the group requirements within the first 60 hours of work. Every candidate must offer the minimum of work specified in each of the following groups:

I. *English.*—The offering in this group must include at least one semester course in literature.

II. *Foreign Language and Literature* (exclusive of courses in English translation).

If a student has offered but two units of a foreign language for entrance to the University, he must pursue the study of foreign language through two one-year courses or the equivalent. If he has offered for entrance three or more units of foreign language, he must continue the study of foreign language through one year of his college course.

Note: Candidates for the degree who have not offered Greek or Latin or French or German for entrance *must offer one of these languages for graduation.*

III. *History, Political and Social Science.*—History, economics, political science, sociology: 8 hours.

IV. *Mathematics and Physical Science.*—Mathematics, astronomy (courses with college mathematics as prerequisites), physics, chemistry: at least 5 hours.

Note: Every candidate for the degree of A.B. shall offer a minimum total of 15 semester hours in Groups IV and V combined with a minimum of 5 semester hours in each. Not less than four laboratory hours a week for one semester, or the equivalent, shall be offered in *some one department.*

In any curriculum in which fewer than 15 hours of laboratory science are required a student who enters without at least one unit of laboratory science shall be required to substitute 5 hours of laboratory science for 5 hours of free electives in the requirements for graduation.

V. Botany, bacteriology, entomology, geology, geography, physiology, zoology: at least 5 hours. See note under IV.

VI. Education, philosophy, psychology: 6 hours, of which 3 shall be in philosophy or psychology.

C. *Major Subjects.*—Each candidate must select some one subject as his major. A major consists of courses amounting to at least 20 hours chosen from among those designated by a department and approved by the faculty of the college. Such courses are to be exclusive of those elementary or beginning courses which are open to freshmen and inclusive of *some distinctly advanced work.* At least five hours of the work accepted for a major must have been *done in residence at this University* and be included within the maximum credits allowed in any one division.

The subjects at present recognized as majors in this college are: bacteriology, botany, chemistry, classics, economics, English, entomology, French, geography, geology, German, Greek, history, home economics, Latin, mathematics, philosophy, physics, physiology, political science, psychology, public speaking, sociology, Spanish, zoology.

D. *Minor Subjects.*—Each candidate must offer, in addition to his major, a minor of 20 hours in one or more allied subjects designated by the major department and approved by the faculty of the college. *At least 8 hours must be offered in one subject.*

E. *Elective Subjects.*—

1. Not more than 40 hours in any one subject may be counted for graduation, except: (a) in special courses approved by the faculty of the college; (b) when a student is writing a thesis, he may count, in addition to the 40 hours, the hours of the course in which he does his thesis work; (c) in the department of English a student may take 40 hours in addition to Rhetoric 1-2, Public Speaking, and the linguistic courses in Scandinavian.

   Note: The total credit in Art and Design is limited to 20 hours.

2. In order to secure any credit in a beginning course in a foreign language, a full year's work must be completed.

Courses in Other Colleges Approved for A.B. Degree

3. A limited amount of credit toward the A.B. degree is ordinarily given for courses offered in other colleges and schools of this University, as follows:

College of Agriculture: (Not to exceed 14 hours)

Agronomy 11 (Soil Biology), 22 (Plant Breeding), 28 (Soils).

Animal Husbandry 7 and 31 (Animal Nutrition).

Dairy Husbandry 10 (Advanced Dairy Bacteriology), 20 (Economic Problems of Dairy Farming).

Farm Mechanics 12 (Farm Home Equipment—for students majoring in home economics only).

Horticulture 36 (History of Landscape Architecture), 37a (City Planning), 42 (Landscape Architecture).

The total credit allowed in agricultural courses may not exceed 14 hours, except that students taking their major work in entomology may take 20 hours in the above agricultural courses with the addition of Agronomy 7 and 25, Horticulture 1a, 1b, 2, 3, 6, and 7.

College of Commerce and Business Administration:

Accountancy 1a (Principles of Accounting), 1b (Accounting Procedure), 1e (Principles of Accounting), 13 (Governmental Accounting).

Business Organization 2 (Marketing Organization), 9 (Trade and Commercial Organizations), 10 (Newspaper Advertising), 11 (Survey Course in Business Organization).

Business Law 1a-1b (General Law—no credit given to students in the combined arts-law curriculum), 2 (Elementary Law of Business).

Economics, all courses.

Transportation 1 (Economics of Transportation), 2 (European Railroads).

College of Education:

All courses in the Department of Education (exclusive of courses in Educational Practice, Athletic Coaching, and courses 1-7 and the extramural courses in Industrial Education).

Students who plan to teach should see the announcement of the College of Education, page 54.

College of Engineering: (Not to exceed 24 hours)

Architecture 11, 12 (History of Architecture), 71, 72 (Architectural Drawing).

Civil Engineering 27, 28, 34 (Surveying), 94 (Highway Administration).

Drawing, General Engineering, 1 (Elements of Drafting), 2 (Descriptive Geometry).

Electrical Engineering 2 *or* 5.

Mechanical Engineering 10, 13 (Thermodynamics), 31 (Mechanics of Machinery).

Mechanics, Theoretical and Applied, all courses.

Mining Engineering 9 (Ore and Coal Preparation), 21 (Mining Examination and Valuation), and 61 (Elementary Mine Surveying), but no credit will be given for this course in addition to C. E. 27.

College of Law: (Not to exceed 30 hours)

Courses in law may not be taken before the senior year by students enrolled in this college. A student who has earned in the College of Liberal Arts and Sciences at least 30 hours, may take and count toward the A.B. degree not to exceed 30 hours of work in the College of Law, provided that not less than two courses, amounting to at least five hours, are taken per semester, under the advice of the Dean of the College of Law as to the courses to be taken.

Students registered in the College of Law, who are also candidates for a degree in the College of Liberal Arts and Sciences, must at the beginning of each semester register in the latter college also, by presenting a duplicate study-list for the approval of the Assistant Dean of the College of Liberal Arts and Sciences.

Law 14 (Carriers) and 24 (Municipal Corporations) are open to students of this college offering political science or economics as a major subject, who have had a previous course in law or political science involving the study of cases.

Library School: (Not to exceed 15 hours)

Library Science 2a-2b or 12 (Reference), 7 (History of Libraries), 9 (History of Books and Printing), 13a-42 (Public Documents).

Students who plan to take a library curriculum after graduation from this college should consult the Recommended Preliminary Curriculum outlined by the Library School, page 69.

School of Music: (Not to exceed 16 hours)

Music 1, 2, 32, 33 (History of Music), 3, 4, 5, 6 (Harmony), 7, 8 (Counterpoint), 9, 10 (Analysis and Form), 11, 12 (Advanced Composition), 13, 14 (Music Appreciation), 15, 16 (Instrumentation).

Credit to an extent of four hours is allowed for applied music (piano, voice, etc.) *after Music 3 and 4* (Harmony) have been taken and on the recommendation of the Director. For every additional hour of applied music, the student must elect a similar number of hours of theoretical music from the courses mentioned above. No credit will be allowed for courses in Public School Music.

Students who wish to enter courses in music other than courses 1-16 and 32, 33, must consult the Director of the School of Music, 100 Smith Memorial Hall, and secure from him a slip designating the course and the fee. This slip must be presented to the class adviser, who will then add the course to the student's study-list, provided the total number of hours, including music, does not exceed eighteen.

School of Journalism:

Journalism 3 (The Newspaper and the News), 5-6 (Reporting), 9a-9b (Printing and Publishing), 17 (History and Principles of Journalism).

Physical Education and Hygiene:

Not to exceed 5 semester hours for men and 8 semester hours for women. No credit is allowed for courses in Educational Practice.

Military Science and Tactics:

Military Science not to exceed 10 semester hours.

College of Medicine:

Students who have spent three years in residence, earning not less than 94 semester hours in the College of Liberal Arts and Sciences, are permitted, at the end of their first year in a Class A college of medicine, to transfer credits in the medical sciences to complete the requirements for graduation from this college and to receive the degree of Bachelor of Arts.

F. *Bachelor's Theses:* A bachelor's thesis is not generally required in this college. Students of high standing are, however, encouraged to write theses in connection with their major studies. Credit toward the degree is given for thesis work only as a part of the work in a Thesis or Honors course.

G. *Optional Degree of Bachelor of Science:* Students who do their major work in one of the subjects in Group IV or Group V, or in home economics, and who have credit for 60 semester hours or more in these groups or in home economics, on petition to and on the recommendation of the faculty of this college, may be graduated with the degree of B.S. instead of A.B. Such a petition must be presented not later than 10 days after the opening of the last semester or summer session preceding the granting of the degree.

III. DIRECTIONS FOR STUDENTS WHOSE MAJOR IS IN HOME ECONOMICS

Students planning to do their major work in home economics should note that certain prerequisite courses must be taken during the first two years. They will be assigned to advisers in the Home Economics Department in the rooms indicated on their room tickets.

Students who hold scholarships in home economics must make this subject their major and take each semester at least four hours in home economics or in subjects required for admission to courses in home economics.

IV. DIRECTIONS FOR STUDENTS IN CHEMISTRY AND CHEMICAL ENGINEERING

Students who follow the general curriculum in the College of Liberal Arts and Sciences with Chemistry as a major subject are eligible for the degree of Bachelor of Arts. They should follow the directions given on page 12 or 13.

For the more specialized training of the chemist, the following curricula have been arranged. Each requires a maximum total of 136 hours and leads to the degree of Bachelor of Science.

The schedules for the first and second years in chemistry and chemical engineering are the same.

Preliminary preparation in German or French equivalent to 2 years of high-school work is advised. The total language requirement for graduation including courses offered for entrance must be equivalent to 2 years of University work in German or French. When a student does not offer German or French for entrance the second year of the language required for graduation will be accepted in partial fulfilment of the non-chemical electives in either curriculum. Students entering under this arrangement should take the second year of language during the sophomore year and will not be admitted to senior standing until the requirement has been satisfied.

Students registering in either curriculum must offer 1 unit of high-school chemistry and ½ unit of advanced algebra for admission. University credit in Chemistry 1 (five hours) is acceptable in lieu of Chemistry 2 and one unit of entrance chemistry, Mathematics 3 (five hours) in lieu of one-half unit of advanced algebra and Mathematics 2.

FIRST YEAR, BOTH CURRICULA

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 2—Inorganic Chemistry	3	Chem. 6—Inorganic Chemistry	5
Math. 2—College Algebra	3	Math. 6a—Analytical Geometry	4
Math. 4—Plane Trigonometry	2	German or French	4
German or French	4	Rhet. 2—Rhetoric and Themes	3
Rhet. 1—Rhetoric and Themes	3	Physical Education	½
Physical Education	½	Hygiene 3—Hygiene (men)	½
Hygiene 1—Hygiene (men)	½	Mil. 2a and 2b, 12a and 12b, 22a and 22b, or 52a and 52b—Military drill and Theory	1
Military 1a and 1b, 11a and 11b, 21a and 21b, or 51a and 51b—Military Drill and Theory	1		
Total	17	Total	18

SECOND YEAR, BOTH CURRICULA

Chem. 10—Qualitative Analysis	5	Chem. 24—Quantitative Analysis	5
Math. 8a—Differential Calculus	3	Math. 8b—Integral Calculus	3
Phys. 1a—General Physics	3	Phys. 1b—General Physics	2
Phys. 3a—Physical Measurements	2	Phys. 3b—Physical Measurements	2
Physical Education	½	Physical Education	½
Electives[2]	3	Electives[2]	3
Mil. 3a and 3b, 13a and 13b, 23a and 23b, or 53a and 53b—Military Drill and Theory	1	Mil. 4a and 4b, 14a and 14b, 24a and 24b, or 54a and 54b—Military Drill and Theory	1
Total	17½	Total	16½

Curriculum in Chemistry, Third and Fourth Years

Students who have presented German for entrance should take French 1a and 1b among the electives; those who have offered French should take German 1 and 2.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 34a—Organic Chemistry	5	Chem. 36b—Organic Chemistry	3
Chem. 40—Physical Chemistry	3	Chem. 37b—Organic Chemistry Lab.	2
Chem. 41—Physical Chemistry Lab.	1	Chem. 42b—Physical Chemistry	3
Chem. 92a—Chemical Literature	1	Chem. 43b—Physical Chemistry Lab.	1
Econ. 2—Elements of Economics	3	Chem. 92b—Chemical Literature	1
Electives (must total 8 hrs. for the year)	4	Chem. 27b—Quantitative Analysis	3
		Electives (must total 8 hrs. for the year)	4
Total	17	Total	17

Of the electives at least four hours must be outside of chemistry courses.

[1]Semester hours. For definition, see page 71.

[2]T. A. M. 1 required for Chemical Engineers. Chemistry courses may not be chosen as electives. Suggested courses for electives are—Zoology 1, 2, 5, or 7; Botany 1; English 20; Geology 20, 43, or 47; History 3a or 3b; German or French.

FOURTH YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 90a—Research[2]	5	Chem. 90b—Research[2]	5
Chem. 60a—Chemical Technology	4	Electives	4
Chem. 95a—History of Chemistry	2	Electives (must total 13 hrs. for the yr.)	7
Electives (must total 13 hrs. for the yr.)	6		
Total	17	Total	16

Of the electives at least seven hours should be from advanced courses in chemistry.

Curriculum in Chemical Engineering, Third and Fourth Years

The work of the technical chemist or superintendent is frequently so closely associated with mechanical and other engineering lines as to make a knowledge of these subjects essential. To meet these conditions, the following third and fourth years of the curriculum in chemistry and related engineering subjects have been arranged. The degree given is that of Bachelor of Science in chemical engineering.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 34a—Organic Chemistry	5	Chem. 36b—Organic Chemistry	3
Chem. 40—Physical Chemistry	3	Chem. 37b—Organic Chemistry Lab.	2
Chem. 41—Physical Chemistry Lab.	1	Chem. 42b—Physical Chemistry	3
Chem. 60a—Chemical Technology	4	M. E. 2—Steam Engineering	3
T. A. M. 3—Resistance of Materials	3	Electives	4
T. A. M. 63—Resistance of Mat'ls. Lab.	1	G. E. D. 6—Elements of Drafting	3
Total	17	Total	18

FOURTH YEAR

Chem. 61a—Principles of Chemical Engineering	4	Chem. 61b—Principles of Chemical Engineering	4
E. E. 11—Direct Current Apparatus	4	E. E. 12—Alternat. Current Apparatus	4
E. E. 61—Laboratory		E. E. 62—Laboratory	
Chem. 44a—Thermodynamics	2	Chem. 90b—Thesis	5
M. E. 61—Power Measurement	2	Electives	2
Chem. 62—Principles of Research and Development	2		
Electives	3		
Total	17	Total	15

It is suggested that students take the elective courses outside of chemistry. Under no conditions may a student elect more than two hours of chemistry.

V. DIRECTIONS FOR STUDENTS IN APPLIED OPTICS

Students who wish to prepare themselves to pass the examination prescribed by the Illinois Optometry Act of April 19, 1919, which regulates the practice of optometry within the state, must meet the requirements for the degree of Bachelor of Arts or Bachelor of Science, taking their major work in the Department of Physics. For students preparing for the design of optical instruments, sometimes called "optical engineering," a special curriculum leading to the degree of Bachelor of Science may be arranged.

VI. DIRECTIONS FOR STUDENTS PREPARING FOR LAW

The College of Law admits only graduates, and students of senior standing who are permitted to elect courses in Law. See page 62.

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[1]Semester hours. For definition, see page 71.

[2]Ten hours of thesis credit are required for graduation in chemistry and five hours for graduation in chemical engineering, subject to a provision that in special cases a partial substitution of chemical electives may be granted on recommendation of the department. In no case may the total thesis credit in either curriculum be reduced below a minimum of five hours.

VII. DIRECTIONS FOR STUDENTS PREPARING FOR MEDICINE

The College of Liberal Arts and Sciences offers the following two-year curriculum which satisfies the requirements for entrance to the College of Medicine of the University. Two units of Latin, Greek, French, or German are required for entrance to this curriculum. Those lacking in this requirement will register in the General Curriculum and commence the study of one of these languages instead of zoology.

Students planning to spend three or more years, and all students of junior and senior standing, will register in the General Curriculum, taking care to satisfy all the requirements for entrance to the College of Medicine.

Students not residents of the state of Illinois will be advanced to registration in the College of Medicine at Chicago only if there are vacancies after all properly qualified Illinois students seeking admission have been registered.

Scholastic Requirements in College of Medicine

1. Grades of at least "C," or 75 per cent, or an equivalent grade from institutions using a different system of marking as determined by the University, in at least three-fourths of the work of the two years of pre-medical courses shall be required for admission to the freshman class of the College of Medicine (effective for students entering October 1, 1930).

2. Grades of at least "C," or 75 per cent, in at least three-fourths of the work of the first two years in the College of Medicine shall be required for the degree of Bachelor of Science in Medicine (effective for candidates for B.S. in June, 1931).

3. Grades of at least "C," or 75 per cent, in at least three-fourths of the work of the four years made up of the two pre-medical years and the first two years in the College of Medicine, shall be required of students before they may continue in the clinical, or third and fourth years of the College of Medicine (effective for students beginning third year in College of Medicine, October 1, 1931).

Suggested Two-Year Curriculum Preparatory to Medicine

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 1 or 2—General Chemistry	5 or 3	Chem. 5—Inorganic Chemistry	5
Math. 4—Trigonometry	2	Zool. 2—Vertebrate Zoology	5
Zool. 1—General Zoology	5	Rhet. 2—Rhetoric and Themes	3
Rhet. 1—Rhetoric and Themes	3	Hyg. 3—Hygiene (men)	½
Hyg. 1—Hygiene (men)	½	Phys. Ed.	½
Phys. Ed.—Gymnasium	½	Military Drill and Theory	1
Military Drill and Theory	1	Electives	3
Total	15–17	Total	18

SECOND YEAR

French or German	4	French or German	4
Phys. 7a—General Physics	2½	Phys. 7b—General Physics	2½
Phys. 8a—Laboratory	2½	Phys. 8b—Laboratory	2½
Zool. 3—Vertebrate Embryology *or* Chem. 33—Organic Chemistry	5	Chem. 33—Organic Chemistry *or* Zool. 3—Vertebrate Embryology	5
Phys. Ed.	½	Phys. Ed.	½
Military Drill and Theory	1	Military Drill and Theory	1
Electives[2]	3	Electives[2]	3
Total	18½	Total	18½

VIII. DIRECTIONS FOR STUDENTS PREPARING FOR JOURNALISM

The following two-year journalism curriculum covers entrance requirements of the School of Journalism of the University and includes specific courses of special value to students of journalism. It is recommended that, where possible, students choose additional electives from the departments of: economics, political science, history, literature, philosophy, psychology, and art.

See also the announcement of the School of Journalism, page 67.

[1]Semester hours. For definition, see page 71.

[2]Those who desire to take Physiological Chemistry before leaving the University should take Chemistry 24 during the first semester of the second year.

A Suggested Two-Year Curriculum Preparatory to Journalism

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Military Drill and Theory	1	Military Drill and Theory	1
Hygiene 1—Hygiene (men)	½	Hygiene 3—Hygiene (men)	½
Phys. Ed.—Gymnasium	½	Phys. Ed.—Gymnasium	½
Rhet. 1—Rhetoric and Themes	3	Rhet. 2—Rhetoric and Themes	3
Journ. 1—Introduction	1	Journ. 2—Introduction	1
Science[2]	5	Science[2]	5
English 10—Introduction—or History	3–4	English 11—Introduction—or History	3–4
Foreign Language[3]	4	Foreign Language[3]	4
Total	15 or 18	Total	15 or 18

SECOND YEAR

Military Drill and Theory	1	Military Drill and Theory	1
Phys. Ed	½	Phys. Ed	½
Journ. 5—Reporting	3	Journ. 6—Reporting	3
Journ. 9a—Printing and Publishing	2	Journ. 9b—Printing and Publishing	2
Accountancy or English	3	English or Accountancy	3
History, Pol. Sci., or Economics	3	History, Pol. Sci., or Economics	3–4
Electives	3-4	Electives	3–4
Total	15½–16½	Total	15½–17½

IX. HEADQUARTERS OF DEPARTMENTS

The headquarters of the different departments, where the heads or their representatives may be consulted during the registration period, are as follows:

Adm.—Administration Building; Arch.—Architecture Building; Chem.—Chemistry Building; Com.—Commerce Building; L. H.—Lincoln Hall; Math.—Mathematics Building; N. H.—Natural History Hall; P. L.—Physics Laboratory; U. H.—University Hall; W. B.—Woman's Building.

Art and Design	105 Arch.
Astronomy	Observatory
Bacteriology	362 Chem.
Botany	308 N. H.
Chemistry	102 Chem.
Economics	226 Com.
Education	104 Adm.
English	324 U. H.
Entomology	303 Entom.
French	309 U. H.
Geology	232 N. H.
German	217 L. H., 210 U. H.
Greek	126 L. H.
History	315 L. H., 414 U. H.
Home Economics	109 W. B.
Italian	309 U. H.
Journalism	101 U. H.
Latin	126 L. H.
Mathematics	251 Math.
Philosophy	119 L. H.
Physics	203 P. L.
Physiology	414 N. H.
Political Science	208 Entom.
Psychology	402 U. H.
Rhetoric	324 U. H.
Scandinavian	209 L. H.
Sociology	314 L. H.
Spanish	309 U. H.
Zoology	322 N. H.

[1]Semester hours. For definition, see page 71.

[2]Credit in two of the following sciences totaling 10 hours is required: physics, chemistry, geology, botany, zoology.

[3]High School credit may reduce these requirements; reading knowledge of one foreign language required.

THE COLLEGE OF COMMERCE AND BUSINESS ADMINISTRATION

DIRECTIONS FOR REGISTRATION

1. Commerce students should read the headings of the paragraphs numbered 1-22 of the General Directions for Registration on pages 6-10 of this Announcement and follow those which apply to them.

2. *Freshmen* who have received a permit to register will obtain their study-lists at the table in the lobby on the first floor of the Commerce Building.

3. *Freshmen* who have not received a permit to register should report at the Registrar's Office, 100-A Administration Building.

4. *Former Commerce students* who were in attendance the second semester of 1929-30 and are in good standing will obtain their study-lists at the table in the lobby on the first floor of the Commerce Building.

5. Students not in attendance last semester, not in good standing, transferring from other colleges within the University, etc., should follow the general directions referred to in paragraph 1 above.

6. Having secured his study-list, the student should follow, *point by point,* the directions on the first coupon. Assignment of Commerce students to *registration advisers* will be made in the lobby of the Commerce Building.

7. Each student must secure the approval of his Registration Officer for the studies he has chosen. *This approval must be stamped on the study-list.* Each student must then report first to the Library to secure approval of sections in sectional courses, and afterwards to the Auditorium to make out class cards, and to pay fees.

REQUIREMENTS FOR GRADUATION

Students who graduate from the College of Commerce and Business Administration are awarded the degree of Bachelor of Science. The requirements for graduation are as follows:

1. *University Requirements.* A candidate must comply with the University requirements as to residence and registration, and secure credit amounting to 130 hours, including credit in the following subjects prescribed by general University regulations for all students: *Rhetoric 1-2,* 6 hours for both men and women; *Physical Education* and *Hygiene 1* and *3,* 3 hours for men; *Physical Education 7a-7b* and *8a-8b* and *Hygiene 2,* 5 hours for women; and *Military Science,* 4 semesters, 4 hours for men. Men who elect the Reserve Officers' Training Corps must also take *Military Science,* 4 additional semesters, 6 hours.

2. *Prescribed Subjects.* A candidate must also secure credit in the other subjects listed as *prescribed* in his chosen curriculum.

(*Note:* If a prescribed course is not offered or is unavailable for other reasons, arrangements must be made with the dean of the college for acceptable substitutes.)

3. *Language Group.* Of the electives allowed, in all curricula, at least 8 hours must be either in English literature or in a foreign language, but prescribed courses in either of these subjects may be counted in meeting this requirement. *To secure any credit in a beginning course in any foreign language, a full year's work must be completed.*

4. *Social Science Group.* Twelve hours of the electives allowed must be chosen from the following group of subjects: *history, political science, philosophy, psychology,* and *sociology,* provided that *not fewer than six hours in any one subject may be counted in fulfilling this requirement;* but prescribed courses in any of these subjects may be counted in meeting the requirement.

This requirement (4) applies to Curricula in:

General Business
Banking and Finance
Insurance
Accountancy
General Railway Administration
Commerce and Law
Trade and Civic Secretarial Service

This requirement (4) does *not* apply to Curricula in:

Railway Transportation
Commercial Teaching
Foreign Commerce
Industrial Administration
Public Utilities

5. *Science Group.* In all curricula *ten hours* of the electives allowed must be chosen from the following groups of subjects: *chemistry, mathematics* (except Math. 22 and 23), and *physics,* provided that *not fewer than 5 hours* in any *one subject may be counted in fulfilling this requirement;* but prescribed courses in any of these subjects may be counted.

6. *Free Electives Group.* Free electives sufficient to make the 130 hours required for graduation may be selected from any department in the College of Commerce, the College of Liberal Arts and Sciences, or the Library School. *All other electives must have the approval of the dean of the college at the time of registration.*

7. *Laboratory Science.* In any curriculum in which fewer than fifteen hours of laboratory science are required a student who enters without at least one unit of laboratory science shall be required to substitute five hours of a laboratory science for five hours of free electives in the requirements for graduation.

THE CURRICULA

The curricula in Commerce and Business Administration are: general business, trade and civic secretarial service, banking and finance, insurance, accountancy, general railway administration, railway transportation, commercial teaching, foreign commerce, industrial administration, public utilities, and commerce and law. The subjects prescribed for graduation in each curriculum are listed in the following outlines. These subjects are in general arranged in sequence and should be taken in the order given.

Prerequisites are indicated in parentheses.

In addition to the prescribed subjects sufficient electives must be taken each semester to make up a minimum of 15 hours, but not to exceed a maximum of 18 hours of work. In choosing electives the attention of students is called to provisions 3, 4, and 5 of the above statement of the requirements for graduation. It is required that a sufficient number of hours from the subjects enumerated in groups 3 and 5 above be taken during each semester of the first year to make up, together with the prescribed subjects, a schedule of not fewer than 15 hours. Attention is called to the fact that some elementary courses carry only part credit for seniors.

General Business Curriculum

FIRST YEAR

FIRST SEMESTER		SECOND SEMESTER	
Required Subjects	Hours[1]	*Required Subjects*	Hours[1]
Acc'y 1a or 1e—Principles of Accounting[2]	3–2	Acc'y 1b (Acc'y 1a or 1e)—Accounting Procedure	3
Econ. 22—Economic History of U. S.	3	Econ. 27—Modern Industry	3
Rhet. 1—Rhetoric and Themes	3	Rhet. 2 (Rhet. 1)—Rhetoric and Themes	3
Military Drill and Theory	1	Military Drill and Theory	1
Phys. Ed.—Gymnasium	½	Phys. Ed.—Gymnasium	½
Hyg. 1—Hygiene (men)	½	Hyg. 3	½
Electives	4–8	Electives	4–7
Total	15–18	Total	15–18

[1]Semester hours. For definition, see page 71.

[2]Those students who offer one unit of bookkeeping for entrance credit should take Acc'y 1e instead of 1a.

FIRST SEMESTER

Suggested Electives

	Hours[1]
Foreign Language	4
Chem. 1 (no high-school chem.)	5
Chem. 2 (1 unit ent. credit in chem.)	3
Math. 3 (1 unit entrance algebra) (1 unit entrance geometry)	5
Math. 1a (1½ units entrance algebra) (1 unit entrance geometry)	5
Math. 2 (1½ units entrance algebra) (1 unit entrance geometry) *and*	3
Math. 4 (1 unit entrance algebra) (1 unit entrance geometry)	2

SECOND SEMESTER

Suggested Electives

	Hours[1]
Foreign Language (continued)	4
Chem. 6 (Chem. 1 or 2)	5
Math. 1b (Math. 1a)	5
Math. 6 (Math. 2 or 3, and 4)	5
Math. 4 (see first semester)	
Hist. 1b—European	4
Hist. 2b—English	3

SECOND YEAR

Required Subjects

Acc'y 2a (Acc'y 1b, Registration in Econ. 1)—Element. Cost Accounting	3
Econ. 1 (30 hours)—Principles of Economics	5
Military Drill and Theory	1
Phys. Ed.	½
Electives	5½–8½
Total	15–18

Required Subjects

Acc'y 2b (Acc'y 2a)—Intermediate Accounting	3
B. O. and O. 1 (Econ. 1, or 2; 45 credit hours)	3
Econ. 3 (Econ. 1 or 2)	3
Rhet. 10 (Rhet. 2)—Business Letters	2
Military Drill and Theory	1
Phys. Ed.	½
Electives	2½–5½
Total	15–18

Suggested Electives

Foreign Language	4
Phys. 7a and 8a (Math. 4)	5
Engl. 1 (30 hours)	3
Pol. Sci. 1 (30 hours)—Nat'l Gov't	3
Phil. 1 (30 hours)—Logic	3
Psych. 1 (30 hours)	4
Hist. 3a (30 hours)—U. S.	3

Suggested Electives

Foreign Language (continued)	4
Phys. 7b and 8b (Phys. 7a and 8a)	5
Engl. 2 (Engl. 1)	3
Pol. Sci. 3 (30 hours)—State Gov't	3
Phil. 2 (30 hours) Introd. to Phil.	3
Psych. 2 (Psych. 1)	4
Hist. 3b (30 hours)—U. S.	3

THIRD YEAR

Required Subjects

Bus. Law 1a (Acc'y 1b and Econ. 1 or 2; Junior)	3
B. O. and O. 2 (Econ. 1 or 2; Junior)	3
Trans. 1 (Econ. 1 or 2; Junior)	3
Electives	6–9
Total	15–18

Required Subjects

Bus. Law 1b (Bus. Law 1a)	3
Econ. 10 (Econ. 1 or 2, 3, and Acc'y 1b)	3
Electives	9–12
Total	15–18

Electives for the third and fourth years may be selected from the electives suggested for prior years, but not yet taken, or from other courses where the prerequisites permit, but preferably from those in Economics, Accounting, Business Organization and Operation, and Transportation. (See paragraph 6 of graduation requirements.)

FOURTH YEAR

FIRST SEMESTER

	Hours[1]
B. O. and O. 7 or 8 (B. O. and O. 2)	2–3
Economics (any advanced course open to advanced undergraduates and graduates)	3
Electives	9–13
Total	15–18

SECOND SEMESTER

	Hours[1]
B. O. and O. 7 or 8 (B. O. and O. 2)	2–3
Economics (any advanced course open to advanced undergraduates and graduates)	3
Electives	9–13
Total	15–18

Curriculum in Accountancy

FIRST YEAR

FIRST SEMESTER

	Hours[1]
Math 1a—Introd. to Coll. Math.	5
or	
Math. 2 or 3—Algebra	3 or 5

SECOND SEMESTER

Hours[1]

Otherwise same as General Business

[1]Semester hours. For definition, see page 71.

SECOND YEAR

Same as General Business

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Acc'y 3a (Acc'y 2b, Econ. 3, and average "C" in Acc'y)	3	Acc'y 3b (Acc'y 3a)	3
B. O. and O. 2 (Econ. 1 or 2, Junior)	3	Econ. 10 (Econ. 1 or 2, 3, and Acc'y 1b)	3
Electives	9–12	Math. 23 (Math. 2 or 3, or 1a, Junior)	3
		Electives	6–9
Total	15–18	Total	15–18

FOURTH YEAR

Acc'y 5a (Acc'y 3b)—Problems	3	Acc'y 5b (Acc'y 5a)—Problems	3
Acc'y 4a (Acc'y 2b)—Costs	2	Acc'y 4b (Acc'y 2b, Econ. 3)—Systems	2
Econ. 11 (Econ. 10)—Consolidations	3	Acc'y 20 (Acc'y 3b, Senior)—Tax	2
Bus. Law 1a (Econ. 1 or 2, Acc'y 1b, Junior)	3	Bus. Law 1b (Bus. Law 1a)	3
Electives	4–7	Electives	5–8
Total	15–18	Total	15–18

Curriculum in Banking and Finance

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Math 1a—Introd. to Coll. Math	5		
or			
Math. 2 or 3—Algebra	3 or 5		

Otherwise same as General Business

SECOND YEAR

Same as General Business

THIRD YEAR

B. O. and O. 2 (Econ. 1 or 2, Junior)	3	Bus. Law 1b (Bus. Law 1a)	3
Bus. Law 1a (Econ. 1 or 2, Acc'y 1b, Junior)	3	Econ. 10 (Econ. 1 or 2, 3, and Acc'y 1b)	3
Econ. 51 (Econ. 1 or 2, Junior)	3	Math. 23 (Math. 2 or 3, or 1a, Junior)	3
Electives	6–9	Electives	6–9
Total	15–18	Total	15–18

FOURTH YEAR

Econ. 9 (Econ. 1 or 2 and 3, Senior)	3	Econ. 8 (Econ. 1 or 2 and 3, Senior)	3
Bus. Law 10 (Registration or credit in Bus. Law 1b, Senior)	3	Econ. 36 (Econ. 10, Senior)	3
Electives	9–12	Electives	9–12
Total	15–18	Total	15–18

Curriculum for Trade and Civic Secretarial Service

FIRST YEAR

Same as General Business

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Pol. Sci. 1 (30 hours)—Nat'l Gov't	3	Rhet. 10 (Rhet. 2)—Business Letters	2
Psych. 1 (30 hours)—Principles	4	Psych. 2 (Psych. 1)	4

Otherwise same as General Business

THIRD YEAR

B. O. and O. 2 (Econ. 1 or 2, Junior)	3	Econ. 10 (Econ. 1 or 2, 3, and Acc'y 1b)	3
Pol. Sci. 4 (Junior)—Municipal	3	Electives	12–15
Sociol. 8 (Soc. 1 and 2 or 4 and Econ. 1 or 5 hours of Hist.)—Charities	3		
Trans. 1 (Econ. 1 or 2, Junior)	3		
Electives	3–6		
Total	15–18	Total	15–18

[1]Semester hours. For definition, see page 71.

FOURTH YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Bus. Law 1a (Econ. 1 or 2, Acc'y 1b, Junior)	3	Bus. Law 1b (Bus. Law 1a)	3
Econ. (Junior or Senior courses)	3	B. O. and O. 8 (B. O. and O. 2)	3
Hort. 37a (Senior)—City Planning	2	Hort. 37b (Hort. 37a)—City Planning	2
Electives	7–10	B. O. and O. 9 (B. O. and O. 2, Senior)	2
		Electives	5–8
Total	15–18	Total	15–18

Curriculum in Insurance

FIRST YEAR

FIRST SEMESTER *Required Subjects*	Hours[1]	SECOND SEMESTER *Required Subjects*	Hours[1]
Math. 1a—Introd. to Coll. Math.	5	Math. 1b—Introd. to Coll. Math.	5
or		*or*	
Math. 2 or 3—Algebra	3 or 5	Math. 6 (Math. 2 and 4)—Analytics	5
and			
Math. 4—Trigonometry	2		

Otherwise same as General Business

SECOND YEAR

Math. 8a (Math. 6 or 1b)—Calculus	3	Math. 8b (Math. 8a)—Calculus	3
		Rhet. 10 (Rhet. 2)—Business Letters	2

Otherwise same as General Business

THIRD YEAR

Bus. Law 1a (Econ. 1 or 2, Acc'y 1b, Junior)	3	Bus. Law 1b (Bus. Law 1a)	3
B. O. and O. 2 (Econ. 1 or 2, Junior)	3	Econ. 10 (Econ. 1 or 2, 3, and Acc'y 1b)	3
Econ. 51 (Econ. 1 or 2, Junior)	3	Math. 23 (Math. 2 or 3, or 1a, Junior)	3
Electives	6–9	Electives	6–9
Total	15–18	Total	15–18

FOURTH YEAR

B. O. and O. 7 or 8 (B. O. and O. 2)	2–3	B. O. and O. 7 or 8 (B. O. and O. 2)	2–3
Econ. 55 (Econ. 1 or 2)—Insurance	3	Econ. 56 (Econ. 1 or 2)—Property Insurance	3
Math. 30 (Math. 7 and 9 or 8a and 8b)	3	Math. 31 (Math. 30)	3
Electives	6–10	Electives	6–10
Total	15–18	Total	15–18

Curriculum in Foreign Commerce

FIRST YEAR

FIRST SEMESTER *Required Subjects*	Hours[1]	SECOND SEMESTER *Required Subjects*	Hours[1]
Foreign Language	4	Foreign Language	4

Otherwise same as General Business

SECOND YEAR

Foreign Language	3–4	Foreign Language	3–4

Otherwise same as General Business

THIRD YEAR

Bus. Law 1a (Econ. 1 or 2, Acc'y 1b, Junior)	3	Bus. Law 1b (Bus. Law 1a)	3
Econ. 31 (Econ. 1 or 2, Junior)—Foreign Commerce	3	Econ. 30 (Econ. 1 or 2, Junior)—World Markets	3
Foreign Language	2 or 3	Foreign Language	2 or 3
Trans. 1 (Econ. 1 or 2, Junior)	3	Electives	6–10
Electives	3–7		
Total	15–18	Total	15–18

[1]Semester hours. For definition, see page 71.

FOURTH YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Pol. Sci. 6a (Senior)—Internat'l Law	3	Econ. 8 (Econ. 1 or 2 and 3, Senior)	3
Trans. 22 (Trans. 1)—Ocean Shipping	3	Econ. 24 (Econ. 1 or 2, Junior)	3
Electives	9–12	Electives	9–12
Total	15–18	Total	15–18

Curriculum for Commercial Teaching

FIRST YEAR

FIRST SEMESTER *Required Subjects*	Hours[1]	SECOND SEMESTER *Required Subjects*	Hours[1]
Foreign Language	4	Foreign Language	4

Otherwise same as General Business

SECOND YEAR

Psych. 1 (30 hours)	4	Psych. 2 (Psych. 1)	4

Otherwise same as General Business

THIRD YEAR

Bus. Law 1a (Econ. 1 or 2, Acc'y 1b, Junior)	3	Bus. Law 1b (Bus. Law 1a)	3
B. O. and O. 2 (Econ. 1 or 2, Junior)	3	Econ. 10 (Econ. 1 or 2, 3, and Acc'y 1b	3
Educ. 25 (Psych. 1)—Educ. Psych.	3	Pol. Sci. 3 (30 hours)—State	3
Pol. Sci. 1 (30 hours)—National	3	Educ. 10 (Educ. 25)—Technic	3
Trans. 1 (Econ. 1 or 2, Junior)	3	Electives	3–6
Electives	0–3		
Total	15–18	Total	15–18

FOURTH YEAR

B. O. and O. 7 or 8 (B. O. and O. 2)	2–3	B. O. and O. 7 or 8 (B. O. and O. 2)	2–3
Educ. 6 (Educ. 10 and 25)—Principles	3	Econ. 29 or 31 (Econ. 1 or 2, Junior)	3
Electives	9–13	Educ. (Electives)	6
		Electives	3–7
Total	15–18	Total	15–18

Curriculum in General Railway Administration

FIRST YEAR

FIRST SEMESTER *Required Subjects*	Hours[1]	SECOND SEMESTER *Required Subjects*	Hours[1]
Math. 1a—Introd. to Coll. Math.	5	Math. 1b—Introd. to Coll. Math.	5
or		*or*	
Math. 2 or 3—Algebra	3 or 5	Math. 6 (Math. 2 and 4)—Analytics	5
and			
Math. 4—Trigonometry	2		

Otherwise same as General Business

SECOND YEAR

Same as General Business

THIRD YEAR

Bus. Law 1a (Acc'y 1b, Econ. 1 or 2, Junior)	3	Bus. Law 1b (Bus. Law 1a)	3
Trans. 1 (Econ. 1 or 2, Junior)	3	Econ. 10 (Econ. 1 or 2, 3, and Acc'y 1b)	3
Electives	9–12	Trans. 2 (Trans. 1)	3
		Electives	6–9
Total	15–18	Total	15–18

FOURTH YEAR

Trans. 22 (Trans. 1)	3	Trans. 16 (Trans. 1; Senior)	3
Trans. 7 (Trans. 1)	3	Econ. 42 (Econ. 1 or 2, Junior)	3
Econ. 41 (Econ. 1 or 2, Junior)	3	Trans. 26 (Trans. 1)	3
Trans. 8 (Trans. 1, Junior)	2	Electives	6–9
Electives	4–7		
Total	15–18	Total	15–18

[1]Semester hours. For definition, see page 71.

Curriculum in Railway Transportation

FIRST YEAR

FIRST SEMESTER	Hours[1]
Acc'y 1a or 1e—Principles of Accounting[2]	3–2
G. E. D. 1—Drawing	4
Math. 1a—Introd. to Coll. Math.	5
or	
Math. 2 (1½ units entrance, etc.)	3
and	
Math. 4 (1½ units entrance, etc.)	2
Rhet. 1—Rhetoric and Themes	3
Military Drill and Theory	1
Phys. Ed.—Gymnasium	½
Hyg. 1—Hygiene (men)	½
Electives	0–2
Total	16–18

SECOND SEMESTER	Hours[1]
Acc'y 1b (Acc'y 1a or 1e)—Accounting Procedure	3
G. E. D. 2 (G. E. D. 1)	4
Rhet. 2 (Rhet. 1)	3
Math. 1b—Introd. to Coll. Math.	5
or	
Math. 6 (Math. 2 and 4)	5
Military Drill and Theory	1
Phys. Ed.—Gymnasium	½
Hyg. 3	½
Electives	0–1
Total	17–18

SECOND YEAR

Econ. 1 (30 hours)—Principles	5
Math. 8a (Math. 6 or 1b)	3
Rhet. 10 (Rhet. 2)—Business Letters	2
Phys. 1a (Freshman math.)	3
Phys. 3a (Freshman math.)	2
Military Drill and Theory	1
Phys. Ed.	½
Electives	0–1½
Total	16½–18

Econ. 3 (Econ. 1 or 2; 45 credit hours)	3
Phys. 1b (Phys. 1a)	3
Phys. 3b (Phys. 3a; 45 credit hours)	2
Math. 8b (Math. 8a)	3
B. O. and O. 1 (Econ. 1 or 2; 45 credit hours)	3
T. A. M. 1 (Math. 8a and reg. in 8b)	3
Military Drill and Theory	1
Phys. Ed.	½
Total	18½

THIRD YEAR

Bus. Law 1a (Econ. 1 or 2, Acc'y 1b, Junior)	3
Trans. 1 (Econ. 1 or 2, Junior)	3
Econ. 41 (Econ. 1 or 2, Junior)	3
Electives	6–9
Total	15–18

Bus. Law 1b (Bus. Law 1a)	3
C. E. 36 (Math. 4, G. E. D. 1 or 4)	2
Econ. 10 (Econ. 1 or 2, 3, and Acc'y 1b)	3
or	
Econ. 42 (Econ. 1 or 2, Junior)	3
M. E. 2 (Physics 1 and 3, Math. 9 or 8b)	3
Trans. 2 (Trans. 1)	3
Electives	1–4
Total	15–18

FOURTH YEAR

Trans. 7 (Trans. 1)	3
Trans. 22 (Trans. 1)	3
E. E. 11 (Physics 1 and 3, Math. 8b or 9)	3
E. E. 61 (Reg. in E. E. 11)	1
M. E. 61 (M. E. 1, 2, or 3)	2
Trans. 8 (Trans. 1, Junior)	2
Electives	1–4
Total	15–18

Trans. 16 (Trans. 1, Senior)	3
E. E. 12 (E. E. 11 and 61, reg. in 62)	3
E. E. 62 (E. E. 11 and 61, reg. in 12)	1
Trans. 26 (Trans. 1)	3
Electives	5–8
Total	15–18

Curriculum in Public Utilities

FIRST YEAR

FIRST SEMESTER	Hours[1]
Acc'y 1a or 1e—Principles of Accounting[2]	3–2
Math. 2—Advanced Algebra	3
Econ. 22—Economic History of the United States	3
Rhet. 1—Rhetoric and Themes	3
Military Drill and Theory	1
Phys. Ed.—Gymnasium	½
Hyg. 1	½
Electives	1–5
Total	15–18

SECOND SEMESTER	Hours[1]
Acc'y 1b (Acc'y 1a or 1e)—Accounting Procedure	3
Econ. 27—Modern Industry	3
Math. 4—Trigonometry	2
Rhet. 2 (Rhet 1)—Rhetoric and Themes	3
Military Drill and Theory	1
Phys. Ed.—Gymnasium	½
Hyg. 3	½
Electives	2–5
Total	15–18

[1]Semester hours. For definition, see page 71.

[2]Those students who offer one unit of bookkeeping for entrance credit should take Acc'y 1e instead of 1a.

SECOND YEAR

FIRST SEMESTER	Hours[1]
Acc'y 2a (Acc'y 1b, registration in Econ. 1)—Elem. Cost Accounting	3
Econ. 1 (30 hours)—Principles of Economics	5
Phys. 7a (Math. 4 or registration therein; reg. in Phys. 8a)—General Phys.	2½
Phys. 8a (registration in Phys. 7a)—Laboratory	2½
Military Drill and Theory	1
Phys. Ed.	½
Electives	½–3½
Total	15–18

SECOND SEMESTER	Hours[1]
Acc'y 2b (Acc'y 2a)—Intermediate Accounting	3
Econ. 3 (Econ. 1 or 2)—Money and Banking	3
B. O. and O. 1 (Econ. 1 or 2; 45 credit hours)—Industrial Organization and Management	3
Phys. 7b (Phys. 7a)—General Physics	2½
Phys. 8b (Phys. 8a)—Laboratory	2½
Military Drill and Theory	1
Phys. Ed.	½
Electives	0–2½
Total	15½–18

THIRD YEAR

B. O. and O. 2 (Econ. 1 or 2; Junior)—Marketing Org. and Operation	3
Bus. Law 1a (Acc'y 1b, Econ. 1 or 2; Junior)—Gen'l Principles of Bus. Law	3
Trans. 1 (Econ. 1 or 2; Junior)—Principles of Railroad Transportation	3
Pol. Sci. 1 (30 hours)—American National Government	3
Econ. 81 (Econ. 1 and 3)—Principles of Public Utilities	3
Electives	0–3
Total	15–18

Bus. Law 1b (Bus. Law 1a)—General Principles of Business Law	3
Econ. 10 (Econ. 1 or 2, 3, and Acc'y 1b)—Corporation Manag'm't and Finance	3
Rhet. 10 (Rhet. 2)—Business Letters	2
Pol. Sci. 3 (30 hours)—State and Local Government	3
B. O. and O. 70 (Econ. 81)—Operation of Public Utilities	3
Electives	1–4
Total	15–18

FOURTH YEAR

Pol. Sci. 4 (Junior)—Municipal Gov't	3
Econ. 51 (Econ. 1 or 2, Junior)—Public Finance	3
Econ. 41 (Econ. 1 or 2, Junior)—Labor Problems	3
B. O. and O. 75 (B. O. and O. 70, Acc'y 2a)—Public Utilities Management	3
Electives	3–6
Total	15–18

Pol. Sci. 11 (6 hrs. Pol. Sci. or Econ., Junior)—Constitutional Aspects of Social and Industrial Problems	3
Pol. Sci. 34 (Econ. 1 or Pol. Sci. 4)—Municipal Problems	3
Econ. 43 (Econ. 1 or 2, Junior)—Personnel Administration	3
Econ. 82 (Econ. 1 or 2, 3, 81)—Regulation of Public Utilities Service	3
Econ. 83 (Econ. 81)—Theory and Practice of Rate Making	3
Electives	0–3
Total	15–18

Curriculum in Industrial Administration

The following curriculum is intended to meet the needs of commerce students planning to enter the administrative or selling departments of industrial plants. To the usual courses in economics, accounting, etc., are added certain groups of technical courses offered by other colleges of the University. Four such groups have been arranged, as follows: Group A, for those interested in the machine industries; Group B, the electrical industries; Group C, the building trades; Group D, the chemical industries. The student who elects one of these groups must take all the courses listed in the chosen group. The student electing the chemical industries group is required to take *Economics 27* and *Economics 22* instead of *General Engineering Drawing 1* and *2* in the first year; and *Chemistry 1* or *2* instead of *Theoretical and Applied Mechanics 1* and *Rhetoric 10* in the second year; *Rhetoric 10* is deferred until the third year; he should see the assistant dean of the college to plan his program for each of the eight semesters.

One year of foreign language or English literature must be included among the electives.

[1]Semester hours. For definition, see page 71.

FIRST YEAR

FIRST SEMESTER	Hours[1]
Acc'y 1a or 1e—Principles of Accounting[2]	3–2
G. E. D. 1 or 4—Drawing	4
Math. 1a—Introd. to Coll. Math.	5
or	
Math. 2—Algebra	3
and	
Math. 4—Trigonometry	2
Rhet. 1—Rhetoric and Themes	3
Military Drill and Theory	1
Phys. Ed.—Gymnasium	½
Hyg. 1—Hygiene (men)	½
Electives	0–2
Total	16–18

SECOND SEMESTER	Hours[1]
Acc'y 1b (Acc'y 1a or 1e)—Accounting Procedure	3
G. E. D. 2 (Solid)—Descriptive Geom.	4
Math. 1b—Introd. to Coll. Math.	5
or	
Math. 6 (Math. 2 and 4)—Analytics	5
Rhet. 2 (Rhet. 1)—Rhetoric and Themes	3
Military Drill and Theory	1
Phys. Ed.—Gymnasium	½
Hyg. 3	½
Elective	0–1
Total	17–18

SECOND YEAR

Econ. 1 (30 hours)—Principles	5
Math. 8a (Math. 6 or 1b)	3
Phys. 1a (Math. 2 and 4, registration in Math. 6 and Physics 3a)	3
Phys. 3a (Reg. in Phys. 1a)	2
Acc'y 2a (Acc'y 1b, reg. in Econ. 1)	3
Military Drill and Theory	1
Phys. Ed.	½
Elective	0–½
Total	17½–18

Econ. 3 (Econ. 1 or 2)	3
Math. 8b (Math. 8a)	3
Phys. 1b (Phys. 1a)	3
Phys. 3b (Phys. 3a)	2
T. A. M. 1 (Math. 8a, reg. in 8b)	3
B. O. and O. 1 (Econ. 1 or 2, 45 credit hours)	3
Military Drill and Theory	1
Phys. Ed.	½
Total	18½

THIRD YEAR

B. O. and O. 2 (Econ. 1 or 2; Junior)	3
Bus. Law 1a (Acc'y 1b, Econ. 1 or 2; Junior	3
Trans. 1 (Econ. 1 or 2, Junior)	3
Prescribed Technical Courses, Group A, B, C, or D	6–2
Electives	0–7
Total	15–18

Bus. Law 1b (Bus. Law 1a)	3
Rhet. 10 (Rhet. 2)	2
Prescribed Technical Courses, Group A, B, C, or D	6–2
Electives	4–11
Total	15–18

FOURTH YEAR

B. O. and O. 7 or 8 (B. O. and O. 2)	2–3
B. O. and O. 4[3] (B. O. and O. 1)	3
Prescribed Technical Courses, Group A, B, C, or D	7–3
Electives	2–10
Total	15–18

B. O. and O. 7 or 8 (B. O. and O. 2)	2–3
Econ. 43 (Econ. 1 or 2, Junior)	3
Econ. 10 (Econ. 1 or 2, 3, and Acc'y 1b)	3
Prescribed Technical Courses, Group A, B, C, or D	9–2
Electives	0–8
Total	15–18

Optional Groups of Technical Courses

Group A—Machine Industries:

THIRD YEAR

FIRST SEMESTER	Hours[1]
M. E. 85 (Soph.)—Pattern and Foundry Laboratory	3
T. A. M. 2 (T. A. M. 1)	2

SECOND SEMESTER	Hours[1]
M. E. 88 (M. E. 85)—Machine and Forge Work	3
M. E. 2 (Phys. 1 and 3, Math. 8b)—Steam Engineering	3

FOURTH YEAR

M. E. 61 (M. E. 1 or 2 or 3)	2
E. E. 11 (Phys. 1 and 3, Math. 8b or 9)	3
E. E. 61 (Reg. in E. E. 11)	1

E. E. 12 (E. E. 11 and 61 and reg. in 62)	3
E. E. 62 (E. E. 11 and 61 and reg. in E. E. 12)	1

[1]Semester hours. For definition, see page 71.

[2]Those students who offer one unit of bookkeeping for entrance credit should take Acc'y 1e instead of 1a.

[3]B. O. and O. 4—Management in Manufacturing—is not required for students pursuing Group C of the Curriculum (Building Trades).

Group B—Electrical Industries:

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
T. A. M. 2 (T. A. M. 1)	2	M. E. 2 (Phys. 1 and 3, Math 8b)	3

FOURTH YEAR

M. E. 61 (M. E. 1 or 2 or 3)	2	E. E. 12 (E. E. 11 and 61, and reg. in 62)	3
E. E. 11 (Phys. 1 and 3, Math. 8b or 9)	3	E. E. 62 (E. E. 11 and 61 and reg. in E. E. 12)	1
E. E. 61 (Reg. in E. E. 11)	1		
E. E. 90 (Phys. 1 and 3; Junior)—Lighting	1		

Group C—Building Trades:

THIRD YEAR

A. E. 43 (G. E. D. 1, 2)	2	T. A. M. 2 (T. A. M. 1)	4
T. A. M. 3 (T. A. M. 1)	3	A. E. 44 (A. E. 43)	2
T. A. M. 63 (reg. in T. A. M. 3)	1		

FOURTH YEAR

A. E. 45 (T. A. M. 1, reg. or credit in T. A. M. 3 and 63)	3	C. E. 36 (Math. 4, G. E. D. 1 or 4)	2

Group D—Chemical Industries:

THIRD YEAR

Chem. 6 (Chem. 1, 2, or 3)	5	Chem. 24 (Chem. 5 or 10 or 4)	5

FOURTH YEAR

Chem. 34a (Chem. 6, 10, and 24)	5	Chem. 40 (Chem. 24, Phys. 1b or 7b, Math. 7 or 8)	3
Chem. 92a—Chem. Literature	1	Chem. 41	1
Chem. 60a—Chem. Technology	4	Chem. 92b—Chem. Literature	1
		Chem. 60b—Chem. Technology	4

Curriculum in Commerce and Law

(A six-year combined curriculum)

The following curriculum is provided for students who wish to combine commercial and legal studies and secure both the degree of Bachelor of Science and the degree of Bachelor of Laws or Doctor of Law in six years. Students who elect this curriculum must meet all the requirements for graduation from the College of Commerce and Business Administration, but in exercising their privileges of election are urged to select as many hours as possible from the following subjects: *Hist. 2a-2b,* English History (6); *Econ. 25,* Economic History of England (3); *Hist. 3a-3b,* United States History (6); *Hist. 44a-44b,* English Constitutional History (6); *Pol. Sci. 1,* American Government (3); and *Pol. Sci. 3,* State and Local Government (3). Students expecting to study law should devote at least 12 hours to work in history and political science. A course in English history is regarded as one of the most essential pre-legal subjects. The law courses in the curriculum may be taken only in the fourth year, and are counted for 30 hours' credit towards the degree, instead of hour for hour, provided the full year's work is completed. In their fourth year students will be regularly registered in the College of Law, and *must file copies of their study-lists in the office of the Dean of the College of Commerce and Business Administration at the beginning of each semester.*

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Acc'y 1a or 1e—Principles of Accounting[2]	3–2	Acc'y 1b (Acc'y 1a or 1e)—Accounting Procedure	3
Rhet. 1—Rhetoric and Themes	3	Econ. 27—Economic Resources	3
Econ. 22—Economic Hist. of the U. S.	3	Rhet. 2 (Rhet. 1)—Rhetoric and Themes	3
Military Drill and Theory	1	Military Drill and Theory	1
Phys. Ed.—Gymnasium	½	Phys. Ed.—Gymnasium	½
Hyg. 1—Hygiene (men)	½	Hyg. 3	½
Electives	4–8	Electives	4–7
Total	15–18	Total	15–18

[1]Semester hours. For definition, see page 71.

[2]Those students who offer one unit of bookkeeping for entrance credit should take Acc'y 1e instead of 1a.

SECOND YEAR

FIRST SEMESTER	Hours[1]
Acc'y 2a (Acc'y 1b, registration in Econ. 1)—Elementary Cost Accounting	3
Econ. 1 (30 hours)—Principles of Economics	5
Rhet. 10 (Rhet. 2)—Business Letters	2
Military Drill and Theory	1
Phys. Ed.	½
Electives	3½–6½
Total	15–18

SECOND SEMESTER	Hours[1]
Acc'y 2b (Acc'y 2a)—Intermediate Accounting	3
Econ. 3 (Econ. 1 or 2)—Money and Banking	3
Phil. 1 (30 hours)—Logic	3
B. O. and O. 1 (Econ. 1 or 2; 45 credit hours)	3
Military Drill and Theory	1
Phys. Ed.	½
Electives	1½–4½
Total	15–18

THIRD YEAR

B. O. and O. 2 (Econ. 1 or 2; Junior)	3
Econ. 51 (Econ. 1 or 2; Junior)—Public Finance	3
Electives	9–12
Total	15–18

Econ. 10 (Econ. 1 or 2, 3, and Acc'y 1b)—Corporation Finance	3
Electives	12–15
Total	15–18

FOURTH YEAR

(Prescribed)

Law 1a—Contracts	3
Law 2a—Torts	3
Law 4a—Procedure I	2
Law 5—Criminal Law	4
Law 3—Personal Property	3
Total	15

Law 1b—Contracts	4
Law 2b—Torts	3
Law 4b—Procedure I	2
Law 11—Agency	3
Law 29—Real Property I	3
Total	15

[1]Semester hours. For definition, see page 71.

THE COLLEGE OF ENGINEERING

Engineering students should read the General Directions for Registration given in paragraphs 1-22 on pages 6-10. They should report for registration to Engineering Hall, where further special directions will be furnished them.

GENERAL ENGINEERING LECTURES FOR FRESHMEN

A general lecture sufficiently popular in character to interest and inspire young students will be given at 10 a. m. on Wednesday of each week in the Auditorium. All freshman students in engineering are required to attend this lecture.

TRIPS OF INSPECTION

An inspection trip is one of the regular requirements in the senior year of the curricula leading to the degree of Bachelor of Science in architecture, architectural engineering, ceramics and ceramic engineering, civil engineering, electrical engineering, gas engineering, general engineering, mechanical engineering, mining engineering, and railway engineering.

The time required is three or four days, and the plants visited are usually in Chicago or Milwaukee. The trips are taken during term time under the supervision of the University authorities. The expense to each student varies from $25 to $35.

ELECTIVES AND OPTIONS

Non-technical electives.—The non-technical electives for students in the College of Engineering are subject to the following restrictions:

1. They are restricted to courses offered in the College of Liberal Arts and Sciences, the College of Commerce, courses 1 to 16 in the School of Music, Horticulture 37a and 37b, Architecture 11 and 12, and courses in Education, Group A, in the College of Education.
2. Such courses must not be open to freshman students except in the cases of Library Science 12, Mathematics 5, History 1a and 1b, 2a and 2b, Geography 1, Geology 1, Botany 1, and Zoology 1.
3. The courses must be approved by the head of the department in which the student making the election is registered.
4. Students in the College of Engineering electing the third and fourth years' work in the Reserve Officers' Training Corps may substitute the credit thus received for the required non-technical electives.

Technical electives.—Any course in the College of Engineering not prescribed in the curriculum in which the student is registered, excepting only Architecture 11 and 12, and G. E. D. 1 and 2, and including such courses in other colleges as may from time to time be designated as "technical" for certain departments of the College of Engineering.

Approved electives.—Any non-technical or technical electives.

Technical Options.—Courses of a technical character designated by a department as "technical options" in its curricula.

REQUIREMENTS IN RHETORIC

Rhetoric 1 and 2 are prerequisites for junior standing in the College of Engineering, and no student in this College shall be permitted to register in more than eight hours of prescribed junior work without having passed or being registered in Rhetoric 1 or 2.

Any student whose written work shows that he is unable to use good English shall be reported by his instructor to a standing committee which has authority to direct the student to take as a prerequisite for graduation such additional instruction in rhetoric as it may prescribe.

REQUIREMENTS IN FOREIGN LANGUAGE

In curricula where the language requirement is specifically designated, as French or German, any student who has completed in high school one or more years of French or German and has had the same accredited to him as entrance credits by the Registrar, may be excused from language requirements specified in his curriculum to the extent that one year's high-school work shall be considered the equivalent of a semester's work in college, and he may select in lieu thereof any course falling under the designation of non-technical electives in the College of Engineering or technical electives and options outside the required courses in his curriculum. No fractional unit of high-school work may be considered in the application of this regulation. The full equivalent of the eight-hour (twelve in General Engineering) requirement in a single language must be obtained by each student in the fulfillment of graduation requirements in any curriculum where language is specified or in any curriculum in which the student elects to take foreign language.

CURRICULA IN ENGINEERING

Since the curricula in Ceramic, Civil, Electrical, General, Mechanical, Mining, and Railway Engineering are identical during the first year, the schedule of courses is printed but once, under Civil Engineering.

CURRICULA IN ARCHITECTURE AND ARCHITECTURAL ENGINEERING

Students who entered the curriculum in Architecture or Architectural Engineering prior to June 1, 1930, or who may enter with sophomore standing or above in 1930-31, will finish the curricula as printed below. Freshman students will enroll in the new curricula with Optional arrangements.

Curriculum in Architecture
(Classes 1931-1933)

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Arch. 13—History of Architecture	2	Arch. 14—History of Arch.	2
Arch. 23—Freehand Drawing	2	Arch. 24—Freehand Drawing	2
Arch. 33—Design	3	Arch. 34—Design	3
Arch. 43—Technology of Materials	3	Arch. 44—Technology of Materials	3
Phys. 7a—Physics Lectures	2	Phys. 7b—Physics Lectures	3
Phys. 8a—Physics Laboratory	2	Phys. 8b—Physics Laboratory	2
T. A. M. 15—Strength of Materials	3	T. A. M. 16—Strength of Materials	3
Phys. Ed.	½	Phys. Ed.	½
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 53a and 53b—Military Drill and Theory	1	Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 54a and 54b—Military Drill and Theory	1
Total	18½	Total	19½

THIRD YEAR

Arch. 15—History of Architecture	2	Arch. 16—History of Architecture	2
Arch. 25—Freehand Drawing	2	Arch. 26—Freehand Drawing	2
Arch. 35—Design	5	Arch. 36—Design	5
Arch. 45—Graphic Statics	3	Arch. 46—Roofs	3
Arch. 65—Theory of Architecture	1	Arch. 55—Building Sanitation	1
E. E. 90—Building Illumination	1	Arch. 66—Theory of Architecture	1
French or German	4	French or German	4
Total	18	Total	18

[1]Semester hours. For definition, see page 71.

FOURTH YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Arch. 27—Freehand Drawing	2	Arch. 18—History of Architecture	2
Arch. 37—Design	7	Arch. 28—Freehand Drawing	2
Arch. 68—Specifications	3	Arch. 38—Advanced Design or Thesis	7
Arch. 99—Inspection Trip	0	Arch. 60A—Special Lectures	2
M. E. 25—Heating and Ventilation	2	Arch. 67—Theory of Form and Color	2
Non-technical Elective[3]	3	Non-technical Elective[3]	2
Total	17	Total	17

Curriculum in Architectural Engineering
(Classes 1931-1933)

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Arch. 13—History of Architecture	2	Arch. 14—History of Architecture	2
A. E. 33—Arch. and Freehand Drawing	3	A. E. 34—Design	3
A. E. 43—Technology of Materials	2	A. E. 44—Technology of Materials	2
Math. 7—Differential Calculus	5	Math. 9—Integral Calculus	3
Phys. 1a—Physics Lectures	3	Phys. 1b—Physics Lectures	3
Phys. 3a—Physics Laboratory	2	Phys. 3b—Physics Laboratory	2
Phys. Ed.	½	T. A. M. 1—Analytical Mechanics	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 53a and 53b—Military Drill and Theory	1	Phys. Ed.	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 54a and 54b—Military Drill and Theory	1
Total	18½	Total	18½

THIRD YEAR

Arch. 15—History of Architecture	2	Arch. 16—History of Architecture	2
A. E. 35—Design	3	A. E. 36—Design	3
A. E. 45—Graphic Statics	3	A. E. 46—Graphic Statics	3
Language or Approved Elective	4	Language[3] or Approved Elective	4
T. A. M. 3—Resistance of Materials	3	T. A. M. 2—Analytical Mechanics	3
T. A. M. 63—Resistance of Materials Lab.	1	Approved Elective	2
Non-technical Elective[2]	2		
Total	18	Total	16

FOURTH YEAR

A. E. 47—Architectural Engineering	5	A. E. 48—Architectural Engineering	5
A. E. 57—Fireproof Construction	2	A. E. 58—Fireproof Construction	2
A. E. 99—Inspection Trip	0	A. E. 67—Building Sanitation	2
E. E. 92—Lighting and Wiring	2	A. E. 68—Estimates and Specifications	4
M. E. 23—Mechanical Equipment of Buildings	5	Technical Elective	4
Non-technical Elective[2]	3		
Total	17	Total	17

Curriculum in Architecture
(For the Class of 1934)

FIRST YEAR
All Options

First Semester	Hours[1]	Second Semester	Hours[1]
Arch. 31a—Arch. Design	3	Arch. 32a—Arch. Design	3
Arch. 21—Freehand Drawing	2	Arch. 22—Freehand Drawing	2
G. E. D. 7—Architectural Projections	2	G. E. D. 8—Architectural Projections	2
Math. 2—Advanced Algebra	3	Math. 6a.—Analytics	4
Math. 4—Trigonometry	2	Rhet. 2—Rhetoric and Themes	3
Rhet. 1—Rhetoric and Themes	3	Phys. Ed.	½
Phys. Ed.	½	Hyg. 3—Hygiene (men)	½
Hyg. 1—Hygiene (men)	½	Mil. 2a and 2b, 12a and 12b, 22a and 22b, 32a and 32b, or 52a and 52b—Military Drill and Theory	1
Mil. 1a and 1b, 11a and 11b, 21a and 21b, 31a and 31b, or 51a and 51b—Military Drill and Theory	1	Eng. Lecture	0
Eng. Lecture	0		
Total	17	Total	16

[1]Semester hours. For definition, see page 71.
[2]Any approved non-technical elective. See page 32.
[3]French, German, Spanish, or English.

SECOND YEAR

General and Design Options

First Semester	Hours[1]	Second Semester	Hours[1]
Arch. 13—History of Architecture	2	Arch. 14—History of Arch.	2
Arch. 23—Freehand Drawing	2	Arch. 24—Freehand Drawing	2
Arch. 33—Architectural Design	3	Arch. 34—Design	3
Arch. 43—Technology of Materials	3	Arch. 44—Technology of Materials	3
Phys. 7a—Physics Lectures	2	Phys. 7b—Physics Lectures	3
Phys. 8a—Physics Laboratory	2	Phys. 8b—Physics Laboratory	2
T. A. M. 17—Elements of Mechanics	3	T. A. M. 18—Strength of Materials	3
Phys. Ed.	½	Phys. Ed.	½
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 53a and 53b—Military Drill and Theory	1	Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 54a and 54b—Military Drill and Theory	1
Total	18½	Total	19½

Construction Option
(Architectural Engineering)

Arch. 13—History of Architecture	2	Arch. 14—History of Architecture	2
Arch. 23—Freehand Drawing	2	Arch. 24—Freehand Drawing	2
Arch. 33—Arch. Design	3	Arch. 34—Arch. Design	3
Math. 7—Differential Calculus	5	Math. 9—Integral Calculus	3
Phys. 1a—Physics Lectures	3	Phys. 1b—Physics Lectures	2
Phys. 3a—Physics Laboratory	2	Phys. 3b—Physics Laboratory	2
Phys. Ed.	½	T. A. M. 1—Analytical Mechanics (statics)	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 53a and 53b—Military Drill and Theory	1	Phys. Ed.	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 54a and 54b—Military Drill and Theory	1
Total	18½	Total	18½

THIRD YEAR

General and Design Options

Arch. 15—History of Architecture	2	Arch. 16—History of Architecture	2
Arch. 25—Freehand Drawing	2	Arch. 26—Freehand Drawing	2
Arch. 35—Design	5	Arch. 36—Architectural Design	5
Arch. 45—Graphic Statics	3	Arch. 46—Graphic Statics	3
Arch. 65—Theory of Architecture	1	Arch. 55—Building Sanitation	1
E. E. 90—Theory of Illumination	1	Arch. 66—Theory of Architecture	1
French	4	French	4
Total	18	Total	18

Construction Option
(Architectural Engineering)

Arch. 15—Hist of Arch.	2	Arch. 16—Hist. of Arch.	2
Arch. 43—Tech. of Mat'ls	3	Arch. 44—Tech. of Mat'ls	3
Arch. 45—Graphic Statics	3	Arch. 46—Graphic Statics	3
T. A. M. 3—Resistance of Materials	3	T. A. M. 2—Analytical Mechanics	3
T. A. M. 63—Resistance of Materials Lab.	1	Language or Approved Elective	4
Language or Approved Elective	4	N. T. E.	3
N. T. E.	3		
Total	19	Total	18

FOURTH YEAR

General Option

Arch. 17—Hist. of Arch.	2	Arch. 18—Hist. of Arch.	2
Arch. 27—Freehand Drawing	2	Arch. 28—Freehand Drawing	2
Arch. 41—Bldg. Design & Theory	6	Arch. 42—Bldg. Design & Theory	6
Arch. 68—Specifications	3	Arch. 60—Concrete	2
Arch. 99—Inspection Trip	0	Arch. 83—Office Practice	2
M. E. 25—Heating and Ventilating	2	N. T. E.	3
N. T. E.	2		
Total	17	Total	17

Design Option

Arch. 17—Hist. of Arch.	2	Arch. 18—Hist. of Arch.	2
Arch. 27—Freehand Drawing	2	Arch. 28—Freehand Drawing	2
Arch. 29—Modeling	2	Arch. 30—Modeling	2
Arch. 37a—Arch. Design & Theory	9	Arch. 38a—Arch. Des. & Theory	9
Arch 69—Specifications	2	Arch. 60—Concrete	2
Arch. 99—Inspection Trip	0		
Total	17	Total	17

Construction Option
(Architectural Engineering)

Arch. 47—Steel Construction	5	Arch. 48—Steel Construction	5
Arch. 57—Concrete	3	Arch. 56—Building Sanitation	2
Arch. 83—Office Practice	2	Arch. 58—Concrete	3
Arch. 99—Inspection Trip	0	Arch. 68—Specifications	3
E. E. 92—Lighting & Wiring	2	Tech. Elective	5
M. E. 23—Mech. Equip. of Bldgs.	5		
Total	17	Total	18

[1]Semester hours. For definition, see page 71.

Curriculum in Ceramics

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 2 or 3—Inorganic Chemistry	3 or 4	Chem. 4—Qualitative Analysis	4
Math. 2—College Algebra	3	Math. 6a—Analytical Geometry	4
Math. 4 or 5—Trigonometry	2	French or German	4
French or German	4	Rhet. 2—Rhetoric and Themes	3
Rhet. 1—Rhetoric and Themes	3	Phys. Ed.	½
Phys. Ed.	½	Hyg. 3—Hygiene (men)	½
Hyg. 1—Hygiene (men)	½	Mil. 2a and 2b, 12a and 12b, 22a and 22b, 32a and 32b, or 52a and 52b—Military Drill and Theory	1
Mil. 1a and 1b, 11a and 11b, 21a and 21b, 31a and 31b, or 51a and 51b—Military Drill and Theory	1	Eng. Lecture	0
Eng. Lecture	0		
Total	17 or 18	Total	17

SECOND YEAR

Cer. 1—Ceramic Materials	3	Cer. 4—Cer. Materials Lab.	3
Chem. 24—Elementary Quantitative Analysis	5	Chem. 28b—Advanced Quantitative Analysis	5
Math. 8a—Differential Calculus	3	Math. 8b—Integral Calculus	3
Physics 1a—Physics Lecture	3	Physics 1b—Physics Lecture	3
Physics 3a—Physics Laboratory	2	Physics 3b—Physics Lab.	2
Physical Education	½	Physical Education	½
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 53a and 53b—Military Drill and Theory	1	Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 54a and 54b—Military Drill and Theory	1
Total	17½	Total	17½

THIRD YEAR

Cer. 5—Ceramic Bodies	5	Cer. 11—Drying Clay Products	3
Cer. 7—Heavy Clay Products	3	Cer. 14—Glasses and Glazes	3
Cer. 21—Ceramic Pyrometry	1	Cer. 20—Refractories	2
Chem. 73a—Metallurgy	3	Chem. 40—Elementary Physical Chem.	3
Geol. 47—Systematic Mineralogy	3	Chem. 41—Elementary Physical Chem. Lab.	1
Physics 17a—Light	3	Geol. 49—Optical Mineralogy	5
Total	18	Total	17

FOURTH YEAR

Cer. 22—Kilns and Burning	3	Cer. 28—Pyrochemical Problems	2
Cer. 97—Thesis	3	Cer. 98—Thesis	3
Cer. 99—Inspection Trip	0	Chem. 33—Elementary Organic Chem.	5
Physics 44a—Electrical Measurements	3	Physics 44b—Electrical Measurements	3
Non-technical Elective[2]	3	Non-technical Elective[2]	2
Technical Option[3]	7	Technical Option[3]	3
Total	19	Total	18

Curriculum in Ceramic Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Cer. 1—Ceramic Materials	3	Cer. 4—Cer. Materials Lab.	3
Chem. 24—Elementary Quantitative Analysis	5	Geol. 43—Engr. Geology	3
Math. 8a—Differential Calculus	3	Math. 8b—Integral Calculus	3
Physics 1a—Physics Lect.	3	Physics 1b—Physics Lect.	3
Physics 3a—Physics Lab.	2	Physics 3b—Physics Lab.	2
Physical Education	½	T. A. M. 1—Analytical Mechanics	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 53a and 53b—Military Drill and Theory	1	Physical Education	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 54a and 54b—Military Drill and Theory	1
Total	17½	Total	17½

[1]Semester hours. For definition, see page 71.
[2]Any approved non-technical elective. See page 32.
[3]Technical Options: Ceramics 8, 10, 16, 18; Chemistry 42b, 43b, 49a, 60a, 60b, 74b; C. E. 80; Geol. 43; M. E. 1, 62; T. A. M. 1, 3; Mining 2; Phys. 14a, 24.

THIRD YEAR

First Semester	Hours[1]	Second Semester	Hours[1]
Cer. 5—Ceramic Bodies	5	Cer. 11—Drying Clay Products	3
Cer. 7—Heavy Clay Products	3	Cer. 14—Glasses and Glazes	3
Language[2] or Approved Elective	4	Chem. 40—Elementary Physical Chem.	3
T. A. M. 21—Analytical Mechanics	2	C. E. 36—Surveying	2
T. A. M. 3—Resistance of Materials.	3	Language[2] or Approved Elective	4
T. A. M. 63—Resistance of Materials Lab.	1	M. E. 62—Power Measurements	3
Total	18	Total	18

FOURTH YEAR

Cer. 21—Ceramic Pyrometry	1	Cer. 20—Refractories	2
Cer. 22—Kilns and Burning	3	Cer. 24—Ceramic Engr. Design	3
Cer. 23—Dryer and Kiln Design	2	Cer. 28—Pyrochem. Problems	2
Cer. 99—Inspection Trip	0	E. E. 12—Alternating Cur. Apparatus.	3
C. E. 77—Structural Engr.	3	E. E. 62—Alternating Current Lab.	1
E. E. 11—Direct Current Apparatus	3	Non-technical Elective[3]	3
E. E. 61—Direct Current Laboratory	1	Technical Option[4]	3
Non-technical Elective[3]	3		
Technical Option[4]	2		
Total	18	Total	17

Curriculum in Civil Engineering

FIRST YEAR

First Semester	Hours[1]	Second Semester	Hours[1]
Chem. 2 or 3—Inorganic Chem.	3 or 4	Chem. 4—Qualitative Analysis	4
G. E. D. 1 or 4—Elements of Drafting	4	G. E. D. 2—Descriptive Geometry	4
Math. 2—Advanced Algebra	3	Math. 6—Analytic Geometry	5
Math. 4 or 5—Trigonometry	2	Rhet. 2—Rhetoric and Themes	3
Rhet. 1—Rhetoric and Themes	3	Phys. Ed.	½
Phys. Ed.	½	Hyg. 3—Hygiene (men)	½
Hyg. 1—Hygiene (men)	½	Mil. 2a and 2b, 12a and 12b, 22a and 22b, 32a and 32b, 42a and 42b (E. E. and R. E. E. students only), or 52a and 52b—Military Drill and Theory	1
Mil. 1a and 1b, 11a and 11b, 21a and 21b, 31a and 31b, 41a and 41b (E. E. and R. E. E. students only), or 51a and 51b—Military Drill and Theory	1	Eng. Lecture	0
Eng. Lecture	0		
Total	17 or 18	Total	18

SECOND YEAR

C. E. 27—Plane Surveying	3	C. E. 28—Topographic Surveying	3
Math. 7—Differential Calculus	5	Math. 9—Integral Calculus	3
Phys. 1a—Physics Lecture	3	Phys. 1b—Physics Lecture	3
Phys. 3a—Physics Laboratory	2	Phys. 3b—Physics Laboratory	2
C. E. 59—Bridge & Bldg. Constr. Foreign Lang.[2] or Appr. Elect.	3 or 4	C. E. 40—Highway Construction	2
Physical Ed.	½	C. E. 95—Plain Concrete	2
Military	1	T. A. M. 1—Analytical Mechanics	2
		Physical Ed.	½
		Military	1
Total	17½ or 18½	Total	18½

THIRD YEAR

(For the Class of 1932)

C. E. 60—Structural Stresses	4	C. E. 37—Railway & Highway Surveying	4
C. E. 52—Roads and Pavement	3	C. E. 61—Elementary Structural Design	3
C. E. 53—Highway Laboratory	1	C. E. 81—Theory of Reinforced Concrete	2
M. E. 1—Steam & Air Machinery	3	T. A. M. 4—Hydraulics	2
T. A. M. 21—Analytical Mechanics	2	T. A. M. 64—Hydraulics Laboratory	1
T. A. M. 3—Resistance of Matls.	3	C. E. 95—Plain Concrete	2
T. A. M. 63—Resistance of Materials Laboratory	1	E. E. 2—Elementary Electrical Eng. or Approved Elective[5]	3
Total	17	Total	17

[1]Semester hours. For definition, see page 71.
[2]French, German, Spanish, or English.
[3]Any approved non-technical elective. See page 32.
[4]Technical Options: Ceramics 8, 10, 16; Chem. 73a; Geol. 20; T. A. M. 41, 42; Mining 2.
[5]Students who expect to take the sanitary option during the fourth year should take Bact. 5a for the approved elective.

THIRD YEAR
City Planning Option
(For the Class of 1932)

First Semester	Hours[1]	Second Semester	Hours[1]
C. E. 60—Structural Stresses	4	C. E. 37—Railway & Highway Surveying	4
C. E. 52—Roads and Pavement	3	C. E. 61—Elementary Structural Design	3
Hort. 37a—City Planning	2	C. E. 81—Theory of Reinforced Concrete	2
A. E. 33—Architectural Drawing	3	T. A. M. 4—Hydraulics	2
T. A. M. 21—Analytical Mechanics	2	T. A. M. 64—Hydraulics Laboratory	1
T. A. M. 3—Resistance of Materials	3	Hort. 37b—City Planning	2
		A. E. 34—Architectural Drawing	3
Total	17	Total	17

THIRD YEAR

C. E. 60—Structural Stresses	4	C. E. 37—Railway and Highway Surveying	4
C. E. 41—Roads and Pavements	2	C. E. 61—Elementary Structural Design	3
C. E. 42—Highway Laboratory	1	C. E. 81—Reinforced Concrete	2
M. E. 1—Steam & Air Machinery	3	T. A. M. 4—Hydraulics	2
T. A. M. 3—Resistance of Materials	3	T. A. M. 64—Hydraulics Laboratory	1
T. A. M. 2—Analytical Mechanics	3	Geol. 43—Engineering Geology, Foreign Lang.[2] or Approved Elective[3]	3 or 4
T. A. M. 63—Resistance of Materials Laboratory	1	E. E. 2—Elementary Electrical Engineering, Foreign Language[2] or Approved Elective[3]	3
Total	17	Total	18 or 19

THIRD YEAR
City Planning Option

C. E. 60—Structural Stresses	4	C. E. 37—Railway and Highway Surveying	4
C. E. 41—Roads and Pavement	2	C. E. 61—Elementary Structural Design	3
C. E. 42—Highway Laboratory	1	C. E. 81—Reinforced Concrete	2
Hort. 37a—City Planning	2	T. A. M. 4—Hydraulics	2
A. E. 33—Architectural Drawing	3	T. A. M. 64—Hydraulics Laboratory	1
T. A. M. 2—Analytical Mechanics	3	Hort. 37b—City Planning	2
T. A. M. 3—Resistance of Materials	3	A. E. 34—Architectural Design	3
Total	18	Total	17

FOURTH YEAR
All Options

C. E. 71—Water Supply Engineering	4	C. E. 72—Sewerage	3
C. E. 82—Structural Design	4	C. E. 85—Structural Design	5
C. E. 99—Inspection Trip	0	Options[4]—(See Below)	10 or 9
Options[4]—(See Below)	9 or 10		
Total	17 or 18	Total	18 or 17

I. *General Option*

C. E. 75—Masonry Construction	3	C. E. 84—Estimates & Costs	2
C. E. 80—Contracts	2	Approved Elective	5
Non-technical Elective[5]	4	Technical Elective	3
Total	9	Total	10

II. *Highway Option*

C. E. 55—Highway Design	4	C. E. 75—Masonry Construction	3
C. E. 57—Hydrology	2	C. E. 80—Contracts	2
Non-technical Elective[5]	3	C. E. 94—Highway Administration	3
		C. E. 96—Road Materials	2
Total	9	Total	10

III. *Hydraulic Option*

C. E. 75—Masonry Construction	3	C. E. 78—Drainage Engineering	3
C. E. 80—Contracts	2	C. E. 79—Water Power Engineering	3
C. E. 57—Hydrology	2	Non-technical Elective[5]	4
Approved Elective	2		
Total	9	Total	10

[1]Semester hours. For definition, see page 71.

[2]French, German, Spanish or English.

[3]Bact. 5a and 5b should be taken in place of an approved elective by students who propose to elect the sanitary option in the fourth year.

[4]C. E. 97-98 (thesis) may be substituted for a technical subject in any of the five options of the senior year upon approval of the head of the department. Only students of high standing are permitted to elect a thesis. *Prerequisite:* Senior standing in Civil Engineering. I (1); II (2 or 3).

[5]Any approved non-technical elective. See page 32.

IV. *Sanitary Option*

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
C. E. 80—Contracts	2	C. E. 75—Masonry Construction	3
Chem. 80a—Chemistry of Water and Sewage	5	C. E. 89—Sewage Treatment	3
C. E. 87—Water Purification	3	Bact. 5a—Bacteriology[2]	3
Total	10	Total	9

V. *Structural Option*

C. E. 80—Contracts	2	C. E. 75—Masonry Construction	3
C. E. 63—Statically Ind. Structures	3	C. E. 64—Statically Ind. Structures	3
C. E. 84—Estimates & Costs	2	Non-technical Elective[3]	4
Approved Elective	2		
Total	9	Total	10

VI. *City Planning Option*

Only students who have taken the special curriculum in the third year may elect this option.		C. E. 80—Contracts	2
C. E. 75—Masonry Construction	3	Hort. 23b—Landscape Design	4
Hort. 23a—Landscape Design	4	C. E. 92—Municipal Engineering	3
Econ. 2—Elements of Economics	3		
Total	10	Total	9

Curriculum in Electrical Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Language[4] or Approved Elective	4	Language[4] or Approved Elective	4
Math. 7—Differential Calculus	5	Math. 9—Integral Calculus	3
M. E. 85—Pattern and Foundry Lab. or M. E. 87—Machine Laboratory	3	M. E. 87—Machine Lab., or M. E. 85—Pattern and Foundry Lab.	3
Phys. 1a—Physics Lectures	3	Phys. 1b—Physics Lectures	3
Phys. 3a—Physics Laboratory	2	Phys. 3b—Physics Laboratory	2
Phys. Ed.	½	T. A. M. 1—Analytical Mechanics	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, 43a and 43b, or 53a and 53b—Military Drill and Theory	1	Phys. Ed.	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, 44a and 44b, or 54a and 54b—Mil. Drill and Theory	1
Total	18½	Total	18½

THIRD YEAR

E. E. 25—Direct Current Apparatus	4	E. E. 26—Alternating Currents	4
E. E. 75—Elec. Eng. Laboratory	2	E. E. 76—Elec. Eng. Laboratory	2
M. E. 10—Thermodynamics or Approved Elective	3	Math. 9a—Integral Calculus	2
Phys. 44a—Elec. and Mag. Measurements	3	M. E. 10—Thermodynamics or Approved Elective	3
T. A. M. 21—Analytical Mechanics	2	Phys. 44b—Elec. and Mag. Measurements	3
T. A. M. 4—Hydraulics	2	T. A. M. 3—Resistance of Matls.	3
T. A. M. 64—Hydraulic Lab.	1	T. A. M. 63—Resistance of Matls. Lab.	1
Total	17	Total	18

FOURTH YEAR

E. E. 35—Alternating Current App.	4	E. E. 36—Alternating Current App.	4
E. E. 55—Electrical Design	2	E. E. 56—Electrical Design	4
E. E. 85—Elec. Eng. Laboratory	2	E. E. 86—Elec. Eng. Laboratory	2
E. E. 95—Seminar	1	E. E. 96—Seminar	1
E. E. 99—Inspection Trip	0	E. E. 98—Thesis or Technical Elective	3
M. E. 3—Steam Engineering	3	Approved Elective	3
M. E. 61—Power Measurement	2		
Non-technical Elective[3]	3		
Total	17	Total	17

[1]Semester hours. For definition, see page 71.
[2]Bact. 5a and 5b should be taken in the third year in place of approved electives.
[3]Any approved non-technical elective. See page 32.
[4]French, German, Spanish, or English.

Curriculum in Engineering Physics

(Leading to the Degree of B.S.)

The curriculum in engineering physics is designed as preparation for the investigation of technical problems calling for a knowledge of physics and mathematics or chemistry.

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
German, French, or Approved Elective	4	German, French, or Approved Elective	4
Math. 7—Differential Calculus	5	Math. 9—Integral Calculus	3
Phys. 1a—Physics Lectures	3	M. E. 87—Machine Laboratory	3
Phys. 3a—Physics Laboratory	2	Phys. 1b—Physics Lecture	3
Phys. Ed.	½	Phys. 3b—Physics Laboratory	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 53a and 53b—Military Drill and Theory	1	T. A. M. 1—Analytical Mechanics	2
Approved Elective[2]	3	Phys. Ed.	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 54a and 54b—Military Drill and Theory	1
Total	18½	Total	18½

THIRD YEAR

E. E. 25—Direct Current Apparatus	4	E. E. 26—Alternating Currents	4
E. E. 75—Elec. Eng. Lab.	2	E. E. 76—Elec. Eng. Lab.	2
German, French, or Approved Elective[2]	4	Math. 9a—Advanced Calculus	2
Phys. 44a—Elec. and Mag. Meas.	3	German, French, or Approved Elective[2]	4
Phys. 14a—Dynamics	3	Phys. 44b—Elec. and Mag. Meas.	2
Approved Elective[2]	2	Physics 14b—Dynamics	3
Total	18	Total	17

FOURTH YEAR

Math. 16—Advanced Calculus and Diff. Equations	3	Math. 17—Differential Equations	3
M. E. 13—Thermodynamics (M. E. 10 or Phys. 16 may be substituted)	3	Phys. 30—Introduction to Theoret. Electricity	3
Phys. 126—Colloquium	0	Phys. 126—Colloquium	0
Tech. Option[3] with at least 4 in Phys.	11	Tech. Option[3] with at least 3 in Physics	10
Total	17	Total	16

Curriculum in Gas Engineering

This curriculum combines many of the items of the course in Chemical Engineering and a number of the more distinctly engineering subjects from Mechanical, Electrical, and Mining Engineering. It is intended to fit men for operating positions about gas or coke plants rather than for positions in the laboratory where the work is more distinctly of a chemical nature. The degree of Bachelor of Science is given on completion of the curriculum.

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 2 or 3—Inorganic Chem.	3 or 4	Chem. 6—Inorganic Chemistry	5
German 4—Intermediate Course	4	German 6—Scientific Reading	4
Math. 2—College Algebra	3	Math. 6a—Analytic Geometry	4
Math. 4 or 5—Trigonometry	2	Rhet. 2—Rhetoric and Themes	3
Rhet. 1—Rhetoric and Themes	3	Phys. Ed.	½
Phys. Ed.	½	Hygiene 3—Hygiene (men)	½
Hyg. 1—Hygiene (men)	½	Mil. 2a and 2b, 12a and 12b, 22a and 22b, 32a and 32b, or 52a and 52b—Military Drill and Theory	1
Mil. 1a and 1b, 11a and 11b, 21a and 21b, 31a and 31b, or 51a and 51b—Military Drill and Theory	1	Eng. Lecture	0
Eng. Lecture	0		
Total	17 or 18	Total	18

[1]Semester hours. For definition, see page 71.

[2]Five hours of these electives must be in approved non-technical courses. See page 32.

[3]Technical Options: Chemistry 40, 41, 42b, 43b, 44a, 44b; Math. 10, 20, 22; M. E. 10; Physics 16, 20a, 20b, 22a, 22b, 23a, 25, 33, 36, 45, 46a, 46b, 78, 97, 98, T. A. M. 3, 63. Chem. 40 must be elected at some time. Only high grade students are allowed to elect a thesis.

SECOND YEAR

First Semester	Hours[1]	Second Semester	Hours[1]
Chem. 24—Elem. Quantitative Anal.	5	Chem. 33—Organic Chemistry	5
G. E. D. 1—Gen. Eng. Drawing	4	Math. 8b—Integral Calculus	3
Math. 8a—Differential Calculus	3	Phys. 1b—General Physics	3
Phys. 1a—General Physics	3	Phys. 3b—Physical Measurements	2
Phys. 3a—Physical Measurements	2	T. A. M. 1—Analytical Mechanics	2
Phys. Ed.	½	Appr. Elective	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 53a and 53b—Military Drill and Theory	1	Phys. Ed.	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 54a and 54b—Military Drill and Theory	1
Total	18½	Total	18½

THIRD YEAR

Chem. 73a—Metallurgy	3	Chem. 40—Elem. Physical Chem.	3
E. E. 5—Elec. Cur. and Apparatus	4	Chem. 41—Elem. Physical Chemistry Laboratory	1
M. E. 1—Steam and Air Machinery	3	Chem. 63—Fuels	3
M. E. 13—Thermodynamics	3	M. E. 15—Heat Engineering	3
T. A. M. 3—Resistance of Materials	3	Phys. 16—Heat Phenomena	3
T. A. M. 63—Resistance of Materials Lab.	1	Phys. 36—Heat Measurements	1
		T. A. M. 4—Hydraulics	3
Total	17	Total	17

FOURTH YEAR

Special—Gas Engineering	6	Special—Gas Engineering	7
Chem. 60a—Chem. Technology	4	Cer. 20—Refractory Materials	2
M. E. 61—Power Measurement	2	Chem. 60b—Chem. Technology	4
Min. 9—Coal Preparation	3	Min. 64—Coal and Ore Preparation Laboratory	3
Non-technical Elective[2]	3	Non-technical Elective[2]	2
Total	18	Total	18

The time allotted to special Gas Engineering in the senior year will be divided among such subjects as the Design of gas plants and the Manufacture, Distribution, Utilization, and Economics of gas.

Curriculum in General Engineering

This curriculum is intended for students who do not wish to pursue the more specialized engineering curricula, but who wish to secure training in engineering principles and their application. Fifteen hours of work in Economics, Corporations, Business Law, etc., are required and sixteen hours of free electives are allowed. The degree of Bachelor of Science in General Engineering is awarded on completion of the curriculum.

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

First Semester	Hours[1]	Second Semester	Hours[1]
Econ. 2—Principles of Economics	3	Econ. 3—Money and Banking	3
Math. 7—Differential Calculus	5	Math. 9—Integral Calculus	3
M. E. 85—Pattern and Foundry Lab. or C. E. 34, Plane and Topographic Surveying	3	C. E. 34—Plane and Topographic Surveying or M. E. 85, Pattern and Foundry Laboratory	3
Phys. 1a—Physics Lectures	3	Phys. 1b—Physics Lectures	3
Phys. 3a—Physics Laboratory	2	Phys. 3b—Physics Laboratory	2
Phys. Ed.	½	T. A. M. 1—Analytical Mechanics	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 53a and 53b—Military Drill and Theory	1	Phys. Ed.	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 54a and 54b—Military Drill and Theory	1
Total	17½	Total	17½

[1]Semester hours. For definition, see page 71.
[2]Any approved non-technical elective. See page 32.

THIRD YEAR

First Semester	Hours[1]	Second Semester	Hours[1]
Econ. 35—Corporations	3	C. E. 60—Structural Stresses	4
E. E. 11—Direct Current Apparatus	3	E. E. 12—Alternating Current App.	3
E. E. 61—Direct Current Laboratory	1	E. E. 62—Alternating Current Lab.	1
Approved Elective[2]	2	Language[3] or Approved Elective[2]	4
M. E. 87—Machine Laboratory	3	M. E. 10—Thermodynamics	3
T. A. M. 3—Resistance of Materials	3	T. A. M. 4—Hydraulics	2
T. A. M. 63—Resistance of Materials Lab.	1	T. A. M. 64—Hydraulics Lab.	1
T. A. M. 21—Analytical Mechanics	2		
Total	18	Total	18

FOURTH YEAR

Chem. 73a—Metallurgy	3	Bus. Law 3—Contracts, etc.	3
C. E. 88—Structural Design	4	C. E. 90—Structural Design	4
Econ. 41—Labor Problems	3	Geol. 43—Engineering Geology	3
Language[3] or Approved Elective[2]	4	M. E. 64—Power Measurement	3
M. E. 3—Steam Engineering	3	Language[3] or Approved Elective[2]	4 or 5
G. E. 99—Inspection Trip	0		
Total	17	Total	17 or 18

Curriculum in Mechanical Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

First Semester	Hours[1]	Second Semester	Hours[1]
Language[4] or Approved Elective	4	Language[4] or Approved Elective	4
Math. 7—Differential Calculus	5	Math. 9—Integral Calculus	3
Approved Elective	3	M. E. 85—Pattern and Foundry Lab.	3
Phys. 1a—Physics Lectures	3	Phys. 1b—Physics Lectures	3
Phys. 3a—Physics Laboratory	2	Phys. 3b—Physics Laboratory	2
Phys. Ed.	½	T. A. M. 20—Analytical Mechanics	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 53a and 53b—Military Drill and Theory	1	Phys. Ed.	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 54a and 54b—Military Drill and Theory	1
Total	18½	Total	18½

THIRD YEAR

M. E. 13—Thermodynamics	3	M. E. 6—Steam Engineering	4
M. E. 31—Mechanics of Machinery	5	M. E. 16—Thermodynamics	2
M. E. 87—Machine Laboratory	3	M. E. 40—Mechanical Eng. Design	3
T. A. M. 21—Analytical Mechanics	2	M. E. 64—Steam Power Laboratory	3
T. A. M. 3—Resistance of Materials	3	M. E. 88—Machine Laboratory	3
T. A. M. 63—Resistance of Materials Lab.	1	Non-technical Elective[5]	3
Total	17	Total	18

FOURTH YEAR

E. E. 11—Direct Current Apparatus	3	E. E. 12—A. C. Apparatus	3
E. E. 61—Direct Current Lab.	1	E. E. 62—A. C. Laboratory	1
M. E. 41—M. E. Design	4	M. E. 28—Heating and Ventilation	4
M. E. 65—Heat and Power Lab.	3	M. E. 52—Power Plant Design	3
M. E. 89—Heat Treatment of Metals or Non-technical Elective[5]	3	M. E. 89—Heat Treatment of Metals or Non-technical Elective[5]	3
Technical Option	3	Technical Option	3
M. E. 99—Inspection Trip	0		
Total	17	Total	17

Technical Options

M. E. 7—Int. Comb. Engines	M. E. 15—Heat Engineering
M. E. 17—Refrigeration	M. E. 17—Refrigeration
M. E. 33—Aeronautical Engineering	M. E. 34—Aeronautical Engineering
T. A. M. 41—Advanced Mechanics of Materials	T. A. M. 42—Properties of Eng. Materials
C. E. 77—Structural Engineering	T. A. M. 44—Laboratory Work in Testing Materials

[1]Semester hours. For definition, see page 71.

[2]Any course of sophomore grade (except foreign languages) in the Colleges of Engineering, Liberal Arts and Sciences, or Commerce, Accountancy 1a and 1b, and other freshman courses listed under non-technical electives, page 32.

[3]French, German, Spanish, or English. Minimum of 12 hours in first three required.

[4]French, German, Spanish, or English.

[5]Any approved non-technical elective. See page 32.

Curriculum in Mining Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]
Language[2] or Approved Elective	4
Math. 7—Differential Calculus	5
Min. 61—Elem. Mine Surveying	3
Phys. 1a—Physics Lectures	3
Phys. 3a—Physics Laboratory	2
Phys. Ed.	½
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 53a and 53b—Military Drill and Theory	1
Total	18½

SECOND SEMESTER	Hours[1]
Language[2] or Approved Elective	4
Math. 9—Integral Calculus	3
Min. 62—Mine Surveying	3
Phys. 1b—Physics Lectures	3
Phys. 3b—Physics Laboratory	2
T. A. M. 1—Analytical Mechanics	2
Phys. Ed.	½
Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 54a and 54b—Military Drill and Theory	1
Total	18½

THIRD YEAR

Chem. 24—Elem. Quantitative Anal.	5
Geol. 20—Mineralogy	3
Min. 1—Elements of Mining	3
T. A. M. 21—Analytical Mechanics	2
T. A. M. 3—Resistance of Materials	3
T. A. M. 63—Resistance of Materials Lab.	1
Total	17

C. E. 58—Graphic Statics	2
Geol. 43—Engineering Geology	3
M. E. 62—Steam Eng. and Power Measurement	3
Min. 4—Mining Methods	3
Min. 10—Electrical Eng. of Mines	3
T. A. M. 4—Hydraulics	2
T. A. M. 64—Hydraulics Lab.	1
Total	17

FOURTH YEAR

Coal Mining Option

FIRST SEMESTER	Hours[1]
Chem. 73a—Metallurgy	3
Min. 8—Mine Administration	3
Min. 9—Coal and Ore Preparation	3
Min. 13—Utilization of Fuels	3
Min. 41—Mine and Metallurgical Design	3
Min. 99—Inspection Trip	0
Min. 6—Mech. Eng. of Mines	3
Total	18

SECOND SEMESTER	Hours[1]
Min. 15—Mine Ventilation	2
Min. 20—Mine Ventilation Lab.	2
Min. 21—Examination, Valuation, and Reports	3
Min. 42—Mine and Met. Design	2
Min. 64—Coal and Ore Preparation Laboratory	3
Non-technical Elective[3]	2
Min. 90—Mining and Met. Reports	1
Total	17

Ore Mining Option

Chem. 73a—Metallurgy	3
Min. 8—Mine Administration	3
Min. 9—Coal and Ore Preparation	3
Min. 41—Mine and Met. Design	3
Min. 69—Fire Assaying	2
Min. 99—Inspection Trip	0
Min. 6—Mech. Eng. of Mines	3
Total	17

Geol. 96—Economic Geology	3
Min. 15—Mine Ventilation	2
Min. 21—Examination, Valuation, and Reports	3
Min. 42—Mine and Met. Design	2
Min. 64—Coal and Ore Preparation Laboratory	3
Non-technical Elective[3]	4
Min. 90—Mining and Met. Reports	1
Total	18

Metallurgical Option

Chem. 73a—Metallurgy	3
Min. 8—Mine Administration	3
Min. 9—Coal and Ore Preparation	3
Min. 41—Mine and Metallurgical Design	3
Min. 69—Fire Assaying	2
Min. 13	1
Min. 99—Inspection Trip	0
Non-technical Elective[3]	4
Total	17

Min. 16—Non-Ferrous Ore Treatment	5
Min. 18—Metallurgical Problems	2
Min. 42—Mine and Metallurgical Design	2
Min. 64—Coal and Ore Preparation Laboratory	3
Non-technical Elective[3]	5
Min. 90—Mining and Met. Reports	1
Total	18

[1]Semester hours. For definition, see page 71.
[2]French, German, Spanish, or English.
[3]Any approved non-technical elective. See page 32.

Curriculum in Railway Civil Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
C. E. 27—Elementary Surveying	3	C. E. 28—Topographic Surveying	3
Language[2] or Approved Elective	4	Language[2] or Approved Elective	4
Math. 7—Differential Calculus	5	Math. 9—Integral Calculus	3
Physics 1a—Physics Lectures	3	Physics 1b—Physics Lectures	3
Physics 3a—Physics Laboratory	2	Physics 3b—Physics Laboratory	2
Phys. Ed.	½	T. A. M. 1—Analytical Mechanics	2
Military 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 53a and 53b—Military Drill and Theory	1	Military 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 54a and 54b—Military Drill and Theory	1
		Phys. Ed.	½
Total	18½	Total	18½

THIRD YEAR

C. E. 60—Structural Stresses	4	C. E. 37—Railway and Highway Surveying	4
R. E. 32—Railway Construction	3	C. E. 6—Elementary Structural Design	3
R. E. 25—Railway Development	2	C. E. 81—Theory of Reinforced Concrete	2
T. A. M. 21—Analytical Mechanics	2	C. E. 95—Plain Concrete	2
T. A. M. 3—Resistance of Materials	3	R. E. 36—Railway Maintenance	3
T. A. M. 63—Resistance of Materials Lab.	1	R. E. 51—Seminar	1
Non-technical Elective[3]	3	Non-technical Elective	2
Total	18	Total	17

FOURTH YEAR

C. E. 75—Masonry Construction	3	C. E. 85—Structural Design	5
M. E. 1—Steam and Air Machinery	3	R. E. 37—Railway Design Problems	2
R. E. 31—Ry. Yards and Terminals	3	E. E. 2—Element. Elec. Engineering or Technical Elective	3
R. E. 35—Railway Signaling	2	R. E. 33—Railway Location	4
C. E. 82—Structural Design	4	T. A. M. 4—Hydraulics	2
C. E. 80—Contracts and Specifications	2	T. A. M. 64—Hydraulic Lab.	1
R. E. 99—Inspection Trip	0		
Total	17	Total	17

Curriculum in Railway Electrical Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Language[2] or Approved Elective	4	Language[2] or Approved Elective	4
Math. 7—Differential Calculus	5	Math. 9—Integral Calculus	3
Phys. 1a—Physics Lectures	3	M. E. 85—Pattern and Foundry Lab.	3
Phys. 3a—Physics Laboratory	2	Phys. 1b—Physics Lectures	3
R. E. 25—Railway Development	2	Phys. 3b—Physics Laboratory	2
Phys. Ed.	½	T. A. M. 1—Analytical Mechanics	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, 43a and 43b, or 53a and 53b—Military Drill and Theory	1	Phys. Ed.	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, 44a and 44b, or 54a and 54b—Military Drill and Theory	1
Total	17½	Total	18½

THIRD YEAR

E. E. 25—Direct Current Apparatus	4	E. E. 26—Alternating Currents	4
E. E. 75—Electrical Eng. Laboratory	2	E. E. 76—Electrical Eng. Laboratory	2
M. E. 87—Machine Laboratory	3	M. E. 10—Thermodynamics	3
Phys. 44a—Elec. and Mag. Meas'm'ts.	3	Phys. 44b—Elec. and Mag. Meas'm'ts	3
R. E. 59—Electric Railway Principles	2	R. E. 60—Electric Railway Principles	2
T. A. M. 21—Analytical Mechanics	2	T. A. M. 3—Resistance of Materials	3
		T. A. M. 63—Resistance of Materials Lab.	1
Total	16	Total	18

[1]Semester hours. For definition, see page 71.
[2]French, German, Spanish, or English.
[3]Any approved non-technical elective. See page 32.

FOURTH YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
E. E. 35—Alt'ng Current Apparatus...	4	C. E. 80—Contracts and Specifications	2
E. E. 85—Elec. Eng. Laboratory.....	2	E. E. 36—Alt'ng Current Apparatus..	4
M. E. 3—Steam Engineering.....	3	E. E. 86—Elec. Eng. Laboratory.....	2
M. E. 61—Power Measurement.....	2	R. E. 67—Seminar.....	1
R. E. 35—Railway Signaling.....	2	R. E. 70—Electric Railway Design....	2
R. E. 62—Electric Railway Laboratory	2	R. E. 74—Electric Railway Economics	3
R. E. 64—Electric Railway Practice...	3	Non-technical Elective[2].....	4
R. E. 99—Inspection Trip.....	0		
Total.....	18	Total.....	18

Curriculum in Railway Mechanical Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Language[3] or Approved Elective.....	4	Language[3] or Approved Elective.....	4
Math. 7—Differential Calculus.....	5	Math. 9—Integral Calculus.....	3
Phys. 1a—Physics Lectures.....	3	M. E. 85—Pattern and Foundry Lab.	3
Phys. 3a—Physics Laboratory.....	2	Phys. 1b—Physics Lectures.....	3
R. E. 25—Railway Development.....	2	Phys. 3b—Physics Laboratory.....	2
Phys. Ed.....	½	T. A. M. 1—Analytical Mechanics....	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 53a and 53b—Military Drill and Theory.....	1	Phys. Ed.....	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 54a and 54b—Military Drill and Theory.....	1
Total.....	17½	Total.....	18½

THIRD YEAR

M. E. 13—Thermodynamics.....	3	M. E. 6—Steam Engineering.....	4
M. E. 87—Machine Laboratory.....	3	M. E. 16—Thermodynamics.....	2
R. E. 3—Locomotives.....	2	M. E. 40—Mechanical Eng. Design...	3
T. A. M. 21—Analytical Mechanics...	2	M. E. 64—Steam Power Laboratory...	3
T. A. M. 3—Resistance of Materials..	3	M. E. 88—Machine Laboratory.....	3
T. A. M. 63—Resistance of Materials Lab.	1	R. E. 4—Locomotives.....	3
Approved Elective.....	4		
Total.....	18	Total.....	18

FOURTH YEAR

E. E. 11—Direct Current Apparatus..	3	C. E. 80—Contracts and Specifications	2
E. E. 61—Direct Current Laboratory..	1	E. E. 12—Alt'ng Current Apparatus..	3
M. E. 89—Heat Treatment of Metals..	3	E. E. 62—Alternating Current Lab....	1
R. E. 2—Locomotive Design.....	3	R. E. 7—Advanced Design.....	3
R. E. 5—Railway Laboratory.....	3	R. E. 8—Railway Laboratory.....	2
R. E. 9—Seminar.....	1	R. E. 61—Electric Traction.....	3
R. E. 99—Inspection Trip.....	0	Non-technical Elective[2].....	3
Non-technical Elective[2].....	3		
Total.....	17	Total.....	17

[1]Semester hours. For definition, see page 71.
[2]Any approved non-technical elective. See page 32.
[3]French, German, Spanish, or English.

THE COLLEGE OF AGRICULTURE

DIRECTIONS FOR REGISTRATION

Read the first paragraph of the General Directions for Registration on page 6 and follow carefully the instructions given therein.

Obtain your study-list: (1) if you already have a permit to register, at room 105 New Agricultural Building, Home Economics students at Home Economics Department, Woman's Building; (2) if you have not yet secured a permit to register, go to the Registrar's Office, 100-A Administration Building; (3) follow *point by point,* the directions on the first coupon on the study-list.

Students will secure their own study-lists and proceed to their advisers' rooms.

Advisers

Freshmen.....221 New Agricultural Building
Sophomores and Juniors.....Reading Room, Library, New Agricultural Building
Seniors.....214 New Agricultural Building
Unclassified.....Go to room according to class
Home Economics.....113 Woman's Building
Landscape Architecture.....203 New Agricultural Building
Floriculture.....Reading Room, Library, New Agricultural Building

Sectional Courses

Sectional courses will be checked in 200 New Agricultural Building. These include chemistry, rhetoric, English, botany, bacteriology, economics, entomology, geology, and physical education.

Registrar's Checking Clerks

Registrar's checking clerks, also clerks for assignment of fees, issue of class cards, and new study-lists, will be found in the lobby of the Library.

Studies for Freshmen

The schedules of courses for freshmen will be made out and distributed to advisers in 221 New Agricultural Building.

Transfer Students

Committee on excess hours and transfers will be in 104 New Agricultural Building.

REQUIREMENTS FOR GRADUATION

Students who have satisfied the University requirements as to registration, residence, and diploma fee, and who have maintained throughout their course a satisfactory record of scholarship and moral character, will, on completion of the studies of the prescribed list and sufficient electives to make a total of 130 semester hours, be graduated with the degree of Bachelor of Science.

A thesis is not required for graduation, but any student who has completed not fewer than 90 hours of credit may elect a thesis course in any department, provided that he has done at least 20 hours' work in courses pertinent to the thesis problem, subject to the approval of the head of the department.

Graduates of approved colleges may secure a degree in agriculture from the University on completion of the technical and scientific requirements. This

will ordinarily require two years of residence work; a minimum of one year is required.

Not more than five semester hours of physical education and hygiene are accepted toward graduation for men, nor more than seven for women.

Curriculum in Agriculture

Required for the Degree of Bachelor of Science in Agriculture

All students except those in the special curricula in home economics, floriculture, and landscape architecture are required to take the same work during the freshman year and part of the sophomore, junior, and senior years. This work gives the student a conception of farm practices and an insight into the technical branches of agriculture, such as animal and dairy husbandry, horticulture, farm crops, soils, farm mechanics, and buildings, and leaves a large part of the junior and senior years open for elective studies.

One hundred thirty semester hours are required for graduation, as follows:

Agricultural courses prescribed	29 hours	
Agricultural courses prescribed, as electives, Group A	20 hours	
Total agricultural semester hours required		49 hours
Non-agricultural courses prescribed	50 hours	
Non-agricultural courses to be elected from Group B	8 hours	
Non-agricultural courses to be elected from Group C	6 hours	
Total non-agricultural semester hours required		64 hours
Free electives		17 hours
TOTAL		130 hours

FIRST YEAR

FIRST SEMESTER	Hours[1]
Agr. Ext. 4—Elementary Lectures	1
Hort. 1a—Elements of Horticulture	2
Rhet. 1—Rhetoric and Themes	3
Phys. Ed.—Gymnasium	½
Hyg. 1—Hygiene (men)	½
Military Drill and Theory	1
Bot. 5—General Botany	3
or	
Ent. 1—Introductory Entomology (Group 1)	3
Chem. 2—Inorganic Chemistry	3
and	
D. H. 24a—Production	3
or	
D. H. 24b—Manufacturing (Group 2)	3
or	
Chem. 1—Inorganic Chemistry	5
and	
A. H. 1	2
Total	17 or 18

SECOND SEMESTER	Hours[1]
Chem. 5—Inorganic Chemistry and Qualitative Analysis	5
Hort. 1b—Elements of Horticulture	2
Rhet. 2—Rhetoric and Themes	3
Phys. Ed.—Gymnasium	½
Hyg. 3	½
Military Drill and Theory	1
Ent. 1—Introductory Entomology	3
or	
Bot. 5—General Botany	3
with	
A. H. 1	2
or	
D. H. 24a—Production	3
or	
D. H. 24b—Manufacturing	3
or	
Agron. 25—Farm Crops	3
Total	17 or 18

SECOND YEAR

Geol. 44—Agricultural Geology	3
Econ. 1 or 2[2]	5 or 3
Phys. Ed.	½
Military Drill and Theory	1
Chem. 32—Organic	3
or	
Farm Mech. 1—Elementary Farm Mech.	3
Agron. 25—Farm Crops	3
or	
A. H. 21—Principles of Feeding	3
Electives to make	15½ to 18½

Geol. 44—Agricultural Geology	3
A. H. 21—Principles of Feeding	3
Phys. Ed.	½
Military Drill and Theory	1
Farm Mech. 1—Elementary Farm Mech	3
or	
Chem. 32—Organic	3
Econ. 1 or 2[2]	5 or 3
or	
Acc'y 11—Farm Accounting	4
Electives to make	15½ to 18

[1]Semester hours. For definition, see page 71.
[2]Students specializing in agricultural economics should take Econ. 1

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Agron. 28—Soils	5	Agron. 28—Soils	5
Zool. 15—Genetics	3	Hort. 10a—Rural Improvement	2
Acc'y 11—Farm Accounting	4	Farm Man. 1—Elementary Farm Man.	3
or		Bact. 5a—Introductory Bacteriology and Sanitary Science	3
Farm Man. 1—Elementary Farm Man.	3		
Electives to make	15 to 18	Electives to make	15 to 18

FOURTH YEAR

Electives to make	15 to 18	Electives to make	15 to 18

Group A—Minimum 20 hours
All courses offered by the College of Agriculture other than those prescribed.

Group B—Minimum 8 hours	Hours[1]
Botany 7a	3
Botany 3	5
Business Law 2	3
Chemistry 24	5
Economics 3	3
Economics 13	3
Economics 14	2
Economics 15	3
Economics 16	3
Economics 71	3
Entomology 8a	3 or 5
Entomology 8b	3 or 5
Mathematics 3 or 2	5 or 3
Mathematics 4	2
Political Science 1	3
Political Science 3	3
Physics 7a and 8a	5
Zoology 1	5

Group C—Minimum 6 hours	
Agricultural Education 51	3
American History 3b	3
Education 10	3
Education 25	3
English 20	4
French 1a and 1b	8
German 1 and 2	8
Philosophy 1 or 2	3
Psychology 1	4
Public Speaking 1, 2, 3, 10	3 to 6
Rhetoric 10	2
Sociology 1 or 7	3

Curriculum in Floriculture

Required for the Degree of Bachelor of Science in Floriculture

The object of the floriculture curriculum is to fit men and women for the profession of floriculture. The laboratory exercises in the technical subjects consist of practical work in the greenhouses and gardens and give the students a working knowledge of the best methods now in use.

Of the 130 semester hours required for graduation, 106-108 are provided for in the prescribed list. The other 22-24 hours of credit necessary for graduation are electives.

Students registered in floriculture will be required to make at least one inspection trip before graduation. The annual trip costs about $25.

[1]Semester hours. For definition, see page 71.

FIRST YEAR

FIRST SEMESTER		SECOND SEMESTER	
Prescribed Subjects	Hours[1]	*Prescribed Subjects*	Hours[1]
Chem. 1 or 2—Inorganic Chemistry	5 or 3	Chem. 5—Inorganic Chemistry and Qualitative Analysis	5
Hort. 5—Plant Propagation	3	Hort. 4—Plant Houses	3
Rhet. 1—Rhetoric and Themes	3	Rhet. 2—Rhetoric and Themes	3
Ent. 1—Introductory Entomology	3	Bot. 5	3
Phys. Ed.—Gymnasium	½	Phys. Ed.—Gymnasium	½
Hyg. 1—Hygiene (men)	½	Military Drill and Theory	1
Military Drill and Theory	1	Hyg. 3—Hygiene (men)	½
Total	16–14	Total	16

SECOND YEAR

Bot. 3—Plant Physiology	5	Agron. 28—Soils	5
Econ. 1—Principles of Economics	5	Hort. 15a—Greenhouse Management	3
Geol. 44—Agricultural Geology	3	Hort. 24b—Trees and Shrubs	3
Hort. 24a—Trees and Shrubs	3	Hort. 31—Garden Flowers	3
Phys. Ed.	½	Phys. Ed.	½
Military Drill and Theory	1	Military Drill and Theory	1
Total	17½	Total	15½

THIRD YEAR

Acc'y 1a	3	Acc'y 1b	3
Bot. 7—Plant Pathology	3	Hort. 7[2]—Spraying	3
Hort. 15b—Commercial Crops	3	Hort. 15c—Commercial Crops	3
		Hort. 42—Landscape Design	3
Total	9	Total	12

FOURTH YEAR

B. O. and O. 2	3	Hort. 30—Tender Bedding Plants	3
Hort. 32a—Floral Decoration	3	Hort. 32b—Floral Decoration	3
Hort. 43—Greenhouse Fertilizers	3	Hort. 45—Plant Nutrition	3
Ent. 20[2]—Insect Control	4		
Total	13	Total	9

Additional Requirements

A minimum of 4 hours from Group C in the Curriculum in Agriculture.

Curriculum in Landscape Architecture

Required for the Degree of Bachelor of Science in Landscape Architecture

The curriculum provides for a four years' course which is intended as preparation for the professional practice of Landscape Architecture. Courses are open to any student in the University having the prerequisites or their equivalents

Of the 130 semester hours required for graduation, 117 hours are provided for in the prescribed list. The other 13 hours necessary for graduation may be taken from suggested electives.

Attention is called to a requirement that in any curriculum in which less than 15 hours of laboratory science are required, a student who enters without at least one unit of laboratory science shall be required to substitute 5 hours of a laboratory science for 5 hours of free electives in the requirements for graduation.

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[1]Semester hours. For definition, see page 71.
[2]Students may choose between Hort. 7 (Spraying) and Ent. 20 (Insect Control).

FIRST YEAR

FIRST SEMESTER *Prescribed Subjects*	Hours[1]	SECOND SEMESTER *Prescribed Subjects*	Hours[1]
Arch. 71—Architectural Elements	4	Arch. 72—Architectural Elements	4
Hort. 36—History of Land. Arch.	3	Bot. 5—General Botany	3
Math. 4—Plane Trigonometry	2	A. and D. 12—Design	2
Rhet. 1—Rhetoric and Themes	3	Rhet. 2—Rhetoric and Themes	3
Phys. Ed.—Gymnasium	½	Phys. Ed.—Gymnasium	½
Hyg. 1—Hygiene (men)	½	Hort. 1b—Elements of Horticulture	2
Hort. 1a—Elements of Horticulture	2	Military Drill and Theory	1
Military Drill and Theory	1	Hygiene 3—(men)	½
Total	16	Total	16

SECOND YEAR

C. E. 31—Surveying	3	C. E. 32—Surveying	3
Hort. 21a—Landscape Design	4	Hort. 21b—Landscape Design	4
Arch. 75—Frame Const. Details	3	Arch. 76—Masonry Const. Details	3
Arch. 11—History of Architecture	3	Arch. 12—History of Arch.	3
Military Drill and Theory	1	Bot. 8—Plant Ecology	3
Phys. Ed.	½	Military Drill and Theory	1
		Phys. Ed.	½
Total	14½	Total	17½

THIRD YEAR

Hort. 23a—Landscape Design	4	Hort. 23b—Landscape Design	4
Hort. 24a—Trees and Shrubs	3	Hort. 24b—Trees and Shrubs	3
Hort. 27a—Landscape Construction	3	Hort. 27b—Land. Construction	3
Engl. 20a—English Writers of the 19th Century	4	Hort. 31—Garden Flowers	3
Pub. Spk. 1—Public Speaking	3		
Total	17	Total	13

FOURTH YEAR

Hort. 25a—Landscape Design	5	Hort. 25b—Landscape Design	5
Hort. 26a—Planting Design	3	Hort. 26b—Planting Design	3
Hort. 37a—City Planning	2	Hort. 37b—City Planning	2
Hort. 40—Care of Plant Materials	2	Hort. 38—Office Practice	1
Total	12	Total	11

Required for the Degree of Bachelor of Science in the City Planning Option in Landscape Architecture

The first two years' work to be the same as the present curriculum in landscape architecture, except that French or German is to be substituted for *Architecture 75* and *76* (Frame and Masonry Construction.)

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Hort. 23a—Landscape Design	4	Hort. 23b—Landscape Design	4
Hort. 27a—Landscape Construction	3	Hort. 27b—Landscape Construction	3
English 10a—An Introduction to Literature	3	English 10b—An Introduction to Literature	3
Public Speaking	3	C. E. 52—Roads and Pavements	3
Econ. 2—Elements	3	Geog. or Geol. 1	5
Journalism 12—Publicity Methods	2		
Total	18	Total	18

FOURTH YEAR

Hort. 25a—Landscape Design	5	Hort. 25b—Landscape Design	5
Hort. 37a—City Planning Lectures	2	Hort. 37b—City Planning Lectures	2
Pol. Sci. 4—Municipal Government	3	Journalism 16—Special and Feature Articles	2
Municipal Engineering[2]	3	Municipal Engineering	3
Econ. 51—Public Finance	3	Soc. 1—Principles	3
		Pol. Sci. 34—Municipal Problems	3
Total	16	Total	18

[1]Semester hours. For definition, see page 71.
[2]New course to be offered by Civil Engineering Department.

HOME ECONOMICS

Students who hold scholarships in home economics must take each semester at least four hours in home economics or in subjects required for admission to courses in home economics.

To satisfy the requirements for graduation, students transferring home economics credits from other institutions must take five hours in residence from the following: Home Economics 20, 28, 31, 33, 39a, 39b, 41, 43a, 43b, 47, 48, 50, 51, 55.

One hundred thirty credit hours are required for graduation.

Students may choose the general curriculum in home economics or the curriculum in nutrition and dietetics as suggested below.

Curriculum in General Home Economics

Prescribed Subjects

Required for the Degree of Bachelor of Science in Home Economics

	Hours[1]
Art and Design 13a, 13b	4
Bacteriology 5a, 5b	5
Botany 1 or Zoology 1	5
Chemistry 1 or 2, 5	10 or 8
Chemistry 33	5
Economics 1 or 2	5 or 3
English Literature (2 semesters)	6 or 8
Home Economics 1 and 6 (or 44), 2, 5, 7, 10, 29	25 or 20
Hygiene 2, 4	1
Physiology 4	5
Physical Education 7a, 7b, 8a, 8b	4
Rhetoric 1, 2	6
Sociology 1	3
List A—a minimum of	6
List B—a minimum of	10
	91 to 102
Open Electives	39 to 28
Total	130

Electives

List A (a minimum of 6 hours)
- History 1a, 1b, 3a, 3b
- Sociology 2, 3, 7, 8
- Economics 3, 41, 44
- Psychology 1

List B—a minimum of 10 hours from home economics courses in addition to those prescribed above and excluding Home Economics 11, 11a, 13, and 34.

Suggested Sequence of Courses in General Home Economics

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
A. D. 13a—Design	2	A. D. 13b—Design	2
Chem. 1 or 2—Inorganic Chemistry	5–3	Chem. 5—Qualitative Analysis	5
Rhet. 1—Rhetoric and Themes	3	Rhet. 2—Rhetoric and Themes	3
Home Econ. 7—Textiles	3	Bot. 1 or Zool. 1—General Course	5
Hyg. 2—Hygiene	½	Hyg. 4—Hygiene	½
Phys. Ed. 7a—Gymnasium	1	Phys. Ed. 7b—Gymnasium	1
Electives	1–3		
Total	15½	Total	16½

SECOND YEAR

Engl. Lit.	3 or 4	Engl. Lit.	3 or 4
Home Econ. 1—Foods	4	Home Econ. 2—Home Architecture	3
Chem. 33—Organic Chemistry	5	Home Econ. 6—Foods	4
Home Econ. 29—Clothing	4	Physiol. 4—Physiology of Digestion	5
Phys. Ed. 8a—Gymnasium	1	Phys. Ed. 8b—Gymnasium	1
Total	17 or 18	Total	16 or 17

[1]Semester hours. For definition, see page 71.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Bact. 5a, 5b—Introductory Bacteriology	5	Home Econ. 10—Home Management	3
Home Econ. 5—Dietetics	4	Sociol. 1—Principles of Sociology	3
Econ. 1—Principles of Econ.	5	Electives	10–11
Electives	2–3		
Total	16–17	Total	16–17

FOURTH YEAR

During the third and fourth years, students will complete the requirements for the degree of Bachelor of Science in the College of Agriculture. Electives will be chosen in accord with the special interests of the student.

1. Textiles, clothing, and costume design: Home Economics 19, 30, 31, 42, 43a, 43b, 50, 51.

2. Institutional management and hospital dietetics: Home Economics 20, 33, 46, 47, 48, 55.

3. Household management: Home Economics 14, 28, 57a, 57b, and additional courses in economics.

4. House planning and furnishing: Art and Design 19, 20; Architecture 11, 12; Home Economics 3, 43a, 43b, and additional courses in art and history.

5. Nutrition: Chemistry 24, 50a; Zoology 1; Home Economics 20, 33, 39a, 39b, 41, 45.

6. Teaching of home economics: Home Economics 11, 13, 34, 45; Education 6, 10, 25.

Curriculum in Nutrition and Dietetics

Prescribed Subjects

Required for the Degree of Bachelor of Science in Home Economics

	Hours[1]
Bacteriology 5a, 5b	5
Chemistry 1 or 2, 5, 24, 33, 50a	25 or 23
Economics 1 or 2	5 or 3
English Literature (2 semesters)	6 or 8
Home Economics 1 and 6 (or 44), 5, 20, 33, 39a, 39b, 41	24 or 19
Hygiene 2, 4	1
Physical Education 7a, 7b, 8a, 8b	4
Physiology 4	5
Rhetoric 1, 2	6
Sociology 1	3
Zoology 1	5
List A, a minimum of	6
	97 to 86
Open Electives	33 to 44
Total	130

Electives

List A (a minimum of 6 hours)
- History 1a, 1b, 3a, 3b
- Sociology 2, 3, 7, 8
- Economics 3, 41, 44
- Psychology 1

Suggested Electives

- Bacteriology 8, 26
- Chemistry 51b, 97a
- Home Economics 45, 46, 47, 48
- General Hygiene 10
- French or German

[1]Semester hours. For definition, see page 71.

Suggested Sequence of Courses in Nutrition and Dietetics

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 1 or 2—Inorganic Chemistry	5 or 3	Chem. 5—Qualitative Analysis	5
Rhet. 1—Rhetoric and Themes	3	Rhet. 2—Rhetoric and Themes	3
Phys. Ed. 7a—Gymnasium	1	Hyg. 4—Hygiene	½
Hyg. 2—Hygiene	½	Phys. Ed. 7b—Gymnasium	1
Zool. 1—General Zoology	5	Electives	6
Electives	1–3		
Total	15½	Total	15½

SECOND YEAR

Chem. 33—Organic Chemistry	5	Bact. 5a, 5b—Introductory Bacteriology	5
Home Econ. 1—Foods	4	Home Econ. 6—Foods	4
Physiol. 4—Physiol. of Digestion	5	Econ. 1 or 2—Principles of Econ.	5 or 3
Phys. Ed. 8a—Gymnasium	1	Phys. Ed. 8b—Gymnasium	1
		Electives	2 or 4
Total	15	Total	17

THIRD YEAR

Engl. Lit.	4 or 3	Chem. 24—Quantitative Analysis	5
Home Econ. 5—Dietetics	4	Engl. Lit.	4 or 3
Sociol. 1—Principles of Sociology	3	Home Econ. 46—Quantity Cookery	3
Electives	6 or 7	Electives	5 or 6
Total	17	Total	17

FOURTH YEAR

Chem. 50a—Physiological Chemistry	5	Home Econ. 33—Diet in Disease	3
Home Econ. 20—Infant Nutrition	2	Home Econ. 39b—Nutrition	1
Home Econ. 39a—Nutrition	1	Home Econ. 41—Problems in Nutrition	5
Home Econ. 47—Institutional Management	3	Electives	8
Electives	6		
Total	17	Total	17

[1]Semester hours. For definition, see page 71.

THE COLLEGE OF EDUCATION

DIRECTIONS FOR REGISTRATION

Read the General Directions for Registration beginning on page 6 and follow carefully the instructions given therein.

Obtain your study-list: (1) if you already have a permit to register, in the College of Education, in Room 104 Administration; (2) if you have not yet secured a permit to register, in the College of Education, at the Registrar's Office, 100-A Administration. Students with junior standing in one of the undergraduate colleges who wish to transfer to the College of Education as candidates for the degree of Bachelor of Science in Education should follow the procedure outlined in paragraph 6 on page 7.

Advisers

For candidates for the degree of Bachelor of Science in Education—Dean, College of Education, 104 Administration.

For students in the Curriculum in Agricultural Education—Professor Nolan, 116 Agricultural Building.

For students in the Curriculum in Industrial Education—Professor Mays, 310 Administration.

For students in the Curriculum in Home Economics Education—Miss Robinson, 105 Woman's Building.

For students in the Curriculum in Physical Education—Director Huff, 210 Men's New Gymnasium.

For students in the Curriculum in Music Education—Director Stiven, 100 Smith Memorial Hall.

Sectional Courses

Students in the College of Education will have their sections approved in the Library, to which they should proceed after securing their adviser's signature on Coupon 2 of the study-list.

Class cards may be obtained at the loan desk in the Library.

Registrar's Checking Clerks

Having secured approval of their sections, students in education should go to the Lobby of the Auditorium, where they will find the Registrar's checking clerks and fee clerks representing the Business Office.

REQUIREMENTS FOR ADMISSION

In general, a student must complete two years (60 hours exclusive of military) of a curriculum in the College of Agriculture, Commerce and Business Administration, Engineering, or Liberal Arts and Sciences, or the School of Music before being admitted to the College of Education. The exceptions to this are: Athletic Coaching and Physical Education, and Industrial Education. To the former, admission is granted on admission to the University and the passing of a medical and physical examination; to the latter admission is granted on admission to the University.

Juniors entering the College of Education through the College of Liberal Arts and Sciences should have completed the prescribed subjects and the first five group requirements for the degree of Bachelor of Arts. (See page 13.)

Juniors entering through the other colleges should select some curriculum in the college chosen, and complete the first two years.

Juniors entering from other institutions must present 60 hours of a curriculum pursued in that institution.

Students who enter with more than 60 hours of credit will be given advanced standing in the College of Education to the amount which the credit is in excess of 60 hours.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

The requirements for graduation are as follows:

1. Admission to the College of Education.

2. A curriculum of 70 hours, except in Athletic Coaching and Physical Education, in which 136 hours are required, and in Industrial Education, in which 130 hours are required.

3. A major of 20 hours in education except in Athletic Coaching and Physical Education, in which 25 hours are required, including the following courses: educational psychology, 3 hours; technic of teaching, 3 hours; a teachers' course in the subject of specialization, 2-3 hours; principles of secondary education, 3 hours; and educational practice, 3-5 hours.

4. Students must specialize in two subjects commonly taught in high schools. In the first of these subjects twenty hours of approved courses must be completed (except that in Agricultural Education 49 hours, Home Economics Education 36 hours, Athletic Coaching and Physical Education 41 hours, and Industrial Education 25 hours must be completed). In the other subject of specialization the student must complete 16 hours of approved courses. In computing the hours in the subjects of specialization, courses taken in other colleges prior to admission may be counted.

5. The remainder of the curriculum may be elected from a list of courses approved by the faculty of the College of Education.

SELECTION OF SUBJECTS FOR SPECIALIZATION

In selecting subjects for specialization students are advised to give consideration to the combinations that are desired in high schools. The following are the most frequent subject combinations in Illinois high schools in 1929-30. The major teaching subject is named first followed by the minor teaching subjects in decreasing order of frequency.

Agriculture	Biology	P. E. (boys)	Gen. Science
Biology	Gen. Science	P. E. (boys)	History
Chemistry	Physics	Biology	Gen. Science
Commercial	Mathematics	History	English
English	Latin	History	Music
French	Latin	English	History
Gen. Science	Biology	Physics	Home Economics
History	English	Latin	Civics
Home Economics	English	Gen. Science	History
Latin	English	History	Mathematics
Library	English	Music	History
Manual Tr.	P. E. (boys)	Mathematics	Physics
Mathematics	P. E. (boys)	Physics	History
Music	English	History	Latin
Physics	Mathematics	Chemistry	Gen. Science
P. E. (boys)	Mathematics	History	Manual Tr.
P. E. (girls)	English	History	Home Economics
Spanish	French	English	Latin

TEACHER'S CERTIFICATE

The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 15 hours in Education for the Limited State High School Certificate, or for the hours of Education necessary as a qualification for teachers in the North Central Association accredited schools:

Art and Design 9a and 9b
Botany 14
Chemistry 12b
English 41 and 42
French 25
Geography 9
German 25
History 18
Home Economics 11, 13, and 34
Journalism 48
Latin 9
Mathematics 35
Music 25a, 25b, 26a and 26b
Physical Education for Women 15a, 15b, and 17
Physics 18
Public Speaking 12
Spanish 25

CURRICULA

Because of the variety of curricula which the student may offer for admission to the College of Education none is presented in any department except Agricultural Education, Home Economics Education, Industrial Education, Athletic Coaching, Physical Education, Music Education. Students preparing to teach other subjects should follow the requirements stated under "Requirements for the Degree."

Suggested Curriculum in Agricultural Education

Meeting the requirements for the B.S. degree in Agricultural Education and for teacher-training under the Smith-Hughes Act.

1. *Prerequisite:*—In general two years (60 hours, exclusive of military) of a curriculum in another college.

   (See requirements for admission to the College of Education)

2. *Required courses:*

   (a) Students expecting to meet the requirements for teaching vocational agriculture should use the curriculum for General Agriculture set up by the College of Agriculture as a guide with reference to prescribed courses other than education and consult with the adviser in Agricultural Education as to desirable modifications and electives.

   (b) *Technical Agriculture:*—required total.....52 hours
   (Including the prescribed courses in technical agriculture required for the B.S. degree in Agriculture)

   (c) *Education:*—required total.....20 hours
   Including:
   Education 25—Educational Psychology.
   Education 10—Technic of Teaching.
   Education 6—Principles of Secondary Education.
   Agr. Educ. 50—Practice Teaching in Agriculture.
   Agr. Educ. 51—Methods in Teaching Agriculture.

   (According to the provisions of the Smith-Hughes Act, 13 hours of education are the minimum required for teachers of vocational agriculture in Illinois.)

3. *Elective courses:*—to make 130 hours.

Elective Courses Recommended

(a) *Agricultural courses:*

Agronomy 7, 8
Dairy Husbandry 2
Horticulture 8a, 2
Farm Mechanics 21, 3
Farm Organization and Management 5
Animal Husbandry 3, 6, 37

(b) *Non-agricultural courses:*

Agricultural Education 1
Agricultural Education 90
Psychology 1
Botany 7
Economics 13
Economics 16
Public Speaking 1, 2
Zoology 1
Sociology 7
Journalism 24

Required Curriculum in Physical Education and Athletic Coaching

(Leading to degree of Bachelor of Science in Physical Education.)

In any curriculum in which fewer than 15 hours of laboratory science are required, a student who enters without at least one unit of laboratory science shall be required to substitute 5 hours of a laboratory science for 5 hours of free electives in the requirements for graduation.

FIRST YEAR

FIRST SEMESTER

	Hours[1]
Group A[2]	
A. C. 30—Football	2
A. C. 40—Basketball	2
or	
Group B[2]	
A. C. 2—Calisthenics, Single Line Marching and Gymnastic Dancing	4
with	
Anatomy 1	3
Rhetoric 1—Rhetoric and Themes	3
Mil. 1a and 1b—Military Drill and Theory (or equivalent)	1
Electives (Academic)	6–7
Total	17–18

SECOND SEMESTER

	Hours[1]
Group A[2]	
A. C. 2—Calisthenics, Single Line Marching and Gymnastic Dancing	4
or	
Group B[2]	
A. C. 40—Basketball	2
A. C. 30—Football	2
with	
Anatomy 2	3
Physiology 1—Gen'l Physiology	2
Mil. 2a and 2b—Military Drill and Theory (or equivalent)	1
Rhetoric 12	5
Electives (Academic)	2–3
Total	17–18

SECOND YEAR

Group A[2]	
A. C. 31—Football	2
A. C. 7—Boxing and Wrestling	2
or	
Group B[2]	
A. C. 50—Baseball	4
with	
Physiol. 2—Physiol. of Physical Exercise	4
Educ. 28—Psychology of Athletics	3
Pub. Spk. 1—Oral Expression	3
Journalism 7—Sports Writing	3
Mil. 3a and 3b—Military Drill and Theory (or equivalent)	1
Total	18

Group A[2]	
A. C. 50—Baseball	4
or	
Group B[2]	
A. C. 7—Boxing and Wrestling	2
A. C. 31—Football	2
with	
Hygiene 10	3
Pub. Spk. 2—Business and Professional Speaking	2*
Journalism 8—Sports Writing	3*
Mil. 4a and 4b—Military Drill and Theory (or equivalent)	1
Electives (Academic)	4–5
Total	17–18

THIRD YEAR

Group A[2]	
A. C. 41—Basketball	2
A. C. 15—Recreational Activities	2
A. C. 70—Health Education and Corrective Gymnastics	4
or	
Group B[2]	
A. C. 20—Track	4
with	
Educ. 25—Educational Psych	3
Ed. Prac. 1—Practice Teaching	2
Electives (Academic)	4–9
Total	17–18

Group A[2]	
A. C. 20—Track	4
or	
Group B[2]	
A. C. 41—Basketball	2
A. C. 15—Recreational Activities	2
A. C. 70—Health Education and Corrective Gymnastics	4
with	
A. C. 32—Football	2
Educ. 10—Technic of Teaching	3
Ed. Prac. 2—Practice Teaching	2
Electives (Academic)	6–3
Total	17–18

FOURTH YEAR

Group A[2]	
A. C. 4—Gym Stunts	4
A. C. 17—Org. and Adm.	3
A. C. 16—Training	2
or	
Group B[2]	
Educ. 8—Hist., Sys., and Theories of P. E.	2
Educ. 7—School Programs of P. E.	3
A. C. 60—Swimming	2
with	
Educ. 6—Prin. of Secondary Educ.	3
Educ. Prac. 3—Practice Teaching	2
Educ. 48—Experimental Methods in Athletics	3*
Electives (Academic)	0–3
Total	17–18

Group A[2]	
A. C. 60—Swimming	2
Educ. 8—Hist., Sys., and Theories of P. E.	2
Educ. 7—School Programs of P. E.	3
or	
Group B[2]	
A. C. 17—Org. and Adm.	3
A. C. 16—Training	2
A. C. 4—Gym. Stunts	4
with	
Educ. 43—Physical and Mental Tests	3*
Ed. Prac. 4—Practice Teaching	2
Electives (Academic)	5–4
Total	17–18

*Suggested, but not required.
[1]Semester hours. For definition, see page 71.
[2]Students who take Group A first semester, must take Group A second semester. Students who take Group B first semester, must take Group B second semester.

Suggested Curriculum Physical Education for Women

FIRST YEAR

Registration in the College of Liberal Arts and Sciences

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Rhetoric 1	3	Rhetoric 2	3
Language	4	Language	4
History or Mathematics	3–4	Chemistry	3–5
Physiology 1	2	Electives	4
Hygiene 2	½	Hygiene 4	½
P. E. 7a	1	P. E. 7b	1
Electives	2–3		
Total	15½–17½	Total	15½–17½

SECOND YEAR

English 1 or Language	3–4	English 2 or Language	3–4
Zoology 1	5	Psychology 1	4
Physiology 2	4	Zoology 2	5
P. E. 8a	1	P. E. 8b	1
Electives	3	Electives	3
Total	16–17	Total	16–17

THIRD YEAR

*Registration in the College of Education Junior and Senior Years, for the degree of B.S. in Education.

Education 25	3	Education 10	3
P. E. 15a—Methods	3	P. E. 15b—Methods	3
P. E. 16—Kinesiology	3	P. E. 18—Theory of Correctives	3
Public Speaking 1	3	Education 5	3
Electives[2]	5	P. E. 11b—First Aid	1
		Anatomy 2a	3
Total	17	Total	16

FOURTH YEAR

P. E. 10a—History of P. E.	1	P. E. 10b—Organization and Adm.	1
P. E. 17a—Educational Practice	3	P. E. 17b—Educational Practice	3
Home Econ. 38	2	P. E. 19—Physical Diagnosis	2
Sociology 1	3	Electives in Education	6
Education 6	3	Electives	5
P. E. 11a—Therapeutics	1		
Electives	4		
Total	17	Total	17

Suggested Curriculum in Industrial Education

In any curriculum in which fewer than 15 hours of laboratory science are required, a student who enters without at least one unit of laboratory science shall be required to substitute 5 hours of a laboratory science for 5 hours of free electives in the requirements for graduation.

I. Curriculum for Supervisors and Directors of Industrial Education, for Heads of Departments, and High School Teachers of Manual Arts.

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
G. E. D. 1—Elements of Drafting	4	Ec. 27—Modern Industry	3
Rhet. 1—Rhetoric and Themes	3	A. D. 1—Freehand Drawing	3
Indus. Ed. 1—Manual Arts, 1st Course	4	Math. 4—Trigonometry	2
Phys. Ed.—Gymnasium	½	Rhet. 2—Rhetoric and Themes	3
Hyg. 1—Hygiene	½	Indus. Ed. 2—Adv. Manual Arts	4
Military Drill and Theory	1	Phys. Ed.—Gymnasium	½
Electives	2–5	Hyg. 3—Hygiene	½
		Military Drill and Theory	1
		Electives	1
Total	15–18	Total	18

*Students transferring from Colleges or Normal Schools must have fulfilled all the requirements of the first two years of the curriculum.

[1]Semester hours. For definition, see page 71.

[2]Students who have not had Engl. 1 and 2 or 10 and 11 are required to take Engl. 20a.

SECOND YEAR

FIRST SEMESTER	Hours[1]
Ed. 3—Survey of Modern Educational Problems	3
M. E. 85—Pattern and Foundry	3
Journalism 9a—Printing	3
Phys. Ed.	½
Military Drill and Theory	1
Electives	4–6
Total	14½–16½

SECOND SEMESTER	Hours[1]
Indus. Ed. 2a—Advanced Manual Arts	4
Psych. 1—Introduction to Psychology	4
Econ. 1—Principles of Economics	5
Military Drill and Theory	1
Phys. Ed.	½
Electives	1–4
Total	15½–18½

THIRD YEAR

Econ. 41—Introduction to Labor Prob.	3
Ed. 25—Educational Psychology	3
Indus. Ed. 50—Problems of Indus. Ed.	3
M. E. 87—Machine Laboratory	3
Electives	3–6
Total	15–18

Ed. 10—Technic of Teaching	3
Econ. 24—Economic Develop. of Mod. Europe	3
M. E. 88—Machine Laboratory	3
B. O. and O. 1—Indus. Organization and Management	3
Electives	3–6
Total	15–18

FOURTH YEAR

Ed. 6—Prin. of Secondary Ed.	3
Ed. 41—Problems of Vocational Ed.	3
Indus. Ed. 57—Organization of Shop-work	3
Sociol. 1—Principles of Sociology	3
Electives	3–6
Total	15–18

Ind. Ed. 62—History and Organization of Indus. Arts	3
Ed. 55—Problems of Vocational Guidance	3
Ed. Prac. 16—Supervised Teaching	3–5
Electives	6-9
Total	15–18

II. Curriculum for Teachers of Related Subjects and General Continuation Teachers. Same as I. Electives to be chosen with advice of instructor.

III. Two-year Curriculum for Teachers of Related Subjects and General Continuation Subjects.

Students over 21 years of age who are graduates of accredited high schools may, with the approval of the dean of the college and the head of the department, select two years of work from the Curriculum under I. Students over 25 are not required to take Physical Education or Military Training.

IV. Curriculum for Teachers of Shop Work in Vocational Schools and Classes Operating under the State Board for Vocational Education.

FIRST YEAR

First Semester

Psychological basis of trade teaching. Analysis of teaching material in trades. Lesson planning. Observation of trade teaching. Reports on observations. (Such study of mathematics, science, drawing, and English as may be needed by shop teachers will be included.)

Second Semester

Further work in trade analysis and observation of teaching. Special study of evening school problems. Analysis of the evening school student. Intensive study of methods of teaching. Organization of teaching material. Organization of related subjects. Course-planning. Practice teaching.

[1]Semester hours. For definition, see page 71.

SECOND YEAR

First Semester

History of trade and industrial education. Place of industrial education. Types of industrial schools and classes. Problems of administration of industrial education.

Second Semester

Early American legislation on vocational education. The Smith-Hughes law. Other modern laws and movements. State vocational education laws. The Illinois plan. Observation and practice teaching.

HOME ECONOMICS EDUCATION

Required for the Degree of Bachelor of Science

(Home Economics Education)

Prescribed Subjects

	Hours[1]
Home Economics 1 and 6 (or 44), 2, 5, 7, 10, 29	20 or 25
Art and Design 13a and 13b	4
Chemistry 1 or 2, 5	10 or 8
Chemistry 33	5
Economics 1 or 2	5 or 3
Physiology 4	5
List A, a minimum of	13

List A (a minimum of 13 hours)

Home Economics 3, 14, 19, 20, 28, 30, 31, 33, 39a, 39b, 41, 43a, 43b, 46, 47, 55.

Required for the Degree of Bachelor of Science

(Home Economics Education—Smith-Hughes)

Students expecting to meet the requirements for teacher-training under the Smith-Hughes Act should include the following subjects in their four-year curriculum.

	Hours[1]
Art and Design 13a—Design	2
Art and Design 13b—Design	2
Bacteriology 5a, 5b—Introductory Bacteriology	5
Chemistry 1 or 2—Inorganic Chemistry	5 or 3
Chemistry 5—Inorganic and Qualitative Analysis	5
Chemistry 33—Organic Chemistry	5
Economics 2—Principles of Economics	3
Education 6—Principles of Secondary Education	3
Education 10—Technic of Teaching	3
Education 14—Home Economics Education	5
Education 25—Educational Psychology	3
English Literature	6 or 8
Home Economics 1[2]—Foods	4
Home Economics 2—Home Architecture	3
Home Economics 3—Home Decoration	3
Home Economics 5—Dietetics	4
Home Economics 6[2]—Foods	4
Home Economics 7—Textiles	3
Home Economics 10—Household Organization and Management	3
Home Economics 11—Teachers' Course	3
Home Economics 13—Home Economics in Education	3
Home Economics 14—Practice House	3
Home Economics 19—Costume Design	3
Home Economics 29—Clothing	4
Home Economics 30—Clothing	3
Hygiene 2, 4—Essentials of Hygiene and Sanitation	1
Physical Education 7a, 7b, 8a, 8b—Gymnasium	4
Physiology 4—Physiology of Digestion	5
Psychology 1—Introduction to Psychology	4
Rhetoric 1, 2—Rhetoric and Themes	6
Sociology 1—Principles of Sociology	3
[2]Electives	15 or 19
Total	130

[1]Semester hours. For definition, see page 71.

[2]Suggested Electives: Home Economics 40, Home Care of Sick, 1 Hour; Home Economics 56, Child Development, 2 hours.

Curriculum in Public School Music Education

The first and second years follow the curriculum of the same years in the School of Music. One of the applied music subjects must be Piano during these two years.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Music 25a (Public School Methods)	4	Music 25b (Public School Methods)	4
Music 52a, 62a, 72a, or 92a[2]	3	Music 52b, 62b, 72b, or 92b	3
Music 62a, or 92a (different)	2	Music 62a or 92a (different)	2
Music 13 (Appreciation)	1	Music 14 (Appreciation)	1
Music 15 (Instrumentation)	1	Music 16 (Instrumentation)	1
Psychology 1	4	Education 25	3
Electives[3]	2–3	Electives	2–4
Total	17–18	Total	16–18

FOURTH YEAR

Music 26a (Public School Methods)	4	Music 26b (Public School Methods)	4
Education 10 (Technic of Teaching)	3	Education 6 (Principles of Secondary Education)	3
Educational Practice 20	3–4	Educational Practice 20	3–4
Electives	4–5	Electives	4–5
Total	14–16	Total	14–16

[1]Semester hours. For definition, see page 71.

[2]If Voice has been taken as a *major* or a *minor* subject during the first two years, two semesters of an orchestral instrument are required during the junior year. Otherwise two semesters of Voice are required during the junior year.

[3]Electives suggested: counterpoint; English or American literature. Electives to be selected only after conference with adviser.

THE COLLEGE OF LAW

Law students should read the General Directions given in paragraphs 1-22 on pages 6-10. Having secured their study-lists they should report at the Dean's Office in 301 Law Building. *Law students are also advised to study carefully the special announcement of the College of Law which may be obtained at the office of the Dean.*

Each student should follow, *point by point,* the directions given on the first coupon of his study-list.

The College of Law offers a three-year curriculum in law leading to the degrees of Bachelor of Laws (LL. B.) and Doctor of Law (J.D.). The degree of Doctor of Law (J.D.) is open to students who fulfil the conditions specified on pages 153-156 of the 1929-30 University Register.

Admission

The following persons only will be admitted to the College of Law as candidates for degrees:

1. Graduates of colleges and universities of approved standing.
2. Students in the University of Illinois of senior standing[1] who are permitted to elect courses in law for the degree of Bachelor of Arts or of Bachelor of Science.

Six Year Combined Curricula

Thirty hours of law may be credited toward the degree of Bachelor of Arts in the College of Liberal Arts and Sciences or toward the degree of Bachelor of Science in the College of Commerce and Business Administration. In this manner students may secure in six years both a degree in arts or commerce and a degree in law. A candidate for both degrees must in his fourth year register in the College of Law, and also register or file a copy of his study-list in his other college, as that college may require.

Prescribed and Suggested Courses

Pre-Legal

Students are advised to plan their pre-legal college work with great care and to consult members of the law faculty in regard to their plans.

Students taking the three-three combined curriculum of either the College of Liberal Arts and Sciences or the College of Commerce and Business Administration and the College of Law must exercise care to comply with the group, major, and minor requirements of the college in which their pre-legal work is taken. Such students are urged to complete all of these requirements and at least one hundred hours of credit before entering the College of Law in order that they may devote their entire fourth year to the first year of the law curriculum.

The prospective law student is advised to choose his work, beyond those subjects prescribed in the college in which he is registered, from among the following courses: Accountancy; Economics: Principles of Economics, Money and Banking, Corporation Management and Finance, Labor Problems, Public Finance and Taxation; Political Science: American Government, State Government, Municipal Government, International Law, Principles of Jurisprudence; Philosophy: Logic, Introduction to Philosophy, and Political and Social Ethics; Latin; History: English History, History of the United States, Constitutional History of England, and Constitutional History of the United States; Psychology; Sociology; English, Rhetoric, and Public Speaking.

[1]To obtain senior standing in the University of Illinois a student must have 94 hours of University credit.

Professional

Fifteen hours of law work should be enough to occupy a student's full time; he cannot register for more without special permission.

FIRST YEAR
(Prescribed)

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Law 1a—Contracts	3	Law 1b—Contracts	4
Law 2a—Torts	3	Law 2b—Torts	3
Law 4a—Procedure I	2	Law 4b—Procedure I	2
Law 5—Criminal Law	4	Law 11—Agency	3
Law 3—Personal Property	3	Law 29—Real Property I	3
Total	15	Total	15

The courses of the second and third years are elective, except Equity I, which is prescribed.

[1]Semester hours. For definition, see page 71.

THE SCHOOL OF MUSIC

Music students should read the General Directions for Registration given in paragraphs 1-22 on pages 6-10. Having secured their study-lists (see paragraphs 1-6), they should report to their advisers in 100-102 Smith Memorial Hall.

Each student should follow, *point by point,* the directions given on the first coupon of his or her study-list.

Each student must report to the Library after having secured the study-list at the office of the School of Music, to secure approval of sections chosen in sectional courses (other than courses in music), and to the Auditorium and Administration Building for the assessment and payment of fees.

Practice pianos may be secured at the rate of $3 a semester for one hour a day. Four two-manual and pedal practice organs are installed for the use of organ students at a reasonable fee.

A student matriculated in the School of Music takes throughout his course two applied subjects, one a major (piano, voice, etc.) in which two half-hour lessons a week are taken, and the other a minor, in which two twenty-minute lessons a week are taken.

The University Choral Society and University Orchestra are open to qualified persons from any college.

Students from other colleges desiring to take courses in applied music (i.e., piano, voice, etc.) who have not been previously registered for courses, must pass an entrance examination. For particulars consult the Director of the School of Music.

The Course in Public School Music

Candidates for the degree of Bachelor of Science in Music Education will enter the College of Education at the beginning of the third year. For curriculum see page 61.

REQUIREMENTS FOR GRADUATION

Candidates for the degree of Bachelor of Music must offer credit for 130 semester hours, including the prescribed subjects named below, one of which must be piano.

All music students are required to attend the concerts and recitals which are given under the auspices of the School of Music. More than three unexcused absences during the semester will affect the grade of the major applied music subject, of which this required attendance is a part.

Performance being also a part of the course of study in the applied music subjects, all students are required to participate in a program when sufficiently prepared.

Curricula in Music
Bachelor of Music—Instrumental Major
(Piano, violin, cello, organ, or band and orchestral instruments)

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Mus. 3—Harmony	2	Mus. 4—Harmony	2
Mus. 19—Rudiments of Theory	1	Mus. 20—Rudiments of Theory	1
Mus. 21—Ear Training and Sight Singing	1	Mus. 22—Ear Training and Sight Singing	1
Mus. 42a, 62a, 72a, 82a, or 92a—Piano, Violin, etc. (Major subject)	4	Mus. 42b, 62b, 72b, 82b, or 92b—Piano, Violin, etc. (Major subject)	4
Mus. 42a, 52a, 62a, 72a, 82a, or 92a—Piano, Voice, Violin, etc. (Minor subject)	2½	Mus. 42b, 52b, 62b, 72b, 82b, or 92b—Piano, Voice, Violin, etc. (Minor subject)	2½
Rhet. 1—Rhetoric and Themes	3	Rhet. 2—Rhetoric and Themes	3
Phys. Ed. 7a—Gymnasium (Women)	1	Phys. Ed. 7b—Gymnasium (Women)	1
Hyg. 2—Hygiene (Women)	½	Phys. Ed.—Gymnasium (Men)	½
Hyg. 1—Hygiene (Men)	½	Hyg. 4—Hygiene (Women)	½
Phys. Ed.—Gymnasium (Men)	½	Hyg. 3—Hygiene (Men)	½
Mil. 1a and 1b, 11a and 11b, 21a and 21b, or 51a and 51b—Military Drill and Theory	1	Mil. 2a and 2b, 12a and 12b, 22a and 22b, or 52a and 52b—Military Training and Theory	1
		Elective (Women)	1
Total, Men	15½	Total, Men	15½
Total, Women	15	Total, Women	16

SECOND YEAR

Mus. 1—History of Music	2	Mus. 2—History of Music	2
Mus. 5—Advanced Harmony	3	Mus. 6—Advanced Harmony	3
Mus. 23—Ear Training and Sight Singing	1	Mus. 24—Ear Training and Sight Singing	1
Mus. 43a, 63a, 73a, 83a, or 93a—Piano, Violin, etc. (Major subject)	4	Mus. 43b, 63b, 73b, 83b, or 93b—Piano, Violin, etc. (Major subject)	4
Mus. 43a, 53a, 63a, 73a, 83a, or 93a—Piano, Voice, Violin, etc. (Minor subject)	2½	Mus. 43b, 53b, 63b, 73b, 83b, or 93b—Piano, Voice, Violin, etc. (Minor subject)	2½
Foreign Language—French or German	4	Foreign Language—French or German	4
Phys. Ed. 8a—(Women)	1	Phys. Ed. 8b—(Women)	1
Phys. Ed.—(Men)	½	Phys. Ed.—(Men)	½
Mil. 3a and 3b, 13a and 13b, 23a and 23b, or 53a and 53b—Military Drill and Theory	1	Mil. 4a and 4b, 14a and 14b, 24a and 24b, or 54a and 54b—Military Drill and Theory	1
Total, Men	18	Total, Men	18
Total, Women	17½	Total, Women	17½

THIRD YEAR

Mus. 7—Count'rp't, Canon, and Fugue	3	Mus. 8—Count'rp't, Canon, and Fugue	3
Mus. 44a, 64a, 74a, 84a, or 94a—Piano, Violin, etc. (Major subject)	4–5	Mus. 44b, 64b, 74b, 84b, or 94b—Piano, Violin, etc. (Major subject)	4–5
Mus. 44a, 54a, 64a, 74a, 84a, or 94a—Piano, Voice, Violin, etc. (Minor subject)[2]	2½	Mus. 44b, 54b, 64b, 74b, 84b, or 94b—Piano, Voice, Violin, etc. (Minor subject)[2]	2½
Mus. 15—Instrumentation	1–2	Mus. 16—Instrumentation	1–2
Mus. 30a—Accompanying and Ensemble	½–1	Mus. 30b—Accompanying and Ensemble	½–1
Restricted Elective (Non-technical)[3]	4	Restricted Elective[3]	2
		Mus. 34—Recital	2
Total	15–17½	Total	15–17½

FOURTH YEAR

Mus. 9—Analysis, Musical form	2	Mus. 10—Analysis, Musical Form	2
Mus. 45a, 65a, 75a, 85a, or 95a—Piano, Violin, etc. (Major subject)	4–5	Mus. 45b, 65b, 75b, 85b, or 95b—Piano, Violin, etc. (Major subject)	4–5
Mus. 45a, 55a, 65a, 75a, 85a, or 95a—Piano, Voice, Violin, etc. (Minor subject)[4]	3	Mus. 45b, 55b, 65b, 75b, 85b, or 95b—Piano, Voice, Violin, etc. (Minor subject)[4]	3
Music 31a—Accompanying and Ensemble	½–1	Music 31b—Accompanying and Ensemble	½–1
Electives	6–7	Electives	2–3
		Mus. 35—Recital	4
Total	15½–18	Total	15½–18

[1]Semester hours. For definition, see page 71.

[2]Voice to be taken as a minor in Band and Orchestral Instruments major.

[3]At least three hours of the electives must be in English or American literature. Students preparing to take charge of instrumental organizations in high schools must elect certain courses in Education.

[4]Music 38a and b (Organization and Conducting), 2 hours, required instead of minor subject in Band and Orchestral Instruments major.

Bachelor of Music—Vocal Major

The first and second years are the same as in the instrumental major curriculum, except that voice is the major applied subject.

At least eight hours each of French, German, and Italian are required for the vocal major. One of the languages is to be taken in the sophomore year, and a *second* language in the junior year. If the student has not presented at least two units of the *third* language, taken in high school, he must elect this language in the senior year. Otherwise, a course in English is advised for this elective.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Mus. 7—Count'rp't, Canon, and Fugue	3	Mus. 8—Count'rp't, Canon, and Fugue	3
Mus. 13—Music Appreciation	1	Mus. 14—Music Appreciation	1
Mus. 30a—Accompanying and Ensemble	½–1	Mus. 30b—Accompanying and Ensemble	½–1
Mus. 54a—Voice (Major subject)	4	Mus. 54b—Voice (Major subject)	4
Mus. 44a—Piano (Minor subject)	3	Mus. 44b—Piano (Minor subject)	3
Foreign Language	4	Mus. 34—Recital	2
		Foreign Language	4
Total	15½–16	Total	17½–18

FOURTH YEAR

Mus. 9—Analysis, Musical Form	2	Mus. 10—Analysis, Musical Form	2
Mus. 31a—Accompanying and Ensemble	½–1	Mus. 31b—Accompanying and Ensemble	½–1
Mus. 55a—Voice (Major subject)	4	Mus. 55b—Voice (Major subject)	4
Mus. 45a—Piano (Minor subject)	3	Mus. 45b—Piano (Minor subject)	3
Restricted Elective[2]	5	Mus. 36—Recital	3
		Restricted Elective[2]	5
Total	14½–15	Total	17½–18

Bachelor of Music—Theory Major

A student may take a major in Theory of Music only on recommendation of the Director. In addition to the complete theory course offered in the instrumental major, he must complete the courses in Advanced Composition (Music 11 and 12), and in Advanced Orchestration (Music 17 and 18). In addition he must present a recital during the senior year of his own compositions and orchestral arrangements. His work in applied music must be equivalent to that of three years of collegiate study. Thesis required.

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[1]Semester hours. For definition, see page 71.

[2]Restricted electives (to be taken only when the student has had more than two years of required modern language in High School).

Psychology	4	Keyboard Harmony	2
English	2–4		

THE SCHOOL OF JOURNALISM

DIRECTIONS FOR REGISTRATION

The General Directions for Registration apply to journalism and pre-journalism students. (See pages 6-10). Students who have been admitted to the School of Journalism may secure their study-lists at the office of the Director, 101 University Hall.

Pre-journalism freshmen and sophomores may register "pre-journalism" within the College of Liberal Arts and Sciences and follow the routine prescribed for registration in that college. Juniors, with or without journalism credit, may register in the School of Journalism with junior standing if they present the required work in rhetoric, science, and social sciences. Seniors in the University may register in the School of Journalism with advanced standing.

ADVISERS

Junior and Senior in the School of Journalism—Professor Murphy, 101 University Hall.

(Sections will be approved at the University Library).

Graduate students taking work in journalism—Professor Murphy, 101 University Hall.

GENERAL STATEMENT

The School of Journalism offers a two-year curriculum in journalism, based on an entrance requirement of two years of college work (60 semester hours, exclusive of physical education, military science, and hygiene), leading to the degree of Bachelor of Science in Journalism.

REQUIREMENTS IN DETAIL

Bachelor of Science in Journalism

Admission: For admission to the School of Journalism as a candidate for a degree a student must be able to matriculate in one of the undergraduate colleges and must offer in addition *60 semester hours* of college work of acceptable grade, exclusive of physical education, hygiene, and military; but inclusive of the following prescribed subjects:

Rhetoric and Composition, 6 hours (Rhetoric 1 and 2, or a proficiency examination equivalent to an examination in Rhetoric 2).

Science, 10 hours in any two of the following subjects: zoology, botany, chemistry, physics, geology. (Attention is called to the University requirement that a student who enters the University without at least one unit of high-school work in laboratory science must substitute five hours of a laboratory science for five hours of free electives in the requirements for graduation).

History, political science, economics, and sociology, 8 hours.

As desirable electives the following subjects are suggested: English literature, 6 hours; accountancy, 3 hours; newspaper reporting, 6 hours; printing and publishing, 4 hours; introduction to journalism, 2 hours; foreign language, 8 hours.

Graduation requirements are as follows:

(1) Registration in the School of Journalism.

(2) Completion of a total of 130 hours, including the 60 hours required for admission.

(3) Completion of the following work as a part of the 130 hours required for graduation:

a. At least 30 hours in journalism including: reporting, 6 hours; copyreading, 6 hours; printing and publishing, 2 hours; newspaper advertising or business problems, 2 hours; history of journalism, 3 hours; ethics of journalism, 3 hours; editorial writing, 2 hours; special problems or thesis, 4 hours.

b. At least 20 hours chosen from the following subjects, with one or more courses in any four of them: history, economics, sociology, political science, business organization and operation.

c. At least 12 hours in literature. (The work in literature may be done in any language. In foreign languages, only courses that are based on two years of college work, or their equivalent, in the given language, may be counted toward these twelve hours).

d. A course in rhetoric beyond 1 and 2.

e. Three hours in philosophy.

SCHOOL OF JOURNALISM PROGRAM

A Normal Program for Bachelor of Science in Journalism

No. 1. For students from the pre-journalism curriculum.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
History of Journalism	3	Ethics of Journalism	3
Social Sciences, etc.	3–6	Social Sciences, etc.	3–6
Copyreading	3	Copyreading	3
Literature or Philosophy	3–4	Literature or Adv. Rhet.	2–4
Electives	4–2	Electives	6–2
Total	16–18	Total	17–18

FOURTH YEAR

Editorial Writing	2	Advertising or Business Problems	2
Special Problems or Thesis	2	Special Problems or Thesis	2
Social Sciences	3–6	Social Sciences	3–6
Literature or Philosophy	3–4	Literature or Adv. Rhet.	3–4
Electives	6–4	Electives	6–4
Total	16–18	Total	16–18

No. 2. For students from various courses in other colleges.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Reporting	3	Reporting	3
Printing and Publishing	2	Journalism Elective	2
History of Journalism	3	Ethics of Journalism	3
Literature or Philosophy	3–4	Literature or Adv. Rhet.	2–4
Social Sciences	3–4	Social Sciences	3–4
Electives	3–2	Electives	4–2
Total	17–18	Total	17–18

FOURTH YEAR

Copyreading	3	Copyreading	3
Editorial Writing	2	Advertising or Business Problems	2
Special Problems or Thesis	2	Special Problems or Thesis	2
Literature or Philosophy	3–4	Literature or Adv. Rhet.	3–4
Social Sciences	3–4	Social Sciences	3–4
Electives	4–3	Electives	4–3
Total	17–18	Total	17–18

[1]Semester hours. For definition, see page 71.

THE LIBRARY SCHOOL

First year Library students should present themselves in Room 306 Library Building, where both their admission and their registration may be completed. Second year students follow directions for registration in the Graduate School.

Curriculum in Library Science

The curriculum is two years in length. For graduation a student must receive credit for all courses listed in the curriculum on page 165 of the *Annual Register* except those marked with an asterisk (*), which are elective. The degree of Bachelor of Science in Library Science is conferred on a student when he has completed the required work in the first year's curriculum, and has received credit in courses amounting to 30 hours. Second year students register in the Graduate School as candidates for the Master's degree.

Recommended Preliminary Curriculum

Undergraduates who intend, on the completion of their college work, to apply for admission to the Library School, should select their courses so as to conform in general to the following recommended program of studies preparatory to library work.

English literature, 10[1]; rhetoric, 6.
Latin, 4, in addition to four years of high-school Latin.
German, 12, in addition to two years of high-school German.
French, 8, in addition to two years of high-school French.
German and French begun in college instead of in the high school should be continued for a longer period.
Medieval and modern European history, 6; history of England, 6; history of the United States, 6.
Economics, 6; political science, 4; sociology, 6.
Philosophy, 4; general psychology, 4; education, 6.
Zoology, 6; botany, 4; chemistry or physics, 6.
The total of this work is 104 semester hours, leaving the equivalent of one-half year of a four-year course free for work in other subjects or for more work in the subjects named.

PREPARATION FOR SPECIAL LIBRARIES

Seniors who desire to prepare themselves for work in special libraries (e.g., normal school, historical, business, agricultural) may, with the approval of the faculty, substitute certain advanced courses in other colleges and schools of the University for certain Library School courses.

LIBRARY VISITS

Each year all the students in the Library School are required to visit the libraries and certain of the book binderies, book stores, and printing establishments of either Chicago and vicinity or St. Louis and vicinity. During this visit, which occupies one week, the students are accompanied by members of the faculty. The expense of this week is about $30 per student.

[1]The figure after each subject denotes the minimum number of semester hours which the student should devote to that subject.

THE GRADUATE SCHOOL

ADMISSION

Admission to the Graduate School may be granted to graduates of institutions whose requirements for the bachelor's degree are equivalent to those of the University of Illinois, and to applicants from other institutions approved by the Executive Faculty. *Admission to the Graduate School does not, however, imply admission to candidacy for an advanced degree, and gives no right or claim to be so admitted. Such candidacy is determined by the Faculty after the student has demonstrated by his work here, for from two to five months, that he has the ability to do major work of graduate character. A mere accumulation of "credits" or "grades" is not sufficient.*

Admission to graduate courses may be granted only to those who have had the requisite undergraduate work in those courses. But a student of mature age who satisfies the Dean and the department concerned of his ability to pursue graduate work in a given line may be enrolled in particular graduate courses, and permitted to carry on such study or investigation under the direction of a department of the University as the department shall recommend and the Dean approve.

REGISTRATION

A candidate for admission to the Graduate School should proceed first to the Registrar's Office, 100-A Administration Building, taking with him his official statement of credits from the college of which he is a graduate.

At the Registrar's Office he will be asked to fill out in duplicate an "application for admission" and file therewith his statement of credits.

A candidate from a college or university of recognized standing will receive: (1) permit to enter; (2) a memorandum of prerequisites to be made up (a blank to be used by his advisers in indicating whether or not he is fully ready to enter upon graduate study in his major and minor subjects); and (3) a study-list.

The candidate should obtain a copy of the circular of the Graduate School, and should note the requirements and regulations explained therein, particularly those under the headings "Registration and Program of Study" and "Degrees." He should then proceed with his registration in accordance with these requirements and regulations and with the "Directions for Registration" given on the first coupon of his study-list.

COURSES OF STUDY

Courses of study open to graduate students are of three classes: (1) graduate courses proper, which are numbered from 100 upwards, in the various departments; (2) courses for graduates and advanced undergraduates, which are an intermediate group of advanced courses open to seniors, and occasionally to juniors, as well as to graduate students; (3) miscellaneous courses which include any course in the University not in the two preceding groups. Miscellaneous courses are not accepted for credit towards a degree, and students are permitted to take them only under certain restrictions.

DESCRIPTION OF COURSES AND TIME TABLE

EXPLANATION

The arrangement of subjects in the following Time Table is alphabetical. The connections of allied departments are indicated by cross references.

Following the description of each course of instruction will be found the requirements, if any, for admission to that particular course. The sequence indicated by these prerequisites must be followed. For instance, under Art and Design 14b, Applied Design, the prerequisites given are Art and Design 12 and 14a. These two courses must be completed before Course 14b may be taken.

If a course not required for graduation is selected by fewer than five students it may be withdrawn for the semester.

Graduate courses are numbered upwards from 100.

Credit is reckoned, *for undergraduate students,* in *semester hours,* or simply *hours.* An *hour* is one class period a week for one semester or the equivalent in laboratory, shop, or drawing room.

The number of hours for which the course counts is shown in the parentheses after each course, except where the course, credits, sections, etc., are tabulated, thus: (2).

Credit for first-year graduate students, candidates for the master's degree, is counted in units. A unit course is one which requires ten hours of time per week through one semester, irrespective of the distribution of that time in class work, laboratory work, and private study; four such courses or their equivalent constitute a full minimum program for one semester. The unit values of graduate courses (numbered 100 and upwards) are indicated in the following pages. Courses of the intermediate groups "for graduates and advanced undergraduates" are in general (unless otherwise specified by the department concerned) evaluated as follows for graduate credit: (a) courses open only to students having at least senior standing, 1 unit for a 4-hour or a 5-hour course, ½ unit for a 1-hour, 2-hour, or 3-hour course; (b) courses open to juniors, ½ unit for a 4-hour or 5-hour course, ¼ unit for a 1-hour, 2-hour, or 3-hour course.

For second-year graduate students, candidates for the doctor's degree, no record of units is kept.

The various University buildings are designated by the following abbreviations:

Administration	Adm.
Agricultural Building	Agr.
Animal Pathology Laboratory	An. Path. L.
Applied Mechanics Laboratory	L. A. M.
Architectural Building	Arch.
Armory	Arm.
Armory Annex	A. A.
Art and Design Annex	A. D. Annex
Astronomical Observatory	Obs.
Botany Annex	Bot. Annex
Ceramics Laboratory	Cer.
Chemistry Building	Chem.
Civil Engineering Surveying Building	C. E. S. B.
Commerce Building	Com.
Dairy Manufactures Building	D. Mfrs.
Electrical Engineering Laboratory	E. E. L.
Engineering Hall	E. H.
Entomology Building	Entom.
Farm Mechanics Building	F. M.
Floricultural Greenhouses	F. G.
Gymnasium Annex	Gym. A.
Highway Laboratory	H. L.
Horticultural Building	H. B.
Horticultural Field Laboratory	H. F. Lab.
Law Building	Law
Library	Lib.
Lincoln Hall	L. H.
Materials Testing Laboratory	M. T. L.
Mathematics Building	Math.
Mechanical Engineering Laboratory	M. E. L.
Men's New Gymnasium	New Gym.
Men's Old Gymnasium	Old Gym.
Metal Shop	M. S.
Mining Engineering Laboratory	Min. L.
Morrow Hall	M. H.
Natural History Hall	N. H.
New Agricultural Building	New Agr.
Physics Laboratory	P. L.
Smith Memorial Hall	S. M. H.
Stock Judging Pavilion	S. P.
Transportation Building	T. B.
University Hall	U. H.
University High School	U. H. S.
Vegetable Greenhouse	V. G.
Vivarium Building	Viv.
Woman's Building	W. B.
Wood Shops	W. S.

ACCOUNTANCY

(See Business Organization and Operation.)

AGRICULTURAL COLLEGE EXTENSION

4. **Agricultural Extension.**—Freshman Lectures. (1). 3 MW; 103 New Agr. Assistant Dean RANKIN, Mr. YOUNG, and others.
(Credit is given to agricultural freshmen only.)

AGRICULTURAL EDUCATION

(See Education.)

AGRONOMY

Courses for Undergraduates

14. **Grain Grading and Marketing.**—*Prerequisite:* Econ. 1 or 2, Agron. 25. (An inspection trip will be required in this course; expense of trip about $15.)

Subject	Credits	Section	Hours	Days	Room	Instructor
Agron. 14	3	Lect.	10	MW	302 Agr.	RICKEY
		Lab.	10, 11	F	600 Agr.	

18a-j. **Investigation with Thesis.**—(This course is continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to thesis problem, and the approval of the head of the department. (5). Arrange.

(a) **Soil Fertility.** Professor DETURK.
(c) **Soil Physics.** Professor R. S. SMITH.
(e) **Soil Biology.** Assistant Professor SEARS.
(g) **Plant Breeding.** Professor WOODWORTH.
(j) **Field Crops.** Professor BURLISON, Associate Professor DUNGAN.

25. **Farm Crops.**—*Prerequisite:* Bot. 5.

Agron. 25	3	Lect.	3	MW	205 Agr.	PIEPER
		A Lab.	1, 2	T	600 Agr.	
		B Lab.	10, 11	Th	600 Agr.	
		Quiz	3	F	205 Agr.	

28. **Soils.**—*Prerequisite:* Chem. 5, Geol. 44. (Local field trip, cost not to exceed $1.)

Agron. 28	5	A Lect.[1]	8	MWF	205 Agr.	WIMER and CRANE
		A1 Quiz	8	TT	205 Agr.	
		A2 Quiz	8	TT	302 Agr.	
		B Lect.[1]	10	MWF	205 Agr.	
		B1 Quiz	10	TT	205 Agr.	
		B2 Quiz	10	TT	302 Agr.	
		A Lab.	1, 2, 3	Th	650 Agr.	
		B Lab.	1, 2, 3	F	650 Agr.	
		C Lab.	8, 9, 10	S	650 Agr.	

Courses for Advanced Undergraduates and Graduates

13. **Theory and Practice of Soil Fertility Maintenance.**—*Prerequisite:* Agron. 28.

Agron. 13	3	Lect.	10	TT	553 Agr.	DETURK
		Lab.	Arrange			

22. **Plant Breeding.**—*Prerequisite:* Zool. 15. (3). 8, 9 MWF; 302 Agr. Professor WOODWORTH, Mr. MUMM.

Courses for Graduates

101. **Soil Investigations.**—(1 unit). Twice a week. Arrange. 306 Agr. Professor DETURK.

104. **Seminar in Agronomy.**—(¼ unit). Once a week. Arrange. 301 Agr. The staff.

111. **Soil Biology.**—(½-1 unit).* Once a week. Arrange. Professor DETURK.

114. **Crop Production.**—(1 unit). Once a week. Arrange. Professor BURLISON, Associate Professor DUNGAN.

118. **Research.**—(½-4 units).* Arrange.
(a) **Soil Fertility.** Professor DETURK.
(b) **Soil Physics.** Professor R. S. SMITH.
(c) **Soil Biology.** Professor DETURK.
(d) **Plant Breeding.** Professor WOODWORTH.
(e) **Field Crops.** Professor BURLISON, Associate Professor DUNGAN.

ANATOMY

(See Zoology.)

ANIMAL HUSBANDRY

Courses for Undergraduates

1. **Introduction to Animal Husbandry.**—Required of students not having had livestock judging in high school. (No credit in this course allowed to juniors and seniors.) (2). 3, 4 TT; S. P. Mr. CRAWFORD, Mr. YOUNG.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Corresponding sections in lecture and quiz should be scheduled.

3. Livestock Judging.—*Prerequisite:* An. Husb. 1 or equivalent. (5). 10, 11 MTWTF; S. P. Associate Professor SNAPP.

9a-u. Investigation with Thesis.—(This course is continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work, including 20 hours pertinent to the thesis problem; and the approval of the head of the department. (5). Time to be arranged.

(a) **Beef Cattle.** Professor RUSK, Associate Professor SNAPP.
(c) **Horses.** Professor EDMONDS.
(e) **Sheep.** Assistant Professor KAMMLADE.
(g) **Swine.** Professor CARROLL.
(j) **Poultry.** Professor CARD.
(l) **Animal Nutrition.** Professor MITCHELL.
(n) **Animal Breeding.** Associate Professor ROBERTS.
(q) **Animal Pathology.** Professor GRAHAM.
(s) **Meats.** Associate Professor BULL.
(u) **Marketing.** Associate Professor ASHBY.

12. Special Problems.—*Prerequisite:* 90 hours of university work; approval of the head of the department. (5). Time to be arranged. Members of the department.

21. Principles of Feeding.—*Prerequisite:* Chem. 5; An. Husb. 1.

Subject	Credits	Section	Hours	Days	Room	Instructor
An. Husb. 21	3	Lect.	2	W	553 Agr.	BULL
		A Quiz	2	MF	302 Agr.	
		B Quiz	2	MF	553 Agr.	
		C Quiz	2	MF	Meat Lab.	

34. Anatomy and Physiology, and Non-Contagious and Parasitic Diseases of Farm Animals.—*Prerequisite:* An. Husb. 21. (3). 1 MWF; An. Path. L. Professor GRAHAM.

36. Meat.—(2). 9 TT; 127 Agr. Associate Professor BULL.

38. Poultry Breeds and Judging.—*Prerequisite:* An. Husb. 37. (2). 3 MTWTF; Poul. Plant. (This course is concluded at the beginning of the Christmas recess). Dr. SLOAN.

From the students taking or having had this course will be chosen the team to represent the University in the Annual Mid-West Intercollegiate Student Poultry Judging Contest. The class will visit a near-by poultry show. The cost of the trip will be from $10 to $15.

Courses for Advanced Undergraduates and Graduates

7. Principles of Animal Nutrition.—*Prerequisite:* 90 hours of university work, including An. Husb. 21; Chem. 32. (5). 11 MTWTF; 553 Agr. Mr. HAMILTON.

22. Advanced Stock Judging.—*Prerequisite:* An. Husb. 3. (3). 3 MTWTF; S. P. Heads of divisions.

From the students in this class will be chosen the team to represent the University in the Annual Intercollegiate Student Judging Contest.

24. Meat.—*Prerequisite:* An. Husb. 10. (2-5).* Arrange. Associate Professor BULL.

25. Beef Production.—*Prerequisite:* An. Husb. 3 and 6. (3). 2 MWF; 316 New Agr. Professor RUSK, Associate Professor SNAPP.

26. Pork Production.—*Prerequisite:* An. Husb. 3 and 6. (3). 9 MWF; 316 New Agr. Professor CARROLL.

40. Economics of Poultry Keeping.—*Prerequisite:* 90 hours of university work, including An. Husb. 37. (3). 8 MWF; 331 New Agr. Professor CARD.

Courses for Graduates

110. Animal Nutrition.—(½ unit). Twice a week. Time to be arranged. Professors GRINDLEY, MITCHELL.

112a-f. Research.—Time to be arranged. One to three times a week. (½-2 units).*

(a) **Economic Factors Involved in Meat Production.** Professor RUSK.
(b) **Systems of Livestock Farming.** Associate Professor CASE.
(c) **The Valuation of Pedigrees.** Professor RUSK.
(d) **Animal Nutrition.** Professor MITCHELL.
(e) **Animal Breeding.** Associate Professor ROBERTS.
(f) **Poultry Husbandry.** Professor CARD.

117. Animal Breeding.—(1 unit). One to three times a week. Time to be arranged. Associate Professor ROBERTS.

118. Animal Nutrition Seminar.—(½ unit). Two hours a week. Time to be arranged. Professor MITCHELL.

119. Laboratory Methods in Animal Nutrition.—(½-1 unit).* Two to five times a week. Time to be arranged. Professor MITCHELL.

120. Laboratory Methods in the Diagnosis of Animal Diseases.—(½-1 unit).* Two to five times a week. Time to be arranged. Professor GRAHAM.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

121. **Laboratory Methods in Animal Breeding.**—(½-1 unit).* Two to five times a week. Time to be arranged. Associate Professor ROBERTS.

ARCHITECTURE

11. **History of Architecture.**—*Prerequisite:* Sophomore standing. Not open to students expecting a degree in Architecture. (3). 3 MWF; 120 Arch.

13. **History of Architecture.**—*Prerequisite:* Arch. 31 and 32 or sophomore standing in Arch. Eng. (2). 11 MW; 120 Arch.

15. **History of Architecture.**—*Prerequisite:* Arch. 14. (2). 11 TT; 120 Arch.

21. **Freehand Drawing.**—

Subject	Credits	Section	Hours	Days	Room	Instructor
Arch. 21	2	A	8-10	TT	410-A Arch.	
		B	10-12	TT	410-A Arch.	
		C	10-12	MF	410-A Arch.	
		D	8-10	W	410-A Arch.	
			2-4	F	410-A Arch.	

23. **Freehand Drawing.**—*Prerequisite:* Arch. 32.

Arch. 23	2	A	1-4	TT	410-A Arch.
		B	1-4	MW	410-A Arch.

25. **Freehand Drawing.**—*Prerequisite:* Arch. 24. (2).

Arch. 25	2	A	1-4	TT	410-B Arch.
		B	9-12	MW	410-B Arch.

27. **Freehand Drawing.**—*Prerequisite:* Arch. 26. (2). 8-11 TT; 410-B Arch.

31a. **Architectural Design.**—

Arch. 31a	3	Lect.	2	W	120 Arch.
		A	1-4	TT	210 Arch.
		B	8-11	MF	210 Arch
		C	1-4	MF	210 Arch.
		D	9-12	TT	210 Arch.

33. **Architectural Design.**—*Prerequisite:* Arch. 32.

Arch. 33	3	A	8-11	TTS	210 Arch.
		B	1-4	TTF	210 Arch..

35. **Architectural Design.**—*Prerequisite:* Arch. 34 and registration in Arch. 65.

Arch. 35	5	A	9-12	M	200 Arch.
			1-4	MWF	200 Arch.
		B	1-4	TT	200 Arch.
			9-12	FS	200 Arch.

37. **Architectural Design.**—*Prerequisite:* Arch. 36 and senior standing in Architecture. (7). Sec. A, 8-11 S, 1-4 MTWTF; 200 Arch.

43. **Technology of Materials.**—*Prerequisite:* Arch. 31 and 32.

Arch. 43	3	A	1-4	MW	310 Arch.
			11	F	302 Arch.
		B	8-11	TT	310 Arch.
			11	F	302 Arch.

45. **Graphic Statics.**—*Prerequisite:* T. A. M. 16 and Arch. 44.

Arch. 45	3	A	9-12	WF	310 Arch.
			9	T	302 Arch.
		B	1-4	MW	310 Arch.
			9	T	302 Arch.

65. **Theory of Architecture.**—*Prerequisite:* Arch. 34 and registration in Arch. 35. (1). 9 Th; 120 Arch.

68. **Specifications.**—*Prerequisite:* Senior standing in Architecture. (3). 11 MWF; 301 Arch.

71. **Architectural Elements.**—Not open to students expecting a degree in Architecture or Architectural Engineering.

Arch. 71	4	A	1-4	TT	210 Arch.
			8-10	MF	410-A Arch.
			2	W	120 Arch.

75. **Frame Construction Details.**—*Prerequisite:* Consent of instructor. Not open to students expecting a degree in Architecture or Architectural Engineering.

Arch. 75	3	A	1	TT	302 Arch.
			2-5	TT	310 Arch.

99. **Inspection Trip.**—*Prerequisite:* Senior standing in Architecture. Required for graduation. No credit.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

ARCHITECTURAL ENGINEERING

33. Architectural Design.—*Prerequisite:* G. E. D. 1, or 4, and 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
A. E. 33	3	C	1-4	MWF	210 Arch.	
		D	8-11	TTS	210 Arch.	

35. Architectural Design.—*Prerequisite:* A. E. 34.

A. E. 35	3	C	1-4	MWF	210 Arch.	
		D	8-11	MWF	210 Arch.	

43. Technology of Materials.—*Prerequisite:* G. E. D. 1 and 2.

A. E. 43	2	C	1-4	TT	310 Arch.	
		D	8-11	MW	310 Arch.	

45. Graphic Statics.—*Prerequisite:* T. A. M. 20 and registration in T. A. M. 25, and A. E. 44.

A. E. 45	3	C	1-4	TT	310 Arch.	
			11	M	302 Arch.	
		D	8-11	TT	310 Arch.	
			11	M	302 Arch.	

47. Architectural Engineering.—*Prerequisite:* A. E. 46 and registration in A. E. 57. (5). Sec. C, 9-11 TT, 1-4 MWF; 300 Arch.

57. Fireproof Construction.—*Prerequisite:* A. E. 46 and registration in A. E. 47. (2). 2 TT; 301 Arch.

99. Inspection Trip.—*Prerequisite:* Senior standing in Architectural Engineering. Required for graduation. No credit.

Courses for Graduates

101. Architectural Construction.—(½-1 unit).* Professors PROVINE, PALMER.

103. Advanced Architectural Graphics.—(1-2 units).* Professors PROVINE, PALMER.

104. Architectural Design.—(1-4 units).*

105. Architectural Practice.—(¼-½ units).* Professor PROVINE.

106. Architectural History.—(½-2 units).* Professor NEWCOMB.

ART AND DESIGN

1. Freehand Drawing.—(*Note:* Seniors will receive two hours' credit only.)

A. D. 1	3	A	10, 11	TTS	403 Arch.	DONOVAN
		B	1, 2	MWF	403 Arch.	NEARPASS
		C	10, 11	MWF	403 Arch.	NEARPASS
		D	8, 9	MWF	403 Arch.	DONOVAN
		E	8, 9	TTS	403 Arch.	DONOVAN

2a. Pictorial Composition.—*Prerequisite:* A. D. 1. (3). 3, 4 MWF; 403 Arch. Assistant Professor NEARPASS.

3a. Life Drawing.—*Prerequisite:* A. D. 1. (3). 1, 2, 3 MW; 403 Arch. Associate Professor BRADBURY.

3c. Advanced Life Drawing.—*Prerequisite:* A. D. 3a. (3). 1, 2, 3 TT; 403 Arch. Associate Professor BRADBURY.

4a. Water Color Painting.—*Prerequisite:* A. D. 1. (3). 9, 10, 11 TT; 403 Arch. Assistant Professor NEARPASS.

4c. Advanced Water Color Painting.—*Prerequisite:* A. D. 4a. (3). 9, 10, 11 TT; 403 Arch. Assistant Professor NEARPASS.

6a. Painting from Life.—*Prerequisite:* A. D. 3a. (3). 9, 10, 11 MW; 403 Arch. Associate Professor BRADBURY.

6c. Advanced Painting from Life.—*Prerequisite:* A. D. 3a, 6a. (3). 9, 10, 11 MW; 403 Arch. Associate Professor BRADBURY.

7a. Still-Life in Oil Colors.—*Prerequisite:* A. D. 1. (3). 1, 2, 3 TT; 403 Arch Assistant Professor DONOVAN.

7c. Advanced Still-Life and Landscape in Oil Colors.—*Prerequisite:* A. D. 7a. (3). 1, 2, 3 TT; 403 Arch. Assistant Professor DONOVAN.

8a. Modeling.—*Prerequisite:* A. D. 1. (3). 1, 2, 3 TT; 20 Arch. Associate Professor LAKE.

8c. Advanced Modeling.—*Prerequisite:* A. D. 8a. (3). 1, 2, 3 TT; 20 Arch. Associate Professor LAKE.

9a. Course for Teachers.—*Prerequisite:* A. D. 1, 12. (3). 9 MWF; 342 Lincoln Hall. Miss ANDERSON.

10. Sketch.—*Prerequisite:* A. D. 3a. (1). 10, 11 F; 403 Arch. Associate Professor BRADBURY.

12. Design.—*Prerequisite:* A. D. 1.

A. D. 12	2	Lect.	2	M	302 Arch.	LAKE
		A Conf.	8, 9	S	302 Arch.	LAKE

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

13a. Design.—For Home Economics students only.

Subject	Credits	Section	Hours	Days	Room	Instructor
A. D. 13a	2	A	10, 11	MW	342 L. H.	ANDERSON
		B	1, 2	MW	342 L. H.	ANDERSON.
		C	10, 11	TT	342 L. H.	ANDERSON
		D	3, 4	TT	342 L. H.	ANDERSON

13b. Design.—*Prerequisite:* A. D. 13a. (2). 1, 2 TT; 342 L. H. Miss ANDERSON.

14a. Applied Art.—*Prerequisite:* A. D. 3a.

A. D. 14a	3	Lect.	8	W	403 Arch.	BRADBURY
		A Conf.	8, 9	F	403 Arch.	BRADBURY

19. History of the Fine Arts.—*Prerequisite:* Sophomore Standing. (3). 10 TTS; 120 Arch. Associate Professor LAKE.

ASTRONOMY

Course for Undergraduates

1. Descriptive Astronomy.—*Prerequisite:* Sophomore standing. (3). 11 MWF; 229 N. H. Professor BAKER. One hour Wednesday evening; Obs.

Course for Advanced Undergraduates and Graduates

15. Geodetic Astronomy.—*Prerequisite:* Consent of Instructor. (3). Arrange. Professor BAKER.

Courses for Graduates

101. Seminar.—(1 unit). 1 MWF; Obs. Professor BAKER.

103. Celestial Mechanics.—(1 unit). 11 TTS; Obs. Professor BAKER.

ATHLETIC COACHING

(See Education.)

BACTERIOLOGY

For students entering prior to September, 1929

Major: 20 hours chosen from the courses offered by this department. Five hours may be chosen from the following courses offered by other departments: dairy bacteriology (Dairy Husbandry).

Minors: 20 hours chosen from one or two of the following: chemistry, botany, zoology, physiology.

For students entering after September 1, 1929

Major: 20 hours chosen from the courses offered by this department. Dairy Husbandry 10 (advanced Dairy Bacteriology) may be offered in partial satisfaction of this requirement. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects and taken after the freshman year: chemistry and botany. At least eight hours must be offered in each subject if two are chosen.

Courses for Undergraduates

5a. Introductory Bacteriology.—*Prerequisite:* Sophomore standing and one semester of chemistry or consent of the instructor.

Bact. 5a	3	Lect.	8	TT	100 Chem.	TANNER
		A1	8	S	301 Chem.	REHM
		A2	8	S	303 Chem.	WHEATON
		B	2	T	303 Chem.	REHM
		C	3	T	163 Chem.	CLARK
		D	2	Th	204 Chem.	WHEATON
		E	3	Th	163 Chem.	CLARK
		F	2	W	301 Chem.	WHEATON
		G	3	W	301 Chem.	REHM

5b. Introductory Bacteriology Laboratory.—*Prerequisite:* Bact. 5a, or concurrent registration in it; Chem. 6, 5, 10, or 4.

Bact. 5b	2	A Lab.	8, 9	MWF	367 Chem.	WHEATON
		B Lab.	1, 2	MWF	367 Chem.	CLARK
		C Lab.	10, 11	TTS	367 Chem.	CLARK
		D Lab.	10, 11	MWF	367 Chem.	REHM

Courses for Advanced Undergraduates and Graduates

7a. Thesis and Special Problems.—*Prerequisite:* Junior standing; Bact. 5a and 5b (or 20); and Bact. 26 or 8; consent of the instructor. Hours and credit to be arranged before registration. (3-5).* Professor TANNER and Dr. WALLACE.

10. Epidemiology.—*Prerequisite:* Bact. 5a and 5b (or 20); junior standing and the consent of the instructor. (2). Lect., 11 TT; 302 Agr. Dr. WALLACE.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

20. General Bacteriology.—*Prerequisite:* Two years of college chemistry; senior standing; consent of the instructor. Students with credit in Bact. 5a and 5b will not be allowed credit for Bact. 20. (5). Lect., 8 TT, 100 Chem.; Lab., 1, 2, 3 TT, 367 Chem. Professor TANNER and Dr. WALLACE.

26. Pathological Bacteriology.—*Prerequisite:* Bact. 5a and 5b (or 20); junior standing. (3). Lab., 8, 9 TTS; 367 Chem. Dr. WALLACE.

Courses for Graduates

103. Physiology of Bacteria.—(1 unit). Lect., 8 MW; 162 Chem. Professor TANNER.

107. Research in Bacteriology.—(1-4 units).* Lab, arrange; 365 Chem. Professor TANNER.

118a. Current Literature.—Required of all students majoring in Bacteriology.—*Prerequisite:* Graduate standing and the consent of the instructor; 10 hours of bacteriology. (¼ unit). 1 T; 366 Chem. Professor TANNER.

BANDS

(See Military Bands.)

BANKING

(See Economics.)

BIOLOGY

(See Bacteriology, Botany, Entomology, Physiology, and Zoology.)

BOTANY

For students entering prior to September, 1929

Major: 20 hours of Botany exclusive of courses 1, 5, and 11.

Minors: 20 hours chosen in consultation with the head of the department from not more than three subjects in the following list: agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least 8 hours must be offered in one subject.

Credit for seniors who take Botany 1 or 5 will be reduced one hour.

For students entering after September 1, 1929

Major: 20 hours of Botany exclusive of courses 1 and 5 and all courses taken during the freshman year, and inclusive of courses 2a or 2b, 3, and at least 5 hours in courses listed for advanced undergraduates and graduates.

Minors: 20 hours, exclusive of courses taken during the freshman year, in one or two departments chosen in consultation with the head of the department from the following list: agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology and zoology. At least eight hours must be offered in each department, if two are chosen.

Courses for Undergraduates

1. General Botany.—*Note:* Seniors will receive 4 hours' credit only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Bot. 1	5	Lect.	9	TT	228 N. H.	HOTTES, BUCHHOLZ, VESTAL
		A Lab.	8, 9	MWF	258 N. H.	Instructor and
		B Lab.	10, 11	MWF	258 N. H.	Assistants
		C Lab.	1, 2	MWF	258 N. H.	
		1 Disc.	8	T	258 N. H.	DOAK
		2 Disc.	8	T	350 N. H.	BOGUSCH
		3 Disc.	8	Th	258 N. H.	DOAK
		4 Disc.	8	Th	350 N. H.	BOGUSCH
		5 Disc.	10	T	258 N. H.	DOAK
		6 Disc.	10	Th	258 N. H.	PLEASANTS
		7 Disc.	10	Th	258 N. H.	HAGUE
		8 Disc.	11	T	258 N. H.	PLEASANTS
		9 Disc.	11	Th	258 N. H.	
		10 Disc.	1	T	258 N. H.	HAGUE
		11 Disc.	1	Th	258 N. H.	HAGUE
		12 Disc.	2	T	258 N. H.	PLEASANTS
		13 Disc.	2	Th	350 N. H.	BOGUSCH
		14 Disc.	3	Th	258 N. H.	
		15 Disc.	3	Th	258 N. H.	

2a. Morphology.—*Prerequisite:* Bot. 1 or 5. (3). 1, 2 MWF; 204 Entomology. Dr. HAGUE.

3. Physiology.—*Prerequisite:* Bot. 1 or 5.

Bot. 3	5	Lect.	11	TT	229 N. H.	HOTTES and
		A Lab.	8, 9	MWF	153 N. H.	Assistants
		B Lab.	10, 11	MWF	154 N. H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

5. **General Botany.**—(For students in Agriculture.) (*Note:* Seniors will receive two hours' credit only.)

Subject	Credits	Section	Hours	Days	Room	Instructor
Bot. 5	3	Lect.	9	TT	228 N. H.	HOTTES,
		A Lab.	10, 11	Th	259 N. H.	BUCHHOLZ,
		B Lab.	1, 2	Th	259 N. H.	VESTAL and
		C Lab.	10, 11	T	259 N. H.	Assistants
		D Lab.	1, 2	T	259 N. H.	

7. **Plant Pathology.**—*Prerequisite:* Bot. 1 or 5.

Bot. 7	3	Lect.	9	M	349 N. H.
		A Lab.	8, 9	WF	349 N. H.
		B Lab.	10, 11	WF	349 N. H.

8. **Ecology.**—*Prerequisite:* Bot. 1 or 5. (3 or 5).* Lect., 8 TT, 229 N. H.; field study Saturday morning (occasionally all day) during first half of semester. Lab. and conf. for 5-hour registrants at 9 TT. Cost about $12.00. Associate Professor VESTAL.

Courses for Advanced Undergraduates and Graduates

Prerequisites unless otherwise stated: 15 hours of Botany and junior standing. Time schedule is for 3 hours' credit. For more credit arrange.

33. **Physiology.**—(3 or 5).* 1, 2 MWF; 155 N. H. Professor HOTTES and Assistants.

41. **Bryophytes.**—(3 or 5).* 8, 9 TTS; 204 Entomology. Dr. HAGUE.

43. **Pteridophytes.**—(3 or 5).* 10, 11 TTS; 201 Entomology. Professor BUCHHOLZ.

45. **Histology, Anatomy and Technic.**—(3 or 5).* 8, 9 MWF; 206 Entomology. Professor BUCHHOLZ.

55. **Plant Geography of North America.**—(3 or 5).* 2, 3 MWF; 216 N. H. Associate Professor VESTAL.

60. **Systematic Botany.**—(3 or 5).* Lect., 10 TT; Lab., arrange; 350 N. H. Mr. BOGUSCH.

70. **Taxonomy of Pathogenic Fungi.**—*Prerequisite:* 15 hours of Botany inclusive of 7 or 42.

Bot. 70	3 or 5*	Lect. (To be arranged)	304 N. H.
		Lab. (To be arranged)	304 N. H.

90a. **Thesis Course.**—*Prerequisite:* Senior standing. (2). Time to be arranged.

91a. **Honors Course.**—*Prerequisite:* Senior standing. (2). Time to be arranged.

Courses for Graduates

110. **Botanical Discussions.**—No credit. Required of all graduate students in Botany and members of the instructional staff. 4 T; 258 N. H.

112. **Discussions in Plant Morphology.**—(¼ unit). 4 F; 205 Entomology. Professor BUCHHOLZ.

113. **Discussions in Physiology.**—(¼ unit). 4 F; 155 N. H. Professor HOTTES.

117. **Discussions in Pathology and Mycology.**—(¼ unit). 4 M; 304 N. H.

118. **Discussions in Ecology.**—(¼ unit). 4 M; 216 N. H. Associate Professor VESTAL.

Research Courses

120. **Embryology of Seed Plants.**—(½-2 units).* (Botany 112 to be taken concurrently.) Arrange. Professor BUCHHOLZ.

122. **Experimental Morphology.**—(½-2 units).* (Botany 112 to be taken concurrently.) Arrange. 205 Entomology. Professor BUCHHOLZ.

130. **Physiology.**—(½-2 units).* (Botany 113 to be taken concurrently.) Arrange. Bot. Annex. Professor HOTTES.

170. **Pathology.**—(½-2 units).* (Botany 117 to be taken concurrently.) Arrange. 305 N. H.

177. **Mycology.**—(½-2 units).* (Botany 117 to be taken concurrently.) Arrange. 305 N. H.

180. **Ecology.**—(½-2 units).* (Botany 118 to be taken concurrently.) Arrange. 216 N. H. Associate Professor VESTAL.

BUSINESS LAW

(See Business Organization and Operation)

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

BUSINESS ORGANIZATION AND OPERATION

(Including Accountancy and Business Law.)

A. ACCOUNTANCY

Courses for Undergraduates

1a. Principles of Accounting.—Beginners' course. Students who present one unit of bookkeeping for entrance will not be allowed credit for 1a and should register in Accountancy 1e.

Subject	Credits	Section	Hours	Days	Room	Instructor
Acc'y 1a	3	A1	8	MWF	119 Com.	Hackett
		A2	8	MWF	122 Com.	Green
		A3	8	MWF	326 Com.	Howell
		B1	8	TTS	123 Com.	Karrenbrock
		B2	8	TTS	122 Com.	Frese
		C1	9	MWF	122 Com.	Green
		C2	9	MWF	326 Com.	Howell
		D1	9	TTS	123 Com.	Karrenbrock
		D2	9	TTS	122 Com.	Frese
		D3	9	TTS	224 Com.	Lukas
		E1	10	MWF	123 Com.	Karrenbrock
		E2	10	MWF	119 Com.	Hackett
		E3	10	MWF	224 Com.	Larimore
		F1	10	TTS	325 Com.	Stout
		F2	10	TTS	222 Com.	Lukas
		G1	11	MWF	123 Com.	Frese
		G2	11	MWF	119 Com.	Hackett
		G3	11	MWF	126 Com.	Green
		H1	11	TTS	122 Com.	Karrenbrock
		H2	11	TTS	325 Com.	Stout
		J1	1	MWF	329 Com.	Stout
		J2	1	MWF	224 Com.	Larimore
		K1	2	MWF	122 Com.	Green
		K2	2	MWF	125 Com.	Frese
		L1	3	MWF	115 Com.	Hackett
		L2	3	MWF	224 Com.	Larimore

1b. Accounting Procedure.—*Prerequisite:* Acc'y 1a.

Acc'y 1b	3	A	8	MWF	329 Com.	Anderson
		B	9	MWF	329 Com.	Anderson
		C	10	MWF	326 Com.	Niswonger
		D	11	MWF	326 Com.	Niswonger
		E	2	MWF	329 Com.	Anderson
		F	3	MWF	122 Com.	Baily

1e. Principles of Accounting.—Beginners' course. This course is provided exclusively for students who present at least one unit entrance credit in bookkeeping. Such students must register in this course instead of Accountancy 1a.

Acc'y 1e	2	A	9	TT	329 Com.	Beights
		B	10	TT	329 Com.	Beights
		C	11	TT	326 Com.	Howell
		D	1	TT	329 Com.	Beights
		E	2	TT	326 Com.	Howell
		F	3	TT	326 Com.	Howell

2a. Elementary Cost Accounting.—*Prerequisite:* Acc'y 1b; registration or credit in Economics 1.

Acc'y 2a	3	A	8	MWF	103 Com.	Karrenbrock
		B	8	TTS	119 Com.	Newcomer
		C	9	MWF	223 Com.	Schlatter
		D	9	TTS	119 Com.	Newcomer
		E	9	TTS	328 Com.	Niswonger
		F	10	MWF	122 Com.	Baily
		G	10	MWF	126 Com.	Theiss
		H	10	TTS	328 Com.	Niswonger
		J	11	MWF	305 Com.	Van Arsdell
		K	11	MWF	122 Com.	Baily
		L	11	MWF	125 Com.	Newcomer
		M	1	MWF	328 Com.	Niswonger
		N	2	MWF	119 Com.	Theiss
		O	3	MWF	119 Com.	Theiss
		P	3	MWF	123 Com.	Newcomer

2b. Intermediate Accounting.—*Prerequisite:* Acc'y 2a.

Acc'y 2b	3	A	10	MWF	329 Com.	Beights
		B	11	MWF	329 Com.	Beights
		C	3	MWF	126 Com.	Frese

11. Farm Accounting.—*Prerequisite:* Open only to students in the College of Agriculture who have credit in Econ. 1 or 2. (4). 3 MTWT; 317 Com. Mr. Anderson.

Courses for Advanced Undergraduates and Graduates

3a. Advanced Accounting.—*Prerequisite:* Acc'y 2a-2b; Econ. 3; an average of "C" or better in Acc'y 1 and 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Acc'y 3a	3	A	8	MWF	328 Com.	FILBEY
		B	9	MWF	328 Com.	FILBEY
		C	11	MWF	328 Com.	FILBEY
		D	2	MWF	123 Com.	NEWCOMER

3b. Auditing.—*Prerequisite:* Acc'y 3a. (3). 10 MWF; 115 Com. Associate Professor LITTLETON.

4a. Cost Accounting.—*Prerequisite:* Acc'y 2a-2b.

Acc'y 4a	2	A	10	TT	115 Com.	SCHLATTER
		B	11	TT	115 Com.	SCHLATTER
		C	1	TT	115 Com.	GREEN
		D	2	TT	115 Com.	HACKETT

4b. Accounting Systems.—*Prerequisite:* Acc'y 2b. (2). 10 TT; 122 Com. Assistant Professor BAILY.

5a. C. P. A. Problems.—*Prerequisite:* Acc'y 3a-3b.

Acc'y 5a	3	A	10	MWF	317 Com.	SCOVILL
		B	11	MWF	317 Com.	SCOVILL

13. Governmental Accounting.—*Prerequisite:* Acc'y 3a. (2). 2 TT; 206 Adm. (E). Professor MOREY.

30. Budgets and Accounting Control.—*Prerequisite:* Acc'y 2b. (3). 9 MWF; 115 Com. Assistant Professor THEISS.

90a. Thesis.—Primarily for candidates for High Honors. *Prerequisite:* Senior standing in Accountancy. Credit is not given for 90a or 90b separately. (2). Time to be arranged. Associate Professor SCHLATTER.

Courses for Graduates

103. Advanced Theory.—(1 unit). 3-5 T; 209 Com. Associate Professor LITTLETON.

104. Accounting Systems.—(1 unit). 3-5 Th; 209 Com. Professor SCOVILL.

120. Income Tax Development.—(1 unit). Time to be arranged. Professor FILBEY.

129. Thesis.—(1 unit). Time to be arranged. Associate Professor LITTLETON and others.

B. BUSINESS ORGANIZATION AND OPERATION

Courses for Undergraduates

1. Industrial Organization and Management.—*Prerequisite:* Economics 1 or 2; 45 credit hours. Junior and senior engineering students admitted with consent of instructor.

B. O. & O. 1	3	A	8	MWF	115 Com.	KRIES
		B	9	MWF	123 Com.	KRIES
		C	9	TTS	125 Com.	KRICK
		D	11	MWF	325 Com.	KRIES
		E	2	MWF	306 Com.	MANDEVILLE
		F	3	MWF	306 Com.	MANDEVILLE

2. Marketing Organization and Operation.—*Prerequisite:* Economics 1 junior standing.

B. O. & O. 2	3	Lect. I	8	M	114 Com.	CONVERSE
		Lect. II	9	M	114 Com.	CONVERSE
		A Quiz	8	WF	222 Com.	JONES
		B Quiz	8	WF	325 Com.	KRICK
		C Quiz	8	WF	113 Com.	MACH
		D Quiz	9	WF	310 Com.	CONVERSE
		E Quiz	9	WF	125 Com.	KRICK
		F Quiz	9	WF	113 Com.	MACH
		G Quiz	10	TT	125 Com.	KRICK
		H Quiz	11	TT	328 Com.	MACH
		J Quiz	2	TT	328 Com.	KRICK
		K Quiz	3	TT	328 Com.	KRICK

11. Survey Course in Business Organization.—This course is offered exclusively for non-Commerce students. *Prerequisite:* 45 credit hours. (3). 9 MWF; 101 Com. Mr. MANDEVILLE.

Courses for Advanced Undergraduates and Graduates

4. Management in Manufacturing.—*Prerequisite:* B. O. & O. 1. (3). 8 MWF; 306 Com. Mr. MANDEVILLE.

7. Salesmanship.—*Prerequisite:* B. O. & O. 2.

B. O. & O. 7	2	A	8	TT	219 Com.	KLINE
		B	9	TT	219 Com.	KLINE
		C	11	TT	219 Com.	KLINE
		D	2	TT	325 Com.	JONES
		E	3	TT	325 Com.	JONES

8. Advertising.—*Prerequisite:* B. O. & O. 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
B. O. & O. 8	3	A	9	MWF	307 Com.	RUSSELL
		B	10	MWF	219 Com.	SCHENCK
		C	11	MWF	219 Com.	SCHENCK
		D	2	MWF	328 Com.	MACH
		E	3	MWF	328 Com.	MACH

10. Newspaper Advertising.—For students specializing in journalism (offered first semester only). *Prerequisite:* Journ. 5 and 6. (3). 11 MWF; 215 Com. Professor RUSSELL.

20. Credits and Collections.—*Prerequisite:* B. O. & O. 2 (will not be offered second semester of 1930-31). (3). 11 MWF. 307 Com. Associate Professor CONVERSE.

75. Management of Public Utilities.—*Prerequisite:* Econ. 1 and Acc'y 2a. (3). 8 MWF; 125 Com. Assistant Professor GRAY.

90a. Thesis.—Primarily for candidates for High Honors. *Prerequisite:* Senior standing in B. O. & O. (2). Time to be arranged. Associate Professor CONVERSE.

Courses for Graduates

102. Marketing Policies and Problems.—(1 unit). Arrange. Associate Professor CONVERSE.

107. Sales Campaigns.—(1 unit). Arrange. Professor RUSSELL.

129. Thesis.—(1 unit). Time to be arranged. Professor RUSSELL and members of the staff.

C. BUSINESS LAW

Courses for Undergraduates

1a. General Principles of Business Law.—*Prerequisite:* Sixty hours of university credit, including Econ. 1 and Accy. 1a-1b.

Bus. Law 1a	3	A	8	MWF	223 Com.	CURTIS
		B	8	MWF	219 Com.	ROBERTS
		C	9	MWF	219 Com.	ROBERTS
		D	9	TTS	223 Com.	ROBERTS
		E	10	MWF	223 Com.	CURTIS
		F	10	TTS	223 Com.	ROBERTS
		G	11	MWF	224 Com.	DILLAVOU
		H	11	MWF	223 Com.	CURTIS
		J	2	MWF	222 Com.	RENO
		K	2	MWF	219 Com.	ROBERTS
		L	3	MWF	222 Com.	RENO
		M	3	MWF	223 Com.	CURTIS

1b. General Principles of Business Law.—*Prerequisite:* Business Law 1a.

Bus. Law 1b	3	A	9	MWF	222 Com.	RENO
		B	9	TTS	222 Com.	RENO
		C	10	MWF	222 Com.	RENO

2. Elementary Law of Business.—*Prerequisite:* Junior standing. (3). 2 MWF; 223 Com. Dr. CURTIS.

10. Law of Security Relations and Banking.—*Prerequisite:* Senior standing and registration or credit in Business Law 1b.

Bus. Law 10	3	A	8	MWF	224 Com.	DILLAVOU
		B	9	MWF	224 Com.	DILLAVOU
		C	2	MWF	224 Com.	DILLAVOU

CERAMIC ENGINEERING

1. Ceramic Materials.—*Prerequisite:* Chem. 4. (3). Lect., 11 MWF; 214 Cer.

5. Ceramic Bodies.—*Prerequisite:* Cer. 1, 2. (5). 9 MWF, 218 Cer.; 1-4 MF, 2-5 W, 113-114 Cer.

7. Heavy Clay Products.—*Prerequisite:* Cer. Eng. 1, 4. (3). Lect. and quiz, 8 TT, 1 W, 218 Cer. Lab., Sec. A, 1-4 T; Sec. B, 1-4 Th; Kiln House.

16. Enamels.—*Prerequisite:* Cer. Eng. 14. (3). 10 W, 214 Cer.; 9-12 TT, 102, 113-114 Cer.

18. Ceramic Microscopy.—*Prerequisite:* Chem. 40; Geol. 47 and 49 or equivalent. (3). 1-4 TT, 9-12 S.

21. Ceramic Pyrometry.—*Prerequisite:* General physics; inorganic chemistry. (1). 4 T; 214 Cer.

22. Kilns and the Burning of Clay Products.—*Prerequisite:* Cer. Eng. 5 and 11. (3). 11 MWF; 218 Cer.

23. Dryer and Kiln Design.—*Prerequisite:* Cer. Eng. 11; registration in Cer. Eng. 22; General Eng. Drawing 1 or 4. (2). 1-4 MF; 212 Cer.

97. Thesis. (3-5).* Arrange.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

99. **Inspection Trip.**—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

101. **The Chemistry of the Compounds of Silicon.**—*Prerequisite:* Elementary course in organic and physical chemistry. (1 unit).

102. **General Technology of the Clay Industries.**—*Prerequisite:* The elements of mineralogy and of physical chemistry. (1 or 2 units).*

CHEMISTRY

For students entering prior to September, 1929

Students in the curricula of chemistry and chemical engineering, majors in chemistry, and all others who desire a thorough training in the fundamentals of chemistry and their applications to modern life, should select courses from the following, and usually in the sequence given: Chemistry 1 or 2, 6, 10, 24, 34a, 36b, 37b, 40, 41, 42b, 43b, 50a, and courses in the industrial, sanitary, and miscellaneous groups. Students in engineering should register for Chemistry 3 or 2, 4, 24. Students who are compelled to meet chemical requirements briefly may register for the following sequence: Chemistry 1 or 2, 5, 24, 32 or 33.

Students who find it impossible to take more than one semester's work are requested to register in Chemistry 1 or 2 in the second semester rather than in the first.

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, and 6 and inclusive of courses in quantitative, analytical, and organic chemistry.

Minors: 20 hours, chosen from not more than three of the following: bacteriology, botany, geology, mathematics, philosophy, physiology, physics, and zoology.

For students entering after September 1, 1929

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, 6, and all work taken during the freshman year, and inclusive of courses in quantitative, analytical, and organic chemistry. At least five hours must be offered from the advanced group.

Minors: 20 hours, exclusive of courses taken during the freshman year, chosen from not more than two of the following: bacteriology, botany, geology, mathematics, philosophy, physiology, physics, and zoology. At least eight hours must be offered in each subject if two are chosen.

Courses for Undergraduates

1. **Inorganic Chemistry.**—*Prerequisite:* One unit of entrance credit in physics, or 2½ units of entrance credit in mathematics, or registration in Math. 1a, or 2, or 3.

Note: Students who have received entrance credit for high-school chemistry are given only three hours' credit for Chem. 1. Seniors 3 hours only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Chem. 1	5	A Lect.[1]	11	TT	100 Chem.	AUDRIETH
		B Lect.[1]	9	TT	100 Chem.	HOPKINS
		C Lect.[1]	10	TT	100 Chem.	QUILL
		1 Quiz	9	MW	201 Chem., 204 U. H.	
		Lab.	8-10	TTS	308 Chem.	
		2 Quiz	3	TT	103, 204 Chem.	
		Lab.	3-5	MWF	467 Chem.	
		3 Quiz	3	TT	300 Chem.	
		Lab.	10-12	MWF	467 Chem.	
		4 Quiz	10	TT	103, 116 Chem.	
		Lab.	10-12	MWF	350 Chem.	
		5 Quiz	8	TT	103 Chem., 202 Entom.	
		Lab.	10-12	MWF	308 Chem.	
		6 Quiz	1	TT	103, 116 Chem.	
		Lab.	2-5	TT	305 Chem.	
		7 Quiz	2	WF	103, 300 Chem.	
		Lab.	1-4	TT	308 Chem.	
		8 Quiz	11	MW	103, 201 Chem.	
		Lab.	1-4	TT	467 Chem.	
		9 Quiz	8	TT	163, 162, 116 Chem.	
		Lab.	8-10	MWF	350 Chem.	
		10 Quiz	1	TT	204 Chem.	
		Lab.	1-3	MWF	467 Chem.	
		11 Quiz	10	TT	301 Chem.	
		Lab.	1-3	MWF	305 Chem.	
For students in the College of Agriculture:						
		12 Quiz	9	MW	425 N. H.	
		Lab.	8-10	TTS	350 Chem.	
		14 Quiz	3	TT	111 Chem.	
		Lab.	10-12	MWF	467 Chem.	
		15 Quiz	10	TT	163 Chem.	
		Lab.	10-12	MWF	305 Chem.	
		16 Quiz	1	TT	434 N. H.	
		Lab.	1-3	MWF	467 Chem.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Students may register for any lecture section, but are required to take the quiz and laboratory in some one section.

Subject	Credits	Section	Hours	Days	Room	Instructor
Chem. 1	5	17 Quiz	9	TT	201 Chem.	
		Lab.	1-3	MWF	350 Chem.	
For students majoring in Home Economics:						
		18 Quiz	1	TT	301 Chem.	
		Lab.	1-3	MWF	350 Chem.	
		19 Quiz	8	TT	204 Chem.	
		Lab.	8-10	MWF	350 Chem.	

2. Inorganic Chemistry.—(For all students who have had one year of high-school chemistry.) *Prerequisite:* One unit of entrance credit in chemistry. Students in the curriculum of chemistry or chemical engineering should register in Section 70.

Note: Students whose preparation in chemistry is inadequate are advised to register for Chemistry 1 or 3.

Chem. 2	3[1]	D Lect.[2]	10	F	100 Chem.	Copley
		E Lect.[2]	11	F	100 Chem.	Bailar
		F Lect.[2]	2	F	100 Chem.	Copley
		20 Quiz	3	TT	303 Chem.	
		Lab.	10-12	S	305 Chem.	
		21 Quiz	10	TT	300, 162 Chem.	
		Lab.	10-12	S	467 Chem.	
		22 Quiz	3	TT	201 Chem.	
		Lab.	8-10	S	350 Chem.	
		23 Quiz	2	MW	116 Chem.	
		Lab.	8-10	F	305 Chem.	
		24 Quiz	10	TT	303 Chem.	
		Lab.	8-10	Th	305 Chem.	
		25 Quiz	2	MW	201, 204 Chem.	
		Lab.	8-10	T	308 Chem.	
		26 Quiz	10	MW	103, 204 Chem.	
		Lab.	3-5	W	308 Chem.	
		27 Quiz	3	MW	300 Chem.	
		Lab.	3-5	F	308 Chem.	
		28 Quiz	10	MW	201, 300 Chem.	
		Lab.	10-12	Th	305 Chem.	
		29 Quiz	3	WF	103, 111 Chem.	
		Lab.	3-5	M	308 Chem.	
For students in the College of Engineering:						
		31 Quiz	11	TT	201, 303 Chem.	
		Lab.	8-10	Th	308 Chem.	
		32 Quiz	11	TT	300, 204 Chem.	
		Lab.	1-3	Th	350 Chem.	
		33 Quiz	8	TT	300 Chem.	
		Lab.	8-10	S	308 Chem.	
		34 Quiz	9	TT	103, 303 Chem.	
		Lab.	10-12	W	308 Chem.	
		35 Quiz	1	TT	303, 163 Chem.	
		Lab.	8-10	S	467 Chem.	
		36 Quiz	8	WF	103, 116, 111 Chem.	
		Lab.	8-10	M	308 Chem.	
		37 Quiz	1	WF	116, 201 Chem.	
		Lab.	2-4	W	308 Chem.	
		38 Quiz	9	MW	163 Chem., 229 N. H.	
		Lab.	1-3	M	308 Chem.	
For students in the College of Agriculture:						
		60 Quiz	8	TT	303 Chem.	
		Lab.	8-10	S	308 Chem.	
		61 Quiz	3	TT	301 Chem.	
		Lab.	10-12	S	305 Chem.	
		62 Quiz	10	TT	204 Chem.	
		Lab.	8-10	Th	467 Chem.	
For students majoring in Home Economics:						
		65 Quiz	8	TT	111, 301 Chem.	
		Lab.	8-10	M	467 Chem.	
For students in the curricula of Chemistry and Chemical Engineering:						
		70 Quiz	11	MW	300, 301, 303 Chem.	
		Lab.	1-3	T	350 Chem.	

3. Inorganic Chemistry.—(For engineering students who have had no chemistry).

Note: Students who have credit for high-school chemistry should register for Chemistry 2. Students who have not used their high-school chemistry for entrance credit are allowed 4 hours' credit for Chemistry 3.

Chem. 3	4[3]	A Lect.[2]	11	TT	100 Chem	Audrieth
		B Lect.[2]	9	TT	100 Chem.	Hopkins

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[1]Seniors are allowed 2 hours' credit in Chem. 2. Students below the rank of senior receive 5 hours' credit, provided their high-school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.

[2]Students may register for any lecture section, but are required to take the quiz and laboratory in some one section.

[3]Seniors are allowed 3 hours' credit.

Subject	Credits	Section	Hours	Days	Room	Instructor
Chem. 3	4[1]	C Lect.[2]	10	TT	100 Chem.	QUILL
		40 Quiz	11	MW	204, 217 Chem.	
		Lab.	1-3	WF	308 Chem.	
		41 Quiz	8	WF	300, 301 Chem.	
		Lab.	1-3	TT	308 Chem.	
		42 Quiz	1	WF	303, 301, 163 Chem.	
		Lab.	8-10	TT	350 Chem.	
		43 Quiz	11	MW	111, 116, 163 Chem.	
		Lab.	8-10	MW	305 Chem.	
		44 Quiz	9	TT	301 Chem.	
		Lab.	3-5	TT	350 Chem.	
		45 Quiz	9	TT	300 Chem.	
		Lab.	3-5	MW	305 Chem.	

4. Chemistry of the Metallic Elements.—(For students in engineering.) *Prerequisite:* Chem. 1, 2, or 3.

Chem. 4	4[1]	Lect.	10	MF	217 Chem.	AUDRIETH
		80 Quiz	8	MW	201 Chem.	
		Lab.	1-3	MF	305 Chem.	
		81 Quiz	1	MW	111 Chem.	
		Lab.	1-3	TT	305 Chem.	
		82 Quiz	10	TT	423 N. H.	
		Lab.	8-10	TT	305 Chem.	

5. Inorganic Chemistry and Qualitative Analysis.—(For students in agriculture, home economics and pre-medical courses.) *Prerequisite:* Chem. 1, 2, or 3.

Chem. 5	5[1]	Lect.	2	TT	100 Chem.	QUILL
		50 Quiz	8	MW	217 Chem.	
		Lab.	8-10	TTS	305 Chem.	
		51 Quiz	3	TT	116 Chem.	
		Lab.	3-5	MWF	305 Chem.	
		52 Quiz	11	TT	116 Chem.	
		Lab.	10-12	MWF	305 Chem.	
		53 Quiz	1	TT	111 Chem.	
		Lab.	3-5	TT	305 Chem.	
			8-10	S		
		54 Quiz	1	TT	161 Chem., 247 N. H.	
		Lab.	1-3	MWF	305 Chem.	
For students in the College of Agriculture:						
		58 Quiz	1	TT	300 Chem.	
		Lab.	3-5	TT	305 Chem.	
			8-10	S		
		59 Quiz	11	TT	103 Chem.	
		Lab.	10-12	MWF	305 Chem.	

6. Inorganic Chemistry.—(For all students except those in agriculture, engineering, home economics, and pre-medical courses.) *Prerequisite:* Chem. 1, 2, or 3.

Chem. 6	5[1]	Lect.	10	TT	111 Chem.	BAILAR
		76 Quiz	11	TT	301 Chem.	
		Lab.	10-12	MWF	350 Chem.	
		77 Quiz	1	TT	201 Chem.	
		Lab.	1-3	MWF	350 Chem.	

10. Qualitative Analysis.—(Open to all students; required of those majoring in chemistry or registered in the curricula of chemistry or chemical engineering.) *Prerequisite:* Chem. 6.

Chem. 10	5 or 2[3]	Lect.	9	W	100 Chem.	REEDY
		1 Quiz	9	MF	103 Chem.	
		Lab.	8-11	TTS	218 Chem.	
		2 Quiz	9	MF	162 Chem., 423 N. H.	
		Lab.	1-4	MWF	218 Chem.	
		3 Quiz	9	MF	300 Chem.	
		Lab.	1-4	TT	218 Chem.	
For students registered for 2 hours only:						
		4 Quiz	9	MF	205 Agr.	

24. Elementary Quantitative Analysis.—*Prerequisite:* Chem. 10 or 4 or 5.

Chem. 24	5	Lect.	9	F	100 Chem.	ENGLIS
		A Quiz	9	MW	204, 301 Chem.	
		Lab.	1-4	MWF	260 Chem.	
		B Quiz	9	MW	111, 303 Chem.	
		Lab.	1-4	TT	260 Chem.	
			8-11	S		

[1]Seniors are allowed 3 hours' credit.

[2]Students may register for any lecture section, but are required to take the quiz and laboratory in some one section.

[3]Students who already have credit for the laboratory work of qualitative analysis may, with the consent of the instructor, register for lecture and quizzes only, and receive a credit of 2 hours. Such students must register in Section 4.

32. Elementary Organic Chemistry.—(Especially for students in agriculture.) *Prerequisite:* Chem. 5 or 10.

Subject	Credits	Section	Hours	Days	Room	Instructor
Chem. 32	3	Lect.	8	ThS	217 Chem.	Fuson and assistants
		Quiz	8	T	201 Chem.	
					161 Chem.	
					423 N. H.	
		A Lab.	9-12	W	250 Chem.	
		B Lab.	1-4	Th	250 Chem.	

33. Elementary Organic Chemistry.—(For students in home economics and pre-medical courses.) *Prerequisite:* Chem. 6 and 10 or 5.

Chem. 33	5	Lect.	8	MW	100 Chem.	Shriner and assistants
		Quiz	8	F	100 Chem.	
					204 Chem.	
Quiz section assignments will be made by the instructor after registration is complete.					163 Chem.	
					217 Chem.	
					303 Chem.	
		Conf.	8	T	217 Chem.	
		Lab.	9-11	T	250 Chem.	
			8-11	Th	250 Chem.	

34a. Organic Chemistry.—(For students majoring in chemistry or for those registered in the curriculum of chemistry or of chemical engineering.) *Prerequisite:* Chem. 6, 10, and 24.

Chem. 34a	5	Lect.	9	MWF	217 Chem.	Marvel and assistants
		Conf.	1	M	217 Chem.	
		Lab.	2-4	M	250 Chem.	
			1-4	W		

80a. Chemistry of Water and Sewage.—(For students in sanitary engineering.) *Prerequisite:* Chem. 4. (5). Lect., 10 TT, Lab. 9-11, MWF; 60 Chem. Professor Buswell.

90a. Thesis.—(Required of seniors in chemistry and chemical engineering.) *Prerequisite:* Chem. 24, 34a, 40, 41, 42b, and 43b or the consent of the head of the department. (3-5).* A minimum of five hours required for graduation. Professor Adams (in charge).

Courses for Advanced Undergraduates and Graduates

15a. Inorganic Chemistry.—*Prerequisite:* Senior standing. (2). 9 MW; 116 Chem. Dr. Quill.

16a. Inorganic Chemistry.—(Laboratory). *Prerequisite:* Senior standing, registration in Chem. 15a. (2). Arrange. Dr. Bailar.

27. Special Methods and Instruments in Quantitative Analysis.—*Prerequisite:* Chem. 24, 40 and 41, or registration in 40 and 41.

Chem. 27	3	Lect.	11	T	161 Chem.	Smith
		A Lab.	1-4	TT	212 Chem.	
		B Lab.	1-4	F	212 Chem.	
			8-11	S	212 Chem.	

38a. Qualitative Organic Analysis.—*Prerequisite:* Chem. 36b and 37b.

Chem. 38a	3	Conf.	1	TT	217 Chem.	Marvel
		Lab.	2-4	TT	250 Chem.	

40. Elementary Physical Chemistry.—*Prerequisite:* Chem. 24, Physics 1a-1b or 7a-7b; Math. 7 or 8. (3). 10 MWF; 161 Chem. Professor Rodebush.

41. Elementary Physical Chemistry.—(Laboratory). To accompany Chem. 40.

Chem. 41	1	A Lab.	1-4	T	124 Chem.
		B Lab.	1-4	Th	
		C Lab.	1-4	F	

44a. Advanced Physical Chemistry.—*Prerequisite:* Chem. 40, 41. (2). 10 TT; 161 Chem. Dr. Copley.

50a. Physiological Chemistry.—*Prerequisite:* Chem. 24 and 33 or 34a.

Chem. 50a	5	Lect.	9	TT	111 Chem.	Rose, duVigneaud, and assistants
		A Lab.	1-4	TT	450 Chem.	
			8-11	S		
		B Lab.	1-4	MWF	450 Chem.	

60a. Chemical Technology.—*Prerequisite:* Chem. 24, registration in Chem. 34a. (Estimated cost of inspection trip is $30-$35 per student.)

Chem. 60a	4	Lect.	11	MWF	161 Chem.	Swann
		A Lab.	1-5	T	50 Chem.	Howard
		B Lab.	1-5	Th	50 Chem.	Howard
		C Lab.	1-5	F	50 Chem.	Howard

61a. Principles of Chemical Engineering.—*Prerequisite:* Chem. 42b, 60a, and 60b.

Chem. 61a	4	Lect.	9	MWF	161 Chem.	Krase
		A Lab.	1-5	M	50 Chem.	Krase
		B Lab.	1-5	W	50 Chem.	Krase

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

62. **Principles of Research and Development.**—*Prerequisite:* Senior standing in chemistry or chemical engineering. (2). Lect., 10 MW; 111 Chem. Professor KEYES.

68a. **Mechanical Separation.**—*Prerequisite:* Registration in Chem. 61a. (2). Lect., arrange. Associate Professor KRASE.

73a. **Metallurgy.**—*Prerequisite:* Senior standing in engineering courses only. (3). Lect., 8 MWF; 161 Chem. Mr. HOWARD.

86a. **Chemistry of Sanitation.**—*Prerequisite:* Chem. 24. Lectures, demonstrations, and field trips. (3). 10 MWF; 162 Chem. Professor BUSWELL.

92a. **Chemical Literature and Reference Work.**—(Required of juniors in chemistry and chemical engineering; expected also of juniors taking major work in chemistry.) *Prerequisite:* 18 hours of chemistry, one year of French or German, junior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Chem. 92a	1	A	10	Th	201 Chem.	BARTOW
		B	8	F	201 Chem.	
		K	Arrange	Graduates Only		

95a. **History of Science with Particular Reference to Chemistry.**—*Prerequisite:* Junior standing and 20 hours of laboratory science. (2). 1 MW; 161 Chem. Professor RODEBUSH and others.

Courses for Graduates

101a. **Inorganic Chemistry.**—(½ unit). (For laboratory work see Chem. 102a.) Twice a week. 8 MW; 303 Chem. Professor HOPKINS.

102a. **Inorganic Chemistry.**—(Laboratory work to accompany or follow Chem. 101a.) Arrange. (¼-1 unit).* Professor HOPKINS.

105a. **Inorganic Seminar and Special Topics.**—(¼ unit). Once a week. Seminar, 11 S; 162 Chem. Associate Professor REEDY.

123a. **Qualitative Analysis.**—(½ unit). Twice a week. 11 MF; 162 Chem. Associate Professor REEDY.

125a. **Quantitative Analysis.**—(Seminar). (Required of all students taking a major or minor in analytical chemistry.) (¼-1 unit).* 4 T; 204 Chem. Professor CLARK.

126a. **Quantitative Instrumental and Chemical Methods of Analysis in Organic Chemical Research.**—(Ultimate bomb analysis, gas density, polarimetry, refractometry, spectrophotometry, colorimetry, microscopy, etc.). (½ to 1¼ units).* Twice a week. 11 W, 162 Chem.; 11 F, 163 Chem. Laboratory, arrange; 259 Chem. Assistant Professor ENGLIS, Professor CLARK.

127a. **Modern Applications of Radiation to Chemical and Industrial Problems.**—(X-rays, radioactivity and optical spectroscopy). (½-1 unit).* 10 TT; 217 Chem. Professor CLARK.

132a. **Organic Chemistry.**—(First course). (¾ unit). 11 TT; 217 Chem. Professor ADAMS.

134. **Organic Chemistry.**—Chiefly laboratory work. (½-1 unit).* Arrange. 219 Chem. Associate Professor FUSON.

135a. **Organic Chemistry.**—(Seminar). (¼ unit). Once a week. 10 W; 217 Chem. Professor ADAMS.

136a. **Organic Chemistry.**—Special Topics. (¾ unit). Twice a week. 11 TT; 111 Chem. Associate Professor SHRINER.

145a. **Physical Chemistry.**—(Seminar). (¾ unit). Twice a week. 10-12 S; 176 Chem. Professor RODEBUSH.

152a. **Physiological Chemistry.**—Chiefly laboratory. (½-1 unit).* Arrange. 463 Chem. Professor ROSE.

155a. **Physiological Chemistry.**—(Seminar).[1] (¾ unit). Two hours a week. 9-11 F; 456 Chem. Professor ROSE.

160a. **Advanced Chemical Technology and Chemical Engineering.**—*Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 1 MW; 162 Chem. Professor KEYES.

161a. **Chemical Plant Design.**—Calculations and layout of equipment for recently developed processes. *Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 1 TT; 162 Chem. Associate Professor KRASE.

186a. **Sanitary Chemistry.**—(½-1¼ units).* Arrange. One to five times a week. 60-B Chem. Professor BUSWELL.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Required of all students majoring in physiological chemistry.

190a. Research.—Work may be taken in the following subjects:

Physical and Electrochemistry.—Professor RODEBUSH, Professor CLARK, Associate Professor REEDY.
Inorganic Chemistry.—Associate Professor REEDY; Dr. BAILAR, Dr. AUDRIETH.
Analytical Chemistry.—Professor CLARK, Assistant Professors SMITH, ENGLIS.
Food Chemistry.—Assistant Professor ENGLIS.
Applied X-Rays.—Professor CLARK.
Organic Chemistry.—Professors NOYES, ADAMS, MARVEL; Associate Professors SHRINER, FUSON; Dr. BAILAR.
Sanitary Chemistry.—Professor BUSWELL.
Physiological Chemistry.—Professor ROSE, Assistant Professor DUVIGNEAUD.
Industrial Chemistry.—Professors PARR, KEYES; Associate Professor KRASE.
Ceramic Chemistry.—Professor PARMELEE.
Phyto-Chemistry.—Assistant Professor ENGLIS.
Animal Chemistry (Nutrition).—Professor GRINDLEY.

CIVIL ENGINEERING

27. Plane Surveying.—*Prerequisite:* G. E. D. 1 or 4, Math. 4.

Subject	Credits	Section	Hours	Days	Room	Instructor
C. E. 27	3	E1	8-10	MWF	C. E. S. B.	
		E2	8-10	MWF	C. E. S. B.	
		F1	10-12	MWF	C. E. S. B.	
		F2	10-12	MWF	C. E. S. B.	
		G1	1-3	MWF	C. E. S. B.	
		G2	1-3	MWF	C. E. S. B.	

31. Surveying.—(For students in Landscape Architecture). *Prerequisite:* Math. 4. (3). Sec. E, 1-3 MWF; C. E. S. B.

34. General Surveying.—*Prerequisite:* Math. 4; G. E. D. 1 or 4.

C. E. 34	4	E	8-11	MF	C. E. S. B.
		F	8-11	TT	C. E. S. B.
		G	1-4	MF	C. E. S. B.
		H	1-4	TT	C. E. S. B.

37. Railway and Highway Surveying.—*Prerequisite:* C. E. 27, 28. (4). Sec. E, 8 MW, 202 E. H.; 8-11 TT, 419 E. H. or C. E. S. B.

42. Highway Laboratory.—*Prerequisite:* Junior standing in Engineering or Landscape Architecture.

C. E. 53	1	E	1-4	T	201 M. T. L.
		F	8-11	Th	201 M. T. L.
		G	9-12	T	201 M. T. L.
		H	1-4	Th	201 M. T. L.

52. Roads and Pavements.—*Prerequisite:* Junior standing in Engineering or Landscape Architecture.

C. E. 52	3	E	9	MWF	101 E. H.
		F	9	MWF	102 E. H.
		G	11	MWF	101 E. H.
		H	11	MWF	102 E. H.

55. Highway Design.—*Prerequisite:* C. E. 52 or 54. (4). Sec. E, 8 MWF, 101 E. H.; 1-4 T, 309 E. H.

57. Hydrology.—*Prerequisite:* Senior Standing.

C. E. 57	2	E	9	TT	208 E. H.
		F	10	TT	208 E. H.

59. Bridge and Building Construction.—*Prerequisite:* Sophomore standing in Engineering.

C. E. 59	3	E	10	MWF	102 E. H.
		F	2	MWF	101 E. H.
		G	8	MWF	102 E. H.

60. Structural Stresses.—*Prerequisite:* T. A. M. 25 and 29.

C. E. 60	4	E	8	MWF	205 E. H.
			1-4	Th	419 E. H.
		F	8	MWF	405 E. H.
			1-4	T	419 E. H.
		G	9	MWF	205 E. H.
			1-4	Th	419 E. H.
		H	9	MWF	405 E. H.
			1-4	T	419 E. H.

63. Statically Indeterminate Structures.—*Prerequisite:* C. E. 60, 62. (3). Sec. E, 10 MWF; 205 E. H.

71. Water Supply Engineering.—*Prerequisite:* T. A. M. 29, 10; Mech. Eng. 1 or 2; Chem. 2 or 3.

C. E. 71	4	E	8	MWF	208 E. H.
			1-4	T	208 and 211 E. H.
		F	11	MWF	208 E. H.
			1-4	T	208 and 214 E. H.
		G	11	MWF	202 E. H.
			1-4	Th	202 and 309 E. H.

75. Masonry Construction.—*Prerequisite:* T. A. M. 10; C. E. 60.

Subject	Credits	Section	Hours	Days	Room	Instructor
C. E. 75	3	E	9	MWF	208 E. H.	
		F	10	MWF	208 E. H.	

77. Structural Engineering.—(For students in other departments.)—*Prerequisite:* Senior standing in Engineering. (3). 8 MWF; 400 E. H.

80. Engineering Contracts and Specifications.—*Prerequisite:* Senior standing in Engineering.

C. E. 80	2	E	11	TT	109 E. H.
		F	9	TT	101 E. H.
		G	8	MW	109 E. H.

82. Steel, Concrete, and Timber Design.—*Prerequisite:* C. E., 60, 81.

C. E. 82	4	E	8	T	405 E. H.
			1-4	MWF	211 E. H.
		F	8	T	208 E. H.
			1-4	MWF	214 E. H.
		G	8	T	102 E. H.
			1-4	MWF	309 E. H.

84. Estimates and Costs.—*Prerequisite:* Senior standing in Civil Engineering.

C. E. 84	2	E	10	MW	405 E. H.
		F	11	TT	405 E. H.

87. Water Purification.—*Prerequisite:* Registration in C. E. 71, Chem. 80a. (3). Sec. E. 11 TT, 208 E. H.; 1-4 Th, 208 E. H.

88. Structural Design.—(For students in General Engineering.)—*Prerequisite:* T. A. M. 25; C. E. 60. (4). 9 MF, 8-11 TT; 400 and 408 E. H.

92. Municipal Engineering.—(For students in other departments.)—*Prerequisite:* C. E. 27, or 31, or 34. (3). 2 MWF; 208 E. H.

95. Plain Concrete.—*Prerequisite:* Registration in T. A. M. 25 or 29. (2). 11 Th, 1-4 W; M. T. L.

97. Thesis.—*Prerequisite:* Full senior standing in Civil Engineering. (1 or 2).* Time to be arranged.

99. Inspection Trip.—*Prerequisite:* Full senior standing in Civil Engineering. No credit, but required for graduation.

Courses for Graduates

101. Water Supply Engineering.—(1 unit). Twice a week. Time to be arranged. Professor Babbitt.

103. Highway Construction.—(1 unit). Twice a week. Time to be arranged. Professor Crandell.

106. Reinforced Concrete Structures.—(1 unit). Twice a week. Time to be arranged. Professor Huntington.

107. Statically Indeterminate Structures.—(1 unit). Twice a week. Time to be arranged. Professor Wilson.

109. Water Purification and General Sanitation.—(1 unit). Twice a week. Time to be arranged. Professor Babbitt.

124. Steel Building Construction.—(1 unit). Twice a week. Time to be arranged. Professor Huntington.

130. Advanced Hydrology.—(1 unit). Twice a week. Time to be arranged. Associate Professor Pickels.

140. Research.—(½-2 units).* To be arranged.

THE CLASSICS

For students entering prior to September, 1929

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, 17, and 55.
Minors: 20 hours chosen from not more than two of the following: foreign language (Latin being especially recommended), English literature, history, and philosophy.

Latin

Major: 20 hours, excluding Latin 11a-11b, 6, 1a-1b, 13, 20, 56 and including six hours in translation courses for advanced undergraduates and graduates.
Minors: 20 hours, chosen from not more than two of the following: foreign language (Greek being especially recommended), English literature, history, and philosophy.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17, 55, and Latin 11a-11b, 6, 1a-1b, 9, 13, 20, and 56. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours chosen from not more than two of the following: foreign language, English literature, history, and philosophy.

For students entering after September 1, 1929

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, 17, and all courses taken during the freshman year.

Minors: 20 hours, exclusive of courses taken during the freshman year, chosen from not more than two of the following: foreign language (Latin being especially recommended), English literature, history, and philosophy. At least eight hours must be taken in each subject, if two are chosen.

Latin

Major: 20 hours, excluding Latin 11a-11b, 6, 1a-1b, 13, 20, and all courses taken during the freshman year and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours, exclusive of courses taken during the freshman year, chosen from not more than two of the following: foreign language (Greek being especially recommended), English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17 and Latin 11a-11b, 6, 1a-1b, 9, 13, 20 and all courses taken during the freshman year. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours, exclusive of courses taken during the freshman year, chosen from not more than two of the following: foreign language, English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

GREEK

Courses for Undergraduates

1a. Elementary Greek.—(4). 8 TWTF; 114 L. H. Mr. VANDERPOOL.

3. Second Year Greek. Plato.—*Prerequisite:* Greek 1a-1b. (3). 11 MWF; 114 L. H. Mr. DUNKIN.

Course for Advanced Undergraduates and Graduates

5. Herodotus and Lyric Poets.—*Prerequisite:* Greek 3 and 4 or an equivalent. (3). 9 TTS; 114 L. H. Mr. VANDERPOOL.

Greek Life and History

For courses 15, 16, 18, and history 55 a knowledge of Greek is not presupposed.

15. Greek Athletics.—*Prerequisite:* Sophomore standing. (1). 1 T; 103 New Agr. Mr. JOHNSON.

16. Life of the Ancient Greeks.—*Prerequisite:* Sophomore standing. (1). 3 Th; 120 L. H. Mr. VANDERPOOL.

18. Greek Archaeology.—*Prerequisite:* Sophomore standing. (2). 2 TT; 120 L. H. Mr. VANDERPOOL.

Greek History.—See History 55. 1 MWF; 120 L. H. Professor OLDFATHER.

Courses for Graduates

Students desiring to take graduate work in Greek should have had at least three years of college Greek or an equivalent.

110a. See Latin 110a.

105a. Plato.—Twice a week. (1 unit). Arrange. Professor OLDFATHER.

LATIN

Courses for Undergraduates

11a. Elementary Latin.—(*Note:* Seniors will receive three hours' credit only.) (4). 8 TWTF; 120 L. H. Mr. RAPP.

6. Cicero.—*Prerequisite:* Two entrance units in Latin or Latin 11a-11b. (4). 2 TWTF; 114 L. H. Mr. JOHNSON.

1a. Ovid.—*Prerequisite:* Three entrance units in Latin or Latin 6. (4). 1 TWTF; 114 L. H. Mr. DUNKIN.

12a. Plautus, Terence, Catullus.—*Prerequisite:* Four entrance units in Latin or Latin 1a-1b. (4). 9 TWTF; 120 L. H. Mr. JOHNSON.

3. Lucretius and Horace (Odes).—*Prerequisite:* Latin 2a-2b or an equivalent. (3). 10 MWF; 120 L. H. Mr. JOHNSON.

5a. Latin Composition.—*Prerequisite:* Three entrance units in Latin or Latin 6. Required to secure the department's recommendation to teach. (1). 4 Th; 120 L. H. Professor CANTER.

Roman Life and History

Course 20 presupposes no knowledge of Latin and is open to all students except freshmen.

20. Mythology of Greece and Rome.—*Prerequisite:* Sophomore standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Latin 20	2	Lect.	2	Th	202 L. H.	CANTER
		Quiz A	2	T	202 L. H.	
		B	3	T	203-A L. H.	

Courses for Advanced Undergraduates and Graduates

23. Livy; Tibullus; Propertius.—*Prerequisite:* 12 hours of Latin acceptable for a major. (3). 2 MWF; 120 L. H. Mr. RAPP.

30a. Honors Course.—Thesis or a special course of study approved by the department. *Prerequisite:* Senior standing and 14 hours of Latin acceptable for a major. (2). Arrange.

Courses for Graduates

Students desiring to take graduate work in Latin should have had at least three years of college Latin in addition to the Latin presented to meet entrance requirements.

107. Epigraphy.—Twice a week. (1 unit). Arrange. Professor CANTER.

109. Vergil.—Twice a week. (1 unit). Arrange. Professor CANTER.

110a. Bibliography and Criticism.—(1 unit). Arrange. Professors OLDFATHER and CANTER.

COMMERCIAL LAW

(See Business Organization and Operation.)

COMPARATIVE LITERATURE

(See English 54.)

DAIRY HUSBANDRY

Courses for Undergraduates

1. Testing Dairy Products.—*Prerequisite:* D. Husb. 24b or 30 hours of university work. (3). 1-4 TT (Lect., Quiz, Lab.); 503 Agr. Assistant Professor OVERMAN, Mr. GARRETT.

6. Dairy Plant Operations.—*Prerequisite:* D. Husb. 1, 11, and 12, or registration therein. (3). Time to be arranged. Assistant Professor TRACY, Mr. TUCKEY.

23a-k. Investigation with Thesis.—(This course is continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work including not less than 20 hours pertinent to thesis problem and approval of head of department. (5). Arrange. 120 Agr.

(a) Dairy Bacteriology. Professor PRUCHA, Assistant Professor BRANNON.
(c) Dairy Chemistry. Assistant Professor OVERMAN.
(e) Dairy Farming and Economic Milk Production. Professor FRASER.
(g) Dairy Manufactures. Professor RUEHE, Assistant Professor TRACY.
(k) Dairy Production. Professors GAINES, YAPP; Associate Professor NEVENS.

24a. Elementary Dairy Production.—(*Note:* Juniors and seniors allowed 2 hours' credit only.)

D. Husb. 24a	3	Lect.	9	M	127 New Agr.	NEVENS,
		Lab.	8, 9	W	S. P.	KUHLMAN and
		Quiz	9	F	127 New Agr.	SHAW

24b. Elementary Testing and Manufacture of Dairy Products.—*Prerequisite:* Credit or registration in Chem. 1 or 2. (*Note:* Juniors and seniors allowed 2 hours' credit only.)

D. Husb. 24b	3	Lect.	2	Th	D. Mfrs.	TUCKEY
		Lab.	1, 2	T	D. Mfrs.	
		Quiz	1	Th	D. Mfrs.	

Courses for Advanced Undergraduates and Graduates

4. Ice Cream Making.—*Prerequisite:* D. Husb. 1, 11, 12; and 60 hours of university work. This course is accompanied by an inspection trip costing from $20 to $30. (5). 1-4 TT, 4 MWF; D. Mfrs. Assistant Professor TRACY.

10. Advanced Dairy Bacteriology.—*Prerequisite:* Bact. 5a and 5b; 60 hours of university work. (4). 1-4 MWF; 456 Agr. Professor PRUCHA; Assistant Professor BRANNON.

17. Advanced Study of Dairy Breeds.—*Prerequisite:* D. Husb. 2 and 60 hours of university work. (3). 10 MWF; 553 Agr. Professor YAPP.

20. Economic Problems in Dairy Farming.—*Prerequisite:* 60 hours of university work. (3). 9 MWF; 553 Agr. Professor FRASER.

25. Advanced Study of Dairy Cattle Feeding.—*Prerequisite:* D. Husb. 2; 60 hours of university work. (2). Time to be arranged. Associate Professor NEVENS.

Courses for Graduates

101. Economic Milk Production.—(½-2 units).* Arrange. PROFESSOR FRASER.

104. Dairy Bacteriology —(½-1 unit).* Arrange. Professor PRUCHA.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

105. Dairy Manufactures.—(½-2 units).* Arrange. Professor RUEHE.

106. Dairy Bacteriology.—(½-2 units).* Arrange. Professor PRUCHA.

107. Dairy Chemistry.—(½-2 units).* Arrange. Assistant Professor OVERMAN.

108. Physiology of Lactation.—(½-2 units).* Arrange. Professor GAINES.

112a-f. Research.—(1-4 units).* Arrange.

Note: Graduate students writing a thesis should so indicate when registering in Dairy Husbandry 112.

(a) **Dairy Bacteriology.** Professor PRUCHA.
(b) **Dairy Chemistry.** Assistant Professor OVERMAN.
(c) **Dairy Cattle Breeding.** Professor YAPP.
(d) **Dairy Cattle Feeding.** Associate Professor NEVENS.
(e) **Milk Production.** Professor GAINES.
(f) **Dairy Manufactures.** Professor RUEHE.

DRAWING, GENERAL ENGINEERING

1. Elements of Drawing.—*Prerequisite:* Plane geometry.

Subject	Credits	Section	Hours	Days	Room	Instructor
G. E. D. 1	4	A	8-11	MF	To be assigned	
			8-10	W	at registration	
		B	1-4	MF		
			1-3	W		
		C	8-11	TT		
			8-10	S		
		D	1-4	TT		
			10-12	S		

2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry.

G. E. D. 2	4	A	8-11	MF	To be assigned
			8-10	W	at registration
		B	1-4	MF	
			1-3	W	
		C	8-11	TT	
			8-10	S	
		D	1-4	TT	
			10-12	S	

4. Advanced Drawing.—*Prerequisite:* Three years of work in the better high schools or equivalent in commercial practice necessary basis for consideration. (To be determined by the department at registration time.)

G. E. D. 4	4	A	8-11	MF	303 T. B.
			8-10	W	303 T. B.
		B	1-4	MF	303 T. B.
			1-3	W	303 T. B.
		C	8-11	TT	303 T. B.
			8-10	S	303 T. B.
		D	1-4	TT	303 T. B.
			10-12	S	303 T. B.

7. Architectural Projections.—*Prerequisite:* Plane and Solid Geometry.

G. E. D. 7	2	A	8-11	MF	103 T. B.
		B	2-5	MF	103 T. B.
		C	9-12	TT	103 T. B.
		D	2-5	TT	103 T. B.

ECONOMICS

(See also Business Organization and Operation, and Transportation.)

Major: For students in the College of Liberal Arts and Sciences 20 hours made up of Economics 1 and other courses in Economics for which it is a prerequisite.

Minors: 20 hours in any one or two of the following subjects: Geography, history, philosophy, political science, and sociology.

Economics 22 and 27 are open to freshmen without previous requirements.

Economics 1 is the fundamental course in economics. It is a prerequisite for most of the advanced courses and students expecting to do advanced work in economics should take it in their sophomore year.

Courses for Undergraduates

1. Principles of Economics.—*Prerequisite:* 30 hours of university work.

Econ. 1	5	A Lect.	8	WF	114 Com.	BROWN
		A1 Quiz	8	TTS	101 Com.	VAN ARSDELL
		A2 Quiz	8	TTS	115 Com.	LOCKLING
		A3 Quiz	8	TTS	329 Com.	HELBING
		A4 Quiz	8	TTS	306 Com.	ZIMMERMAN
		A5 Quiz	9	TTS	326 Com.	BORTH
		A6 Quiz	9	TTS	115 Com.	LOCKLING

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Econ. 1	5	A7 Quiz	9	TTS	113 Com.	Wasserman
		A8 Quiz	9	TTS	126 Com.	Helbing
		B Lect.	8	TT	114 Com.	Brown
		B1 Quiz	8	MWF	111 Com.	Hoover
		B2 Quiz	8	MWF	305 Com.	Lewis
		B3 Quiz	8	MWF	126 Com.	Borth
		B4 Quiz	8	MWF	307 Com.	Van Arsdell
		B5 Quiz	8	MWF	312 Com.	Helbing
		B6 Quiz	1	MWF	328 Com.	Berman
		B7 Quiz	1	MWF	310 Com.	Ramser
		B8 Quiz	2	MWF	312 Com.	Sanford
		C Lect.	9	TT	114 Com.	Brown
		C1 Quiz	9	MWF	106 Com.	Lewis
		C2 Quiz	9	MWF	119 Com.	Zimmerman
		C3 Quiz	10	MWF	310 Com.	Ramser
		C4 Quiz	9	MWF	126 Com.	Borth
		C5 Quiz	9	MWF	111 Com.	Hoover
		C6 Quiz	11	MWF	111 Com.	Brown
		C7 Quiz	1	MWF	312 Com.	Sanford
		C8 Quiz	2	MWF	310 Com.	Ramser

2. Elements of Economics.—*Prerequisite:* 30 hours of university work.

Econ. 2	3	A1 Quiz	10	MWF	108 Com.	Lounsbury
		A2 Quiz	10	MWF	101 Com.	Sublette
		A3 Quiz	10	MWF	106 Com.	Haines
		A4 Quiz	10	TTS	101 Com.	Sublette
		B1 Quiz	10	TTS	108 Com.	Lounsbury
		B2 Quiz	9	TTS	108 Com.	Lounsbury
		B3 Quiz	1	MWF	119 Com.	Haines

3. Money, Credit, and Banking.—*Prerequisite:* Econ. 1 or 2.

Econ. 3	3	Lect.	9	W	114 Com.	Lee
		A1 Quiz	8	MF	310 Com.	Lounsbury
		A2 Quiz	9	MF	312 Com.	Lee
		A3 Quiz	9	MF	108 Com.	Luney
		B1 Quiz	9	TT	307 Com.	Luney
		B2 Quiz	11	TT	310 Com.	Lee
		C1 Quiz	1	TT	108 Com.	Lounsbury
		C2 Quiz	1	MF	307 Com.	Luney

22. Economic History of the United States.—Open to freshmen only.

Econ. 22	3	A Lect.	1	M	114 Com.	Bogart
		A1 Quiz	1	WF	326 Com.	Borth
		A2 Quiz	1	WF	306 Com.	Zimmerman
		A3 Quiz	1	WF	108 Com.	Sublette
		A4 Quiz	1	WF	106 Com.	Lewis
		A5 Quiz	1	WF	115 Com.	Lockling
		A6 Quiz	1	WF	113 Com.	Alyea
		A7 Quiz	1	WF	111 Com.	Hoover
		A8 Quiz	1	TT	312 Com.	Sanford
		A9 Quiz	2	TT	106 Com.	Van Arsdell
		A10 Quiz	2	WF	106 Com.	Van Arsdell
		B Lect.	2	M	114 Com.	Bogart
		B1 Quiz	2	WF	108 Com.	Sublette
		B2 Quiz	2	WF	111 Com.	Hoover
		B3 Quiz	2	WF	115 Com.	Lockling
		B4 Quiz	2	WF	113 Com.	Alyea
		B5 Quiz	2	WF	326 Com.	Borth
		B6 Quiz	3	WF	312 Com.	Sanford
		B7 Quiz	2	TT	312 Com.	Sanford
		B8 Quiz	2	TT	310 Com.	Lockling
		B9 Quiz	3	TT	312 Com.	Sanford
		C Lect.	8	S	114 Com.	Bogart
		C1 Quiz	9	TT	306 Com.	Zimmerman
		C2 Quiz	11	TT	305 Com.	Lockling
		C3 Quiz	8	TT	111 Com.	Hoover
		C4 Quiz	8	TT	307 Com.	Sublette
		C5 Quiz	8	TT	312 Com.	Lewis
		C6 Quiz	1	TT	106 Com.	Van Arsdell
		C7 Quiz	1	TT	113 Com.	Alyea
		D Lect.	9	S	114 Com.	Bogart
		D1 Quiz	9	TT	111 Com.	Hoover
		D2 Quiz	1	TT	306 Com.	Zimmerman
		D3 Quiz	9	TT	310 Com.	Sublette
		D4 Quiz	9	TT	312 Com.	Lewis
		D5 Quiz	9	TT	101 Com.	Van Arsdell
		D6 Quiz	2	TT	306 Com.	Zimmerman
		D7 Quiz	1	TT	310 Com.	Lewis
		D8 Quiz	2	TT	113 Com.	Alyea

Courses for Advanced Undergraduates and Graduates

4. History of Money and Banking Institutions.—*Prerequisite:* Econ. 3. (3). 11 MWF; 310 Com. Professor LEE.

9. Advanced Theory and Practice of Banking.—*Prerequisite:* Econ. 1 or 2 and 3, senior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Econ. 9	3	Lect.	8	W	215 Com.	WRIGHT
		A Quiz	8	MF	322 Com.	WRIGHT
		B Quiz	8	TT	322 Com.	WRIGHT
		C Quiz	9	TT	322 Com.	WRIGHT

11. Industrial Consolidation.—*Prerequisite:* Econ. 10.

Econ. 11	3	Lect.	9	M	215 Com.	ROBINSON
		A Quiz	9	WF	325 Com.	ROBINSON
		B Quiz	10	WF	325 Com.	ROBINSON
		C Quiz	9	ThS	325 Com.	ROBINSON

13. Marketing and Prices of Agricultural Products.—*Prerequisite:* Econ. 1 or 2 and junior standing.

Econ. 13	3	Lect.	10	M	215 Com.	STEWART
		A Quiz	10	WF	211 New Agr.	STEWART
		B Quiz	11	WF	211 New Agr.	STEWART

16. Economicsof Agriculture.—*Prerequisite:* Econ. 1 or 2. (3). 11 MWF; 316 New Agr. Assistant Professor NORTON.

25. Economic History of England.—*Prerequisite:* Economics 1 or 2 and junior standing. (3). 10 TTS; 224 Com. Professor BOGART.

31. Organization of Foreign Commerce.—*Prerequisite:* Econ. 1 or 2 and junior standing.

Econ. 31	3	Lect.	10	W	215 Com.	LITMAN
		A Quiz	10	MF	322 Com.	LITMAN
		B Quiz	10	TT	322 Com.	LITMAN

35. Corporation Finance.—*Prerequisite:* Econ. 1 or 2. For Engineering students. (3). 10 MWF; 108 P. L. Assistant Professor BROWN.

41. Introduction to Labor Problems.—*Prerequisite:* Econ. 1 or 2 and junior standing.

Econ. 41	3	Lect.	2	F	114 Com.	BERMAN
		A Quiz	2	MW	322 Com.	BERMAN
		B Quiz	2	MW	307 Com.	LUNEY
		C Quiz	1	TT	307 Com.	LUNEY
		D Quiz	2	TT	322 Com.	BERMAN
		E Quiz	2	TT	307 Com.	LUNEY

44. Socialism and Economic Reform.—*Prerequisite:* Econ. 1 or 2 and senior standing. (3). 1 MWF; 325 Com. Mr. HELBING.

51. Public Finance.—*Prerequisite:* Econ. 1 or 2, junior standing.

Econ. 51	3	Lect.	11	M	114 Com.	HUNTER
		A1 Quiz	11	WF	312 Com.	HUNTER
		A2 Quiz	11	WF	306 Com.	ALYEA
		A3 Quiz	10	TT	307 Com.	ALYEA
		B1 Quiz	11	TT	312 Com.	HUNTER
		B2 Quiz	11	TT	307 Com.	ALYEA
		B3 Quiz	10	TT	312 Com.	HUNTER

55. Economics of Insurance.—*Prerequisite:* Econ. 1 or 2, junior standing.

Econ. 55	3	Lect.	9	F	215 Com.	DICKINSON
		A Quiz	9	MW	305 Com.	DICKINSON
		B Quiz	9	TT	305 Com.	DICKINSON
		C Quiz	8	TT	310 Com.	RAMSER
		D Quiz	10	TT	310 Com.	RAMSER

61. Economic Theory.—*Prerequisite:* Econ. 1 or 2, junior standing.

Econ. 61	3	A Quiz	10	MW	113 Com.	WASSERMAN
		B Quiz	10	TT	113 Com.	WASSERMAN

71. Economic Statistics.—*Prerequisite:* Econ. 1 or 2, senior standing. (3). Quiz, 10 TT, 305 Com.; Practice, 3-5 T, 115 Com. Assistant Professor DICKINSON.

81. Principles of Public Utilities.—*Prerequisite:* Econ. 1 and 3.

Econ. 81	3	Lect.	10	F	215 Com.	GRAY
		A Quiz	10	MW	125 Com.	GRAY
		B Quiz	11	TT	125 Com.	GRAY

Courses for Graduates

101. Economic Theory.—(1 unit). 3 MWF; 125 Com. Professor WESTON.

102. Theory and History of Money, Credit, and Prices.—(1 unit). 11 TT; 212 Com. Professor WESTON.

104a. Theories and Policies of Foreign Commerce.—(1 unit). 3 TT; 212 Com. Professor LITMAN.

105. Public Finance.—(1 unit). 4-6 Th; 212 Com. Professor HUNTER.

107. The Corporation in Economic Evolution.—(1 unit). Assistant Professor WASSERMAN. Time to be arranged.

109. Comparison of the Theory and Practice of the Leading Central and Reserve Banks, with Special Reference to England, Germany, France, and the United States.—(1 unit). 9 MWF; 212 Com. Associate Professor WRIGHT.

110b. Finance and Investments. Complex Business Units.—(1 unit). Time to be arranged. Professor ROBINSON.

112a. Labor Problems: Social Aspects.—(1 unit). Time to be arranged. Assistant Professor BERMAN.

120. History of Economic Thought.—(1 unit). 9 TT; 212 Com. Professor WESTON.

122. Economic History of the United States.—(1 unit). Time to be arranged. Professor BOGART.

124. International Finance.—(1 unit). 4-6 M; 212 Com. Professor LEE.

130. Theory of Agricultural Economics.—(1 unit). Time to be arranged. Associate Professor STEWART.

131. Agricultural Resources and Prices.—(1 unit). Time to be arranged. Assistant Professor NORTON.

132. Agricultural Economics Research.—Only those who write acceptable theses will receive credit. (1-2 units).* Time to be arranged. Associate Professor STEWART.

144. Statistical Theory and Analysis.—(1 unit). Time to be arranged. Assistant Professor DICKINSON.

180. Management of Public Utilities.—(1 unit). 4-6 W; 212 Com. Assistant Professor GRAY.

118. Seminar. Thesis Course.—(All graduate students writing theses in Economics must register in Economics 118; registration for other students is optional.) 4-6 Th (alternate weeks).

(a) **Third Year Seminar.** Professor WESTON.
(b) **First Year: General Economics.** Assistant Professor BROWN.
(c) **First Year: Agricultural Economics.** Associate Professor STEWART.
(d) **First Year: Public Utilities.** Assistant Professor GRAY.

EDUCATION

Major: For students in the College of Liberal Arts and Sciences, 20 hours including educational psychology, history of education, technic of teaching, and principles of secondary education.

Minors: 20 hours made up from either (a) courses in any University subject represented in the high-school program, or (b) courses in any one or two of the following departments: psychology, sociology, philosophy, and political science.

A. GENERAL EDUCATION

Introductory Courses

2. History of Education.—*Prerequisite:* Junior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Ed. 2	3	A	9	MWF	303 Adm. (E)	SEYBOLT
		B	10	MWF	303 Adm. (E)	SEYBOLT

3. Survey of Modern Educational Problems.—*Prerequisite:* Sophomore standing. (Not open to students who have previously had any course in education.)

Ed. 3	3	A	1	MWF	204 Adm. (E)	Mrs. JOHNSTON
		B	2	MWF	204 Adm. (E)	Mrs. JOHNSTON

6. Principles of Secondary Education.—*Prerequisite:* Ed. 10 and 25.

Ed. 6	3	A	8	TTS	206 Adm. (E)	WEBER
		B	9	TTS	206 Adm. (E)	CLEMENT
		C	10	TTS	206 Adm. (E)	JOHNSTON
		D	11	TTS	206 Adm. (E)	JOHNSTON
		E	11	MWF	206 Adm. (E)	WEBER
		F	1	MWF	206 Adm. (E)	PETERS
		G	1	MWF	207 Adm. (E)	POTTHOFF
		H	2	MWF	207 Adm. (E)	BROWNE
		I	2	MWF	206 Adm. (E)	POTTHOFF
		J	3	MWF	206 Adm. (E)	PETERS

10. Technic of Teaching.—*Prerequisite:* Ed. 25.

Ed. 10	3	A	8	MWF	307 Adm. (E)	PETERS
		B[1]	8	MWF	117 W. B.	ROBINSON
		C	9	MWF	308 Adm. (E)	BROWNE
		D	9	MWF	307 Adm. (E)	REAGAN
		E	10	MWF	307 Adm. (E)	REAGAN
		F	10	MWF	308 Adm. (E)	BROWNE
		G	11	MWF	308 Adm. (E)	BROWNE
		H	1	MWF	307 Adm. (E)	REAGAN
		I	2	MWF	307 Adm. (E)	PETERS
		J	3	MWF	307 Adm. (E)	LAWSON

*In registering for a course with variable units or credits, as $\frac{1}{2}$ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., $\frac{1}{2}$, or 1, or $1\frac{1}{2}$, or 2.

[1]For Home Economics students.

25. Educational Psychology.—*Prerequisite:* Psych. 1 (or Ed. 28 in case of A. C. students).

Subject	Credits	Section	Hours	Days	Room	Instructor
Ed. 25	3	A	8	TTS	312 Adm. (E)	POTTHOFF
		B	8	TTS	207 Adm. (E)	PUNKE
		C	9	TTS	312 Adm. (E)	POTTHOFF
		D	9	TTS	207 Adm. (E)	PUNKE
		E	10	TTS	308 Adm. (E)	DOLCH
		F	11	TTS	308 Adm. (E)	DOLCH
		G	1	MWF	312 Adm. (E)	ENGELHART
		H	1	MWF	308 Adm. (E)	PUNKE
		I	2	MWF	308 Adm. (E)	DOLCH
		J	2	MWF	312 Adm. (E)	PUNKE
		K	3	MWF	207 Adm. (E)	CAMERON
		L	4	MWF	307 Adm. (E)	LAWSON

90. Rural Education.—*Prerequisite:* Junior or senior standing. (3). 11 MWF; M. H. Same as Agr. Ed. 90. Associate Professor NOLAN.

91. Special Problems of Education in Rural Communities.—*Prerequisite:* Senior standing and at least 6 hours in Education. (2). 2 TT; 122 Old Agr. Mr. LAWSON.

Courses for Advanced Undergraduates and Graduates

4. Educational Administration.—*Prerequisite:* Senior standing. (3). 10 MWF; 206 Adm. (E). Assistant Professor WEBER.

7. School Program of Physical Education.—*Prerequisite:* Senior standing or consent of instructor. (3). 1 MWF; 209 New Gym. Professor STALEY.

8. History, Systems, and Theories of Physical Education.—*Prerequisite:* Senior standing or consent of instructor. (2). 1 TT; 209 New Gym. Professor STALEY.

11. Ancient and Medieval Education.—*Prerequisite:* Senior standing or Ed. 2. (2). 9 TT; 303 Adm. (E). Professor SEYBOLT.

18. Educational Measurements.—*Prerequisite:* Ed. 25. (3). 9 MWF; 206 Adm. (E). Associate Professor ODELL.

20a. Supervision of Secondary Education.—*Prerequisite:* Ed. 25. (2). 2 TT; 308 Adm. (E). Professor CLEMENT.

28. Psychology of Athletics.[1]—*Prerequisite:* Psychology 1, or consent of instructor. (3). 11 MWF; 209 New Gym. Associate Professor GRIFFITH.

41. Survey of Vocational Education.—*Prerequisite:* Senior standing. (3). 10 MWF; 204 Adm. (E). Professor MAYS.

42. Special Education.—*Prerequisite:* Ed. 25. (2). 11 MW; 207 Adm. (E). Dr. DOLCH.

44. Educational Psychology.—(Laboratory Course.) *Prerequisite:* Ed. 25.

Ed. 44	3	Lect.	2	W	202 Adm. (E)	CAMERON
		Lab.	1, 2	MF	202 Adm. (E)	

48. Experimental Methods in Athletics.—*Prerequisite:* Ed. 28 and Ed. 25. (3). Time to be arranged with the instructor. 213 New Gym. Associate Professor GRIFFITH.

53. Problems of Industrial Education.—Same as Indus. Ed. 50. *Prerequisite:* Junior standing or consent of instructor. (3). 9 MWF; 204 Adm. (E). Professor MAYS.

54. Functions and Methods of Part-Time Teaching.—*Prerequisite:* Senior standing. Same as Indus. Ed. 54. (2). 9 TT; 204 Adm. (E). Professor MAYS.

99a. Thesis.—*Prerequisite:* Senior standing. (2). Time to be arranged.

Courses for Graduates[2]

For a Master's degree in Education, courses 123, 124, and 125 are required. For students who have not taken a course in history of education as undergraduates, Education 11 or Education 30 is required.

102. Research in History of American Education.—(1 unit). Time to be arranged. 311 Adm. (E). Professor SEYBOLT.

104. Educational Administration.—(1 unit). 4, 5, Th; 312 Adm. (E). Assistant Professor WEBER.

106. High School Administration.—(1 unit). 10, 11 S; 303 Adm. (E). Professor CLEMENT.

110. Methods of Teaching.—(1 unit). 4, 5 Th; 206 Adm. (E). Dr. REAGAN.

123. Educational Statistics.—(1 unit). 1 TT; 122 Agr. Associate Professor ODELL.

124. Educational Research.—(1 unit). 4, 5 F; 206 Adm. (E). Professor MONROE.

125. Educational Psychology.—(1 unit). 4 MW; 204 Adm. (E). Professor CAMERON.

127. High School Curricula.—(1 unit). 4, 5 T; 308 Adm. (E). Professor CLEMENT.

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[1]Education 28, open only to men in Athletic Coaching, may be substituted for Psychology 1 as a prerequisite for Education 25.

[2]Education 6, 10, and 25, or their equivalents, are prerequisites for all courses for graduates.

128. **Source Problems of the Junior High School.**—(1 unit). 4, 5 W; 308 Adm. (E). Professor CLEMENT.

141. **Problems in the Teaching of English in the Secondary School.**—(1 unit). 4, 5 M; 322 L. H. Professor PAUL.

150. **Thesis.**—(1-2 units).* Professor MONROE and others.

165. **School Surveys.**—(1 unit). 10, 11 S; 204 Adm. (E). Associate Professor ODELL.

Departmental Conference.—All graduate students majoring in Education are expected to meet with the departmental staff the first and third Mondays of the month from 7 to 9 p.m. (No cred.) 204 Adm. (E).

B. EDUCATIONAL PRACTICE

Open to seniors in the College of Education and in certain cases with the consent of the instructor to juniors.

1. **Athletic Coaching.**—(2-4).* Hours to be arranged. Gym.
2. **Athletic Coaching.**—(2-4).* Hours to be arranged. Gym.
3. **Athletic Coaching.**—(2-4).* Hours to be arranged. Gym.
4. **Athletic Coaching.**—(2-4).* Hours to be arranged. Gym.
5. **Agricultural Education.**—(3-5).* Hours to be arranged. U. H. S. See Agr. Ed. 50.
6. **Biology.**—(5). Hours to be arranged. U. H. S.
7. **Chemistry.**—(5). Hours to be arranged. U. H. S.
8. **Civics.**—(5). Hours to be arranged. U. H. S.
9. **Drawing, Art and Design.**—(3-5).* Hours to be arranged. U. H. S.
10. **Drawing, Mechanical.**—(3-5).* Hours to be arranged. U. H. S.
11. **English.**(5). Hours to be arranged. U. H. S.

11a. **Public Speaking.**—(5). Hours to be arranged. U. H. S.

12. **French.**—(5). Hours to be arranged. U. H. S.
13. **General Science.**—(5). Hours to be arranged. U. H. S.
14. **Home Economics Education.**—*Prerequisite:* Home Econ. 11, or concurrent registration in Home Econ. 11. (3-5).* Hours to be arranged. U. H. S.
15. **History.**—(5). Hours to be arranged. U. H. S.
16. **Industrial Education.**—(3-5).* Hours to be arranged. U. H. S.
17. **Latin.**—(5). Hours to be arranged. U. H. S.
19. **Mathematics.**—(5). Hours to be arranged. U. H. S.
20. **Music.**—(3-5).* Hours to be arranged. U. H. S.
21. **Physics.**—(5). Hours to be arranged. U. H. S.
24. **Stenography and Typewriting.**—(3-5).* Hours to be arranged. U. H. S.
25. **Elementary Education.**—(5). Hours to be arranged. Champaign Public Schools.
26. **Bookkeeping.**—(5). Hours to be arranged. U. H. S.

C. AGRICULTURAL EDUCATION

10. **Technic of Teaching.**—*Prerequisite:* Ed. 25. Same as Ed. 10. (3). 3 MWF; 307 Adm. (E). Mr. LAWSON.

25. **Educational Psychology.**—*Prerequisite:* Psych. 1. Same as Ed. 25. (3). 4 MWF; 307 Adm. (E). Mr. LAWSON.

50. **Teaching.**—*Prerequisite:* Ed. 10 and senior standing. See Educational Practice 5.

Subject	Credits	Section	Hours	Days	Room	Instructor
Ed. 50	2-5*	A	8:30-9:52 10:44-12:06	Daily	Tolono H. S.	HENDERSON
		B	1:20-2:50	Daily	Urbana H. S.	RUCKER and
		C	9:40-11:10 12:45-2:10	Daily	St. Joseph H. S.	NOLAN
			2:30-4:00	Daily		RUCKER
		D	Apprentice teaching in State			NOLAN

One conference hour per week with staff teacher for all student teachers.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

51. Teachers' Course in Agriculture.—*Prerequisite:* Ed. 10, 25, and senior standing. (3). 4 MWF; 122 Agr. Associate Professor NOLAN.

90. Rural Education.—*Prerequisite:* Junior or senior standing. (3). 11 MWF; M. H. Same as Ed. 90. Associate Professor NOLAN.

91. Special Problems of Education in Rural Communities.—*Prerequisite:* Senior standing and at least 6 hours in Education. (Same as Ed. 91.) (2). 2 TT; 122 Agr. Mr. LAWSON.

D. ATHLETIC COACHING

First Year

30. Football.—(1st half semester.)

Subject	Credits	Section	Hours	Days	Room	Instructor
A. C. 30	2	A	10-12	MTWTF	Armory Field	SMITH
		B	10-12	MTWTF	Armory Field	VON LEHSTEN
		C	2-4	MTWTF	Armory Field	WILSON
		D	2-4	MTWTF	Armory Field	SABO

40. Basketball.—(2nd half semester.)

A. C. 40	2	A	10-12	MTWTF	New Gym.	SMITH
		B	10-12	MTWTF	New Gym.	VON LEHSTEN
		C	2-4	MTWTF	New Gym.	WILSON
		D	2-4	MTWTF	New Gym.	SABO

2. Calisthenics.—Single line marching and gymnastic dancing.

A. C. 2	4	A	8-10	MTWTF	New Gym.	PRICE
		B	8-10	MTWTF	New Gym.	

Second Year

Note: Education 28 is open only to men in Athletic Coaching who may substitute it for Psychology 1 as a prerequisite for Education 25.

31. Football.—(1st half semester.) *Prerequisite:* A. C. 30.

A. C. 31	2	A	8-10	MTWTF	Armory Field	ROKUSEK
		B	8-10	MTWTF	Armory Field	VOYLES
		C	8-10	MTWTF	Armory Field	VON LEHSTEN

7. Boxing and Wrestling.—*Prerequisite:* Sophomore standing.

A. C. 7	1	A	8	MTWTF	Wrestling Room	VOYLES and
		B	8	MTWTF	Wrestling Room	ASSISTANTS
		C	8	MTWTF	Wrestling Room	

50. Baseball.—(Practice: 1st half semester.) *Prerequisite:* Sophomore standing.

A. C. 50	4	A	10-12	MTWTF	221 E. H.	LUNDGREN
		B	1-3	MTWTF	221 E. H.	JORDAN
		C	1-3	MTWTF	221 E. H.	

Third Year

70. Health Education and Corrective Gymnastics.—*Prerequisite:* Anat. 1 and 2, Physiol. 1 and 2. (4). 9 MTWTF; 209 New Gym. Associate Professor STAFFORD.

41. Basketball.—(1st half semester.) *Prerequisite:* A. C. 40 and junior standing. (2). 1-3 MTWTF; 204 New Gym. Mr. RUBY and Mr. SABO.

15. Recreational Activities.—(2nd half). *Prerequisite:* Junior standing. (2). 1-3 MTWTF; New Gym. Mr. JACKSON.

20. Track and Field Athletics.—*Prerequisite:* Junior standing.

A. C. 20	4	A	10-12	MTWTF	Field & Armory	WERNER
		B	1-3	MTWTF	Field & Armory	

Fourth Year

16. Training and First Aid.—*Prerequisite:* Senior standing or consent of instructor.

A. C. 16	2	A	9	TT	119-22 New Gym.	BROWN
		B	10	TT	119-22 New Gym.	BULLOCK

17. Organization and Administration.—*Prerequisite:* Senior standing.

A. C. 17	3	A	10	MWF	204 New Gym.	HUFF
		B	11	MWF	204 New Gym.	OLANDER

4. Gymnastic Stunts.—*Prerequisite:* A. C. 2 and senior standing. (4). 1-3 MTWTF; Old Gym. Mr. PRICE.

60. Swimming.—*Prerequisite:* Senior standing or consent of instructor. (2). 8 MTWTF; Pool, Old Gym. Mr. MANLEY.

Note: The following courses have been changed from A. C. courses to Education courses:
A. C. 11—History, Systems, and Theories of Physical Education, is now Education 8.
A. C. 12—School Programs of Physical Education, is now Education 7.
A. C. 26—Experimental Methods in Athletics, is now Education 48.

E. INDUSTRIAL EDUCATION

1. **Manual Arts.**—First Course.

Subject	Credits	Section	Hours	Days	Room	Instructor
Indus. Ed. 1	4	Lect.	10	TT	U. H. S.	BRAUCHER
		A	8,9	MWF	U. H. S.	BRAUCHER
		B	8,9	TTS	U. H. S.	BRAUCHER

2. **Advanced Manual Arts.**—(4). 10, 11 MWF, 11 TT; U. H. S. Mr. BRAUCHER.

3. **Mechanical Drawing.**—Same as G. E. D. 1.

4. **Pattern and Foundry Work.**—Same as M. E. 85 and 86.

7. **Machine Laboratory.**—Same as M. E. 87 and 88.

8. **Printing and Publishing.**—Same as Journalism 9a. *Prerequisite:* Sophomore standing. (3). (Two two-hour laboratory periods.) Lect., 11 Th; 303 Adm. (E).

Courses for Advanced Undergraduates and Graduates

41. **Survey of Vocational Education.**—Same as Ed. 41. *Prerequisite:* Senior standing. (3). 10 MWF; 204 Adm. (E). Professor MAYS.

50. **Problems of Industrial Education.**—Same as Ed. 53. *Prerequisite:* Junior standing or consent of instructor. (3). 9 MWF; 204 Adm. (E). Professor MAYS.

54. **Function and Methods of Part-Time Teaching.**—*Prerequisite:* Senior standing. (2). 9 TT; 204 Adm. (E). Professor MAYS.

57. **Organization of Shop Work.**—(3). Hours to be arranged. Professor MAYS.

61. **Supervised Teaching of Manual Arts.**—(5). U. H. S. Mr. BRAUCHER.

E41. **Survey of Vocational Education.**—Same as Ed. 41. (1-3).* Extra-mural.

E50. **Survey of Industrial Education.**—Same as Indus. Ed. 50. (1-3).* Extra-mural.

E52. **Teaching Related Trade Subjects.**—(1-3).* Extra-mural.

E54. **Principles and Methods of Part-Time Teaching.**—Same as Indus. Ed. 54. (1-3).* Extra-mural.

E54a. **Continuation of Industrial Education E54.**—(1-3).* Extra-mural.

E55. **Problems of Vocational Guidance.**—Same as Indus. Ed. 55. (1-3).* Extra-mural.

E55a. **Continuation of Industrial Education E55.**—(1-3).* Extra-mural.

E56. **Teaching Shopwork.**—Extra-Mural. *Prerequisite:* (a) Two years of trade or industrial experience beyond apprenticeship; (b) completion of elementary school curriculum. (1-3).*

E56a. **Continuation of Industrial Education E56.**—(1-3).* Extra-mural.

ELECTRICAL ENGINEERING

11. **Direct Current Apparatus.**—*Prerequisite:* Physics 1a, 1b, 3a, 3b; Math. 8 or 9; registration in E. E. 61.

E. E. 11	3					
	For Chem. Engrs.	Ch1	8	MWF	305 E. H.
	For Gen'l Engrs.	J	11	MWF	305 E. H.
	For Mech. Engrs.	P	1	MWF	305 E. H.
		Q	10	MWF	305 E. H.
	For Cer. Engrs.	X	8	TTS	305 E. H.

25. **Direct Current Apparatus.**—*Prerequisite:* Math. 9; registration in E. E. 75 and Physics 44a.

E. E. 25	4	K	8	MTWTF	108 E. H.
		L	1	MTWTF	108 E. H.
		M	11	MTWTF	111 E. H.
		N	8	MTWTF	111 E. H.
		Y	9	MTWTF	111 E. H.

35. **Alternating Current Apparatus.**—*Prerequisite:* E. E. 26 and 76.

E. E. 35	4	K	8	MTWTF	105 E. H.
		L	8	MTWTF	109 E. H.
		M	11	MTWTF	105 E. H.
		N	11	MTWTF	109 E. H.

51. **Radio Communication.**—*Prerequisite:* Senior standing in E. E.

E. E. 51	3	Quiz	10	TT	105 E. H.
		K Lab.	2-5	T	311A E. E. L.
		L Lab.	2-5	W	311A E. E. L.

55. **Electrical Design.**—*Prerequisite:* E. E. 26; registration in E. E. 35.

E. E. 55	2	Lect. L1[1]	9	Th	305 E. H.
		Lect. other sects.	9	Th	119 P. L.
		Design K2	10, 11	MF	312 E. H.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]L1 open only to those having a grade B or above in mathematics or by special permission of the instructor.

Subject	Credits	Section	Hours	Days	Room	Instructor
		L1[1]	2, 3	TT	312 E. H.	
		L2	2, 3	TT	314 E. H.	
		M	1, 2	MF	312 E. H.	
		N	3, 4	M	312 E. H.	
			9, 10	W	312 E. H.	
		Y	1, 2	W	312 E. H.	
			8, 9	S	312 E. H.	

61. Direct Current Laboratory.—*Prerequisite:* Registration in E. E. 11.

E. E. 61	1	P	9-12	T	200 E. E. L.
		Q	2-5	T	200 and 214 E. E. L.
		R	9-12	Th	200 E. E. L.
		S	2-5	Th	200 and 214 E. E. L.
		Ch	1-4	M	214 E. E. L.
		X	1-4	W	214 E. E. L.
		Y	2-5	F	214 E. E. L.

71. Special Electrical Engineering Laboratory.—*Prerequisite:* Junior or senior standing in E. E. (Elective). (1-3).* Arrange.

75. Electrical Engineering Laboratory.—*Prerequisite:* Registration in E. E. 25.

E. E. 75	2	KNY	11	Th	119 P. L.
		LM	1	W	119 P. L.
		K1	8-11	W	200 E. E. L.
		K2	9-12	W	214 E. E. L.
		L1	9-12	M	200 E. E. L.
		L2	9-12	F	200 E. E. L.
		M	1-4	M	200 E. E. L.
		N	1-4	F	200 E. E. L. and 214 E. E. L.
		Y	2-5	W	200 E. E. L.

85. Electrical Engineering Laboratory.—*Prerequisite:* E. E. 76; registration in E. E. 35.

E. E. 85	2	KLMNY	9	T	119 P. L.
		K1	9-12	M	200 E. E. L.
		K2	8-11	W	200 E. E. L.
		L1	2-5	T	200 E. E. L.
		L2	2-5	Th	200 E. E. L.
		M	1-4	M	200 E. E. L.
		N	1-4	F	200 E. E. L.
		Y	1-4	W	200 E. E. L.

90. Lighting.—(½ semester.) *Prerequisite:* Junior standing (for architects). (1). 10 TT Room A, L. H.

92. Lighting and Wiring.—*Prerequisite:* Junior standing (for A. E.'s). (2). 11 TT; Room A, L. H.

95. Seminar.—*Prerequisite:* Senior standing in E.E.

E. E. 95	1	K	10	T	305 E. H.
		L	10	Th	305 E. H.
		M	1	T	305 E. H.
		N	1	Th	305 E. H.

99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

101. Advanced Course in Alternating Currents.—(1½ units). Twice a week. Professor PAINE, Assistant Professor REICH.

103. Electrical Design.—(1 unit). Once a week. Assistant Professor WALDO.

105. Electrical Engineering Research.—(1-3 units).* Twice a week. Professors PAINE, TYKOCINER; Assistant Professors BROWN, REICH.

ENGLISH

(Including English Language and Literature, Rhetoric, Public Speaking, and Scandinavian Languages.)
For students entering prior to September, 1929

Major: 20 hours in English excluding Rhetoric 1, 2, 10, 12, English 10, 20, 41, 42, and including at least 10 hours in English literature, at least 3 hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours in either (a) Latin or Greek or French or German; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history.

Major in Public Speaking

Major: 10 hours in public speaking, inclusive of courses 7 and 8 and either 4 or 6, and 10 hours of English exclusive of English 10, 11, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, and 22, and inclusive of one course in English literature from the advanced group.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]L1 open only to those having a grade B or above in mathematics or by special permission of the instructor.

Minors: 20 hours in any one or two of the following subjects: psychology, philosophy, Greek, Latin, French, German, history, political science, economics, sociology.

Credit for seniors who take English 10, 11, Rhetoric 1, 2, 12 will be reduced one hour.

For students entering after September 1, 1929

Major. 20 hours in English *excluding* Rhetoric 1, 2, 10, 12, 21, 22, English 10a, 10b, 20a, 20b, 41, 42, and all courses taken during the freshman year, and *including* at least 10 hours in English literature, at least 3 hours in composition, and two courses from the advanced group in English literature.

Minors. 20 hours, excluding courses taken during the freshman year, in (a) Latin or Greek or French or German or Spanish; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history. No language courses may be regarded as satisfying the minor requirement if they are excluded from the major of that department (excepting elementary courses in Greek, Latin, French 2a and Spanish 2a). At least eight hours must be offered in each subject.

Major in Public Speaking

Major 10 hours in public speaking, exclusive of courses taken during the freshman year, inclusive of courses 7 and 8 and either 4 or 6, and 10 hours of English exclusive of English 10a, 10b, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, 22, and inclusive of one course in English literature from the advanced group.

Minors: 20 hours, excluding courses taken during the freshman year, in any one or two of the following subjects: psychology, philosophy, Greek, Latin, French, German, history, political science, economics, or sociology. At least eight hours must be offered in each subject if two are chosen.

A. ENGLISH LANGUAGE AND LITERATURE

Elementary Courses

1. Survey of English Literature.—(A course primarily for English majors.)—*Prerequisite:* English 10a and 10b or their equivalent.

Subject	Credits	Section	Hours	Days	Room	Instructor
Engl. 1	3	B	9	MWF	123 L. H.	Fletcher
		D	11	MWF	120 L. H.	Finney
		F	2	MWF	202 L. H.	Parry

10a. An Introduction to Literature.—Forms of poetry, mainly narrative.—*Prerequisite:* The minimum entrance requirement in English. (Credit is not given for English 10a in addition to 20a or 20b.) *Note:* Seniors will receive credit for two hours only.

Engl. 10a	3	A1	8	MWF	315 U. H.	
		A2	8	MWF	123 L. H.	Finney
		B1	9	MWF	214 U. H.	Glenn
		B2	9	MWF	204-A L. H.	Rinaker
		B3	9	MWF	202 L. H.	Tupper
		C1	10	MWF	212 U. H.	French
		C2	10	MWF	219 L. H.	Kelso
		C3	10	MWF	106 Entom.	Rapp
		C4	10	MWF	303 L. H.	Rinaker
		D1	11	MWF	202 L. H.	Tupper
		D2	11	MWF	204-A L. H.	Landis
		D3	11	MWF	123 L. H.	Secord
		E1	1	MWF	404 U. H.	Weirick
		E2	1	MWF	105 L. H.	Kelley
		F1	2	MWF	123 L. H.	Kyle
		F2	2	MWF	203 U. H.	Busey
		F3	2	MWF	106 Entom.	Goldman
		G1	3	MWF	105 L. H.	Goldman
		G2	3	MWF	202 L. H.	Parry
		H1	4	MWF	203 U. H.	Miller
		H2	4	MWF	315 U. H.	Van Gundy
		K1	8	TTS	413 U. H.	Coleman
		K2	8	TTS	142 L. H.	Templeman
		L1	9	TTS	408 U. H.	Haswell
		M1	10	TTS	315 U. H.	Dean
		N1	11	TTS	213 U. H.	Mood

12. American Literature.—*Prerequisite:* English 10a-10b, or junior standing. (2). 1 TT; 103 New Agr. Professor Paul, Mrs. Trelease, and Mrs. Sweney.

20a. Chief English Writers of the Nineteenth Century.—Intended for students in professional and technical courses such as law, medicine, commerce, engineering, etc. *Prerequisite:* One year of college work. (Credit is not given for the course in addition to English 10a or 10b.)

Engl. 20a	4	A1	8	MTWT	203 U. H.	Lemke
		A2	8	MTWT	411 U. H.	Glenn
		B1	9	MTWT	203 U. H.	Jefferson
		B2	9	MTWT	410 U. H.	
		C1	10	MTWT	406 U. H.	Trelease
		C2	10	MTWT	203 L. H.	Tupper
		D1	11	MTWT	406 U. H.	Weirick
		D2	11	MTWT	315 U. H.	Belsley
		E1	1	MTWT	412 U. H.	Sandin
		E2	1	MTWT	207 U. H.	French
		F1	2	MTWT	311 U. H.	E. H. Peterson
		G1	3	MTWT	213 U. H.	Rand

21. Literary Study of the Bible.—*Prerequisite:* Six hours of English literature. (3). 10 MWF; 103 New Agr. Professor E. C. BALDWIN.

23. Introduction to Shakespeare.—*Prerequisite:* Engl. 10a-10b, or 20a with a grade of B, or junior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Engl. 23	3	A	1	MWF	303 L. H.	FLETCHER
		B	2	MWF	109 L. H.	HILLEBRAND
		C	9	MWF	109 L. H.	SECORD

29. English Literature from 1557 to 1688, exclusive of the Drama.—*Prerequisite:* Six hours of English literature. (3). 11 MWF; 304 L. H. Professor E. C. BALDWIN.

Courses for Advanced Undergraduates and Graduates

Prerequisite: Junior or senior standing and either ten hours of English literature or the consent of the instructor.

4. English Versification.—(2). 10 TT; 308 L. H. Assistant Professor LANDIS.

5. Shakespeare.—(3). 11 MWF; 109 L. H. Professor T. W. BALDWIN.

8. Old English (Anglo-Saxon).—(3). 11 MWF; 206 L. H. Professor FLOM.

25. Chaucer.—(3). 9 MWF; 114 L. H. Professor JONES.

35. The English Drama (Previous to Shakespeare).—(3). 2 MWF; 204-A L. H. Professor T. W. BALDWIN.

39. Introduction to the Literature of the Middle Ages.—(3). 1 MWF; 104 L. H. Assistant Professor PARRY.

41. The Teaching of English Literature.—*Prerequisite:* Ten hours of English literature and junior standing. (2). 2 TT; 306 L. H. Professor PAUL.

42. The Teaching of English Composition.—*Prerequisite:* Nine hours of rhetoric and junior standing. (2). 3 TT; 202 L. H. Professor PAUL.

43. Browning.—(3). 11 MWF; 104 L. H. Assistant Professor KYLE.

45. The Development of the Modern Drama.—(3). 3 MWF; 109 L. H. Associate Professor HILLEBRAND.

54a. Introduction to Comparative Literature.—Introductory and comparative survey of the greatest Greek, Latin, Italian, Spanish, French, German, and English authors. Professor OLDFATHER; Associate Professors VAN HORNE, HAMILTON; Assistant Professors LANDIS, PARRY; Mr. JOHNSON.

Engl. 54a	3	Lect.	10	WF	218 U. H.	OLDFATHER VAN HORNE HAMILTON
		A Disc.	10	M	105 L. H.	LANDIS
		B Disc.	10	M	214 U. H.	
		C Disc.	10	M	133 L. H.	PARRY
		D Disc.	10	M	211 U. H.	JOHNSON

60a. Thesis.—(2). Primarily for candidates for honors. Time to be arranged. Assistant Professor RINAKER and others.

Courses for Graduates

101. Research in Special Topics.—(1-2 units).* Professors GRAHAM, FLOM, PAUL, T. W. BALDWIN, E. C. BALDWIN, JONES; Associate Professors, HILLEBRAND, JEFFERSON; Assistant Professors PARRY, SECORD, FLETCHER, FINNEY.

111. Caedmon and Cynewulf.—(1 unit). Arrange; 419 L. H. Professor JONES.

129. English Literature from the Norman Conquest to 1400.—(1 unit). 10 TT; 113 L. H. Professor JONES.

130. Tragedy.—(1 unit). 1 TT; 113 L. H. Associate Professor HILLEBRAND.

135. Problems in American Literature.—First semester, Poe, Emerson; second semester, Lowell and Whitman. (1 unit). 8 TT; 113 L. H. Professor PAUL.

138. The Romantic Movement.—(1 unit). 2 TT; 303-A L. H. Professor GRAHAM.

140. Investigations in Modern English Literature.—(1-3 units).* Three hours once a week. Arrange; 324 U. H. Professor GRAHAM.

141. Literature of the Seventeenth Century.—(1 unit). 3 TT; 204 L. H. Professor E. C. BALDWIN.

145. Studies in Eighteenth Century Literature.—(1 unit). 2 MW; 113 L. H. Professor GRAHAM.

147. Shakespeare and Elizabethan Drama.—(1 unit). 10 MW; 204-A L. H. Professor T. W. BALDWIN.

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*In registering for a course with variable units or credits, as $\frac{1}{2}$ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., $\frac{1}{2}$, or 1, or $1\frac{1}{2}$, or 2.

B. RHETORIC

0. Review Rhetoric.—Review for students who do not pass the preliminary tests in Rhetoric 1. No credit.

Subject	Credits	Section	Hours	Days	Room	Instructor
Rhet. 0	0	A	8	MWF	406 U. H.	Charles
		B	9	MWF	208 U. H.	Chas. Baker
		C	10	MWF	323 New Agr	Owen
		D	11	MWF	108 P. L.	Reynolds
		E	1	MWF	403 U. H.	Griswold
		F	2	MWF	105 L. H.	Allen
		G	3	MWF	411 U. H.	Hurley
		H	4	MWF	105 L. H.	Scheerer
		K	8	TTS	403 U. H.	Gress
		L	9	TTS	208 U. H.	Lockard
		M	10	TTS	302 L. H.	Fisher
		N	11	TTS	404 U. H.	Noble

1. Rhetoric and Composition.—*Prerequisite:* The minimum entrance requirements in English. Required of all freshmen.

Rhet. 1	3	A1[1]	8	MWF	403 U. H.	Hamilton
		A2[1]	8	MWF	404 U. H.	J. D. Petersen
		A3	8	MWF	412 U. H.	Kelso
		A4	8	MWF	413 U. H.	Davidson
		A5	8	MWF	203-A L. H.	Secord
		A6	8	MWF	407 U. H.	Belsley
		A7	8	MWF	105 L. H.	Slow
		A8	8	MWF	320 New Agr.	Martin
		A9	8	MWF	106 Entom.	Chas. Baker
		B1[1]	9	MWF	305 L. H.	Belsley
		B2[1]	9	MWF	323 New Agr.	Haswell
		B3[1]	9	MWF	315 U. H.	Owen
		B4	9	MWF	406 U. H.	Kelley
		B5	9	MWF	407 U. H.	Charles
		B6	9	MWF	213 U. H.	Trelease
		B7	9	MWF	408 U. H.	Busey
		B8	9	MWF	206 L. H	Moeller
		B9	9	MWF	412 U. H.	J. D. Petersen
		B10	9	MWF	207 U. H.	French
		C1	10	MWF	408 U. H.	Blair
		C2	10	MWF	213 U. H.	Reynolds
		C3	10	MWF	407 U. H.	Lemke
		C4	10	MWF	403 U. H.	Moeller
		C5	10	MWF	412 U. H.	Harris
		C6	10	MWF	413 U. H.	Busey
		C7	10	MWF	109 L. H.	Kelley
		C8	10	MWF	411 U. H.	Chas. Baker
		C9	10	MWF	207 U. H.	Jefferson
		D1[1]	11	MWF	311 U. H.	
		D2	11	MWF	411 U. H.	Lemke
		D3	11	MWF	413 U. H.	Slow
		D4	11	MWF	326 New Agr.	Davidson
		D5	11	MWF	408 U. H.	Glenn
		D6	11	MWF	404 U. H.	Rapp
		D7	11	MWF	412 U. H.	Martin
		D8	11	MWF	113 U. H.	Hamilton
		E1[1]	1	MWF	213 U. H.	Hurley
		E2[1]	1	MWF	212 U. H.	Scheerer
		E3	1	MWF	413 U. H.	Kennedy
		E4	1	MWF	202 L. H.	Washburn
		E5	1	MWF	407 U. H.	Rand
		E6	1	MWF	406 U. H.	Van Gundy
		E7	1	MWF	103 Entom.	Miller
		E8	1	MWF	203 U. H.	Stutzman
		E9	1	MWF	123 U. H.	Goldman
		F1[1]	2	MWF	408 U. H.	Sandin
		F2[1]	2	MWF	207 U. H.	Stutzman
		F3	2	MWF	213 U. H.	Dolk
		F4	2	MWF	406 U. H.	Lang
		F5	2	MWF	412 U. H.	Scheerer
		F6	2	MWF	404 U. H.	Hurley
		F7	2	MWF	413 U. H.	Reynolds
		F8	2	MWF	411 U. H.	Van Gundy
		F9	2	MWF	403 U. H.	Bloom
		G1[1]	3	MWF	406 U. H.	Allen
		G2[1]	3	MWF	311 U. H.	Dolk
		G3	3	MWF	403 U. H.	Giddings
		G4	3	MWF	128 L. H.	E. H. Peterson
		G5	3	MWF	404 U. H.	Griswold

[1]Sections for Engineering students only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Rhet. 1	3	G6	3	MWF	407 U. H.	Lang
		G7	3	MWF	413 U. H.	Bloom
		G8	3	MWF	123 L. H.	Sandin
		G9	3	MWF	207 U. H.	Washburn
		G10	3	MWF	412 U. H.	Miller
		H1[1]	4	MWF	404 U. H.	E. H. Peterson
		H2	4	MWF	406 U. H.	Griswold
		H3	4	MWF	213 U. H.	Allen
		H4	4	MWF	407 U. H.	Kennedy
		H5	4	MWF	403 U. H.	Giddings
		H6	4	MWF	311 U. H.	Stutzman
		K1[1]	8	TTS	106 Entom.	Brawner
		K2	8	TTS	311 U. H.	Dean
		K3	8	TTS	105 L. H.	Fielder
		K4	8	TTS	404 U. H.	Lockard
		K5	8	TTS	208 U. H.	Ida Baker
		K6	8	TTS	204-A L. H.	Roberts
		K7	8	TTS	213 U. H.	Noble
		K8	8	TTS	406 U. H.	Fain
		L1[1]	9	TTS	214 U. H.	Templeman
		L2	9	TTS	406 U. H.	Fisher
		L3	9	TTS	211 L. H.	Summers
		L4	9	TTS	323 N. Agr.	Dean
		L5	9	TTS	213 U. H.	Ida Baker
		L6	9	TTS	404 U. H.	Gress
		L7	9	TTS	407 U. H.	Fain
		M1[1]	10	TTS	413 U. H.	Brawner
		M2	10	TTS	109 L. H.	Lockard
		M3	10	TTS	213 U. H.	Fain
		M4	10	TTS	403 U. H.	Templeman
		M5	10	TTS	311 U. H.	Simpson
		M6	10	TTS	407 U. H.	Noble
		N1[1]	11	TTS	212 U. H.	Roberts
		N2	11	TTS	203 U. H.	Simpson
		N3	11	TTS	407 U. H.	Gress
		N4	11	TTS	411 U. H.	Summers
		N5	11	TTS	413 U. H.	Fielder
		N6	11	TTS	408 U. H.	Brawner

2. Rhetoric and Composition.—*Prerequisite:* Rhetoric 1. Required of all freshmen.

Rhet. 2	3	A1	8	MWF	213 U. H.	Moeller
		A2	8	MWF	204-A L. H.	Harris
		B1	9	MWF	411 U. H.	Hamilton
		B2	9	MWF	320 N. Agr.	Martin
		C1	10	MWF	326 N. Agr.	Davidson
		C2	10	MWF	302 L. H.	Slow
		D1	11	MWF	106 Entom.	J. D. Petersen
		D2	11	MWF	203 U. H.	Blair
		E1	1	MWF	204-A L. H.	Dolk
		E2	1	MWF	408 U. H.	Giddings
		F	2	MWF	203 L. H.	
		G	3	MWF	408 U. H.	Kennedy
		H	4	MWF	208 U. H.	Washburn
		K	8	TTS	207 U. H.	Simpson
		L	9	TTS	411 U. H.	Roberts
		M	10	TTS	404 U. H.	Fielder

3. Exposition.—*Prerequisite:* One year of college work.

Rhet. 3	3	B	9	MWF	104 L. H.	Kyle
		D	11	MWF	203 L. H.	Kelso
		F	2	MWF	211 L. H.	Landis
		G	3	MWF	104 L. H.	Fletcher

4. Narration and Description.—Elements of narrative writing. (Not a course in short-story writing.) *Prerequisite:* One year of college work.

Rhet. 4	3	B	9	MWF	413 U. H.	Rapp
		C	10	MWF	232 L. H.	Finney
		D	11	MWF	407 U. H.	Haswell
		F	2	MWF	407 U. H.	Rand

6. Advanced Narrative Composition.—*Prerequisite:* Two years of college work and the consent of the instructor. (3). 3 MWF; 204-A L. H. Assistant Professor Weirick.

10. Business Letter Writing.—*Prerequisite:* Rhet. 1-2. Registration limited first semester.

Rhet. 10	2	A1 Eng.	8	MW	207 U. H.	Schenck
		A2 Com.	8	TT	123 Com.	Mood
		B1 Com.	9	MW	125 Com.	Anderson
		B2 LAS, Agr., Ed.	9	MW	404 U. H.	Tarpley

[1]Sections for Engineering students only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Rhet. 10	2	B3 Eng.	9	TT	412 U. H.	SCHENCK
		C1 Com.	10	MW	404 U. H.	TARPLEY
		C2 Com.	10	MW	224 Com.	ANDERSON
		C3 Com.	10	TT	202 L. H.	TARPLEY
		C4 LAS, Agr., Ed.	10	TT	207 U. H.	MOOD
		D1 LAS, Agr., Ed.	11	MW	113 L. H.	MOOD
		D2 Eng.	11	TT	123 L. H.	TARPLEY
		D3 Com.	11	TT	223 Com.	ANDERSON
		E1 Com.	1	MW	305 Com.	SAUNDERS
		E2 Com.	1	MW	219 Com.	COLEMAN
		E3 LAS, Agr., Ed.	1	TT	213 U. H.	COLEMAN
		F1 Com.	2	MW	305 Com.	SAUNDERS
		F2 Com.	2	TT	305 Com.	SAUNDERS
		F3 Eng.	2	TT	407 U. H.	COLEMAN

21. **Advanced Business Writing.**—(Sales letter campaigns and advertising copy). *Prerequisite:* Grade A or B in Rhetoric 10. (2). 1 TT; 305 Com. Associate Professor SAUNDERS.

22. **Special Types of Business Writing.**—(Business reports and articles for business magazines). *Prerequisite:* Rhetoric 10. (2). 10 TT; 223 Com. Mr. ANDERSON.

Course for Advanced Undergraduates and Graduates

17. **Advanced Composition.**—(Open to a limited number of students and only on recommendation.) *Prerequisite:* Junior standing. (3). 3 MWF; 113 L. H. Assistant Professor RINAKER.

C. PUBLIC SPEAKING

1. **Principles of Effective Speaking.**—*Prerequisite:* Rhet. 1 and 2.

Pub. Spk. 1	3	A	8	MWF	202 Entom.	HENDERSON
		B	8	MWF	142 L. H.	MCCARTY
		C	9	TTS	202 Entom.	HUSTON
		D	9	MWF	202 Entom.	HENDERSON
		E	9	MWF	148 L. H.	TURNELL
		F	10	MWF	148 L. H.	SWANSON
		G	10	MWF	202 Entom.	WHITEFORD
		H	11	MWF	213 U. H.	TURNELL
		I	11	MWF	202 Entom.	MCCARTY
		J	1	MWF	202 Entom.	HENDERSON
		K	1	MWF	142 L. H.	WHITEFORD
		L	2	MWF	202 Entom.	HENDERSON
		M	2	MWF	235 L. H.	NELSON
		N	3	MWF	202 Entom.	HUSTON

2. **Business and Professional Speaking.**—*Prerequisite:* Pub. Spk. 1.

Pub. Spk. 2	2	A	9	TT	142 L. H.	MCCARTY
		B	10	TT	142 L. H.	WHITEFORD
		C	1	TT	142 L. H.	SANDFORD
		D	2	TT	142 L. H.	SANDFORD

3. **Elements of Debating.**—*Prerequisite:* Pub. Spk. 1.

Pub. Spk. 3	3	A	9	MWF	142 L. H.	MCCARTY
		B	2	MWF	142 L. H.	WHITEFORD

9. **Shakespearean Reading.**—*Prerequisite:* Pub. Spk. 1. (2). 1 TT; 148 L. H. Miss NELSON.

10. **Oral Interpretation of Literature.**—*Prerequisite:* Pub. Spk. 1.

Pub. Spk. 10	2	A	9	TT	148 L. H.	NELSON
		B	10	TT	148 L. H.	NELSON

Courses for Advanced Undergraduates and Graduates

4. **Advanced Debating.**—*Prerequisite:* Pub. Spk. 3, junior standing. (3). 10 MWF; 142 L. H. Associate Professor SANDFORD.

6. **Persuasion and the Forms of Public Address.**—*Prerequisite:* Pub. Spk. 2, junior standing. (3). 11 MWF; 142 L. H. Associate Professor SANDFORD.

8. **Dramatization.**—*Prerequisite:* Pub. Spk. 9 or 10, junior standing.

Pub. Spk. 8	3	A	1	MWF	148 L. H.	NELSON
		B	2	MWF	148 L. H.	SWANSON

16. **Advanced Study of Acting.**—*Prerequisite:* Pub. Spk. 11. (2). 11 TT; 148 L. H. Mr. SWANSON.

D. SCANDINAVIAN LANGUAGES AND LITERATURE

Undergraduate Course not Open to Freshmen

12. **Norse Mythology.**—*Prerequisite:* Junior standing. Lectures. (2). 9 TT; 202 L. H. Professor FLOM.

Courses for Graduates

101. **Old Norse.**—(1 unit). Arrange· 209 L. H. Professor FLOM. (May be taken for a single semester.)

150. Research.—(½-2 units).* Professor FLOM.

ENTOMOLOGY

For students entering prior to September, 1929

Major: 20 hours from courses offered in the department, except Entom. 1, 2, and 31.

Minors: 20 hours in not more than three of the following: zoology, botany, physiology, chemistry, horticulture, and agronomy.

Entomology 1 is open to freshmen, without prerequisite. Course 1 or 2 may be followed by any of the other courses for undergraduates or by 20 or 21 in the senior year. Agricultural students and others desiring strictly practical work may take 1, 8, and 20 in sequence. Arts and other students may begin with either 1 or 2. Students preparing for service as economic entomologists should take as many of the courses offered as possible and should consult the head of the department.

For students entering after September 1, 1929

Major: 20 hours exclusive of Entomology 1, 2, 31, and all courses taken during the freshman year. At least five hours must be offered from the advanced group.

Minors: 20 hours, excluding courses taken during the freshman year, in not more than two of the following, with not less than eight hours in either department, if two subjects are chosen: zoology, botany, chemistry, physiology, horticulture, and agronomy.

Entomology 1 is open to freshmen, without prerequisite. Course 1 or 2 may be followed by any of the other courses for undergraduates or by 20 or 21 in the senior year. Agricultural students and others desiring strictly practical work may take 1, 8, and 20 in sequence. Arts and other students may begin with either 1 or 2. Students preparing for service as economic entomologists should take as many of the courses offered as possible and should consult the head of the department.

1. Destructive and Useful Insects.—(*Note:* Seniors will receive two hours' credit only.)

Subject	Credits	Section	Hours	Days	Room	Instructor
Entom. 1	3	A Lect.	10	MF	309 Entom.	METCALF
		A Lab.	11 10, 11	MF and W	309 Entom.	MILUM and EVANS
		B Lect.	1	MF	309 Entom.	METCALF
		B Lab.	2 1, 2	MF and W	309 Entom.	MILUM and TOWNSEND
		C Lect.	10	TS	309 Entom.	HAYES
		C Lab.	11 10, 11	TS and Th	309 Entom.	HAYES and TOWNSEND

2. Insects: Their Habits, Adaptations, and Classification.—*Prerequisite:* 30 hours of university work. (5). Lect., 10 TT; Lab., 10, 11 MWF; 310 Entom. Assistant Professor BALDUF.

3. Classification of Insects.—*Prerequisite:* Entom. 1 or 2 and 30 hours of university work. (5). Lect., 8 TT; Lab., 8, 9 MWF; 310 Entom. Assistant Professor BALDUF.

7a. Insect Morphology.—*Prerequisite:* Entom. 1 or 2 and 30 hours of university work. (3). 8, 9 TTS; 312 Entom. Associate Professor HAYES.

8a. Advanced Economic Entomology.—*Prerequisite:* Entom. 1 or 2 and 30 hours of university work. (3 or 5).* 1, 2, 3 TT; 312 Entom. Associate Professor HAYES.

31. Essentials of Beekeeping.—*Prerequisite:* 30 hours of university work. (2). 10, 11 TT; 104 Viv. Assistant Professor MILUM.

Courses for Advanced Undergraduates and Graduates

6. Special Problems.—*Prerequisite:* Any of the following: Entom. 3, 7, 8, 10, 20, 21, 22, or 31; senior standing. (2-5).* Saturday morning; additional hours to be arranged. Various instructors.

20. Insect Control.—*Prerequisite:* Entom. 1 or 2; senior standing. (4). Lab., 1, 2, 3 TT; Lect., to be arranged; 109 Entom. Professor METCALF, Mr. EVANS.

Courses for Graduates

The prerequisite for graduate work in entomology is two years of undergraduate biology, including zoology and entomology.

102. Research in the Morphology and Embryology of Insects.—(½-2 units).* Time to be arranged. Associate Professor HAYES.

107. Insect Anatomy.—(½ unit). 8, 9 TTS; 312 Entom. Associate Professor HAYES.

108. Research in Economic Entomology.—(½-2 units).* Time to be arranged. Professor METCALF.

109. Research in Systematic Entomology.—(½-2 units).* Time to be arranged. Professor METCALF, Assistant Professor BALDUF.

110. Research in the Biology and Ecology of Insects.—(½-2 units).* Time to be arranged. Professor METCALF.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

FARM MECHANICS

Courses for Undergraduates

1. Elementary Farm Mechanics.—*Prerequisite:* 30 hours of university work.

Subject	Credits	Section	Hours	Days	Room	Instructor
Farm Mech. 1	3	Lect.	8	WF	201 F. M.	ALBRECHT
		A Quiz	9	WF		REED
		B Quiz	8, 9	T		
		C Quiz	1, 2	T		
		D Lab.	8, 9	M		
		E Lab.	8, 9	Th		
		F Lab.	1, 2	Th		

2. Field and Power Driven Machinery.—*Prerequisite:* Farm Mech. 1.

Farm Mech. 2	3	Lect.	9	TT	201 F. M.	SHAWL
		A Quiz	8	T		
		B Quiz	8	W		
		C Lab.	1, 2	Th		
		D Lab.	8, 9	F		

5. Drainage.—*Prerequisite:* 30 hours of university work.

Farm Mech. 5	3	Lect.	1	M	204 F. M.	LEHMANN
		Quiz	1	W		
		Lab.	1, 2, 3	F		

11. Dairy Machinery and Equipment.—*Prerequisite:* Farm Mech. 1. For students specializing in dairy manufactures. Others see instructor. (2). Lect. and Lab. 8, 9, 10 S; 204 F. M. Mr. YOUNG.

18a. Investigation with Thesis.—*Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to the thesis problem and approval of the head of the department. Continuous throughout the year; credit is not given for either semester separately. (5). Professor LEHMANN, Assistant Professor SHAWL.

20. Farm Concrete Construction.—*Prerequisite:* Farm Mech. 1.

Farm Mech. 20	2	Lect.	1	T	204 F. M.	ALBRECHT
		A Lab.	1, 2	Th		
		B Lab.	8, 9	S		

Courses for Advanced Undergraduates and Graduates

28. Advanced Gas Engines and Tractors.—*Prerequisite:* Farm Mech. 3. (3). 2, 3, 4 MW; lecture arranged; 201 F. M. Assistant Professor SHAWL.

51. Special Power and Field Machinery.—*Prerequisite:* Farm Mech. 17 or 28. Consult instructor before registering. (3). Time to be arranged. Professor LEHMANN, Assistant Professor SHAWL.

FARM ORGANIZATION AND MANAGEMENT

Courses for Undergraduates

1. Elementary Farm Management.—*Prerequisite:* Econ. 1 or 2, and 60 hours of university work. Local field trips will be arranged. Estimated cost, $5.

Farm Man. 1	3	Lect. & Disc.	10	TT	316 New Agr.	WILCOX
		A Lab.	1, 2	Th	331 New Agr.	
		B Lab.	1, 2	F	331 New Agr.	JOHNSTON

10a. Investigation with Thesis.—*Prerequisite:* 90 hours of university work including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. (This course is continuous throughout the year; credit is not given for either semester separately.) Time to be arranged. (5). Associate Professor CASE and others.

Courses for Advanced Undergraduates and Graduates

4. Farm Operation.—*Prerequisite:* F. O. & M. 1 and 90 hours of university work. Local field trips will be arranged. Estimated cost, $3. (2). 11 TT; 316 New Agr. Assistant Professor ROSS.

6. Land Tenure.—*Prerequisite:* Econ. 1 or 2 and 90 hours of university work. (2). 9 TT; 316 New Agr. Associate Professor CASE.

Courses for Graduates

101. Farm Management Principles and Investigational Methods.—(1 unit). Twice a week. Time to be arranged. Associate Professor CASE.

110. Seminar. Thesis Course.—(All graduate students registered in Farm Management must register in Farm Management 110, but only those students who are writing theses will be given credit.) (1 unit). Time to be arranged. Once a week. Associate Professor CASE.

FINE ARTS

(See Art and Design, Landscape Architecture, and Music.)

FLORICULTURE

(See Horticulture.)

FRENCH

(See Romance Languages and Literature.)

GENERAL ENGINEERING DRAWING

(See Drawing, General Engineering.)

GEOLOGY

(Including Mineralogy, Paleontology and Geography.)

For students entering prior to September, 1929

A. GEOLOGY

Major: 20 hours in Geology exclusive of Geology 1, 43, and 44, and including Geology 2b and 4, the field course).

Minors: 20 hours selected from any one or two of the following departments: astronomy, botany, chemistry, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology.

For students entering after September 1, 1929

Major: 20 hours in Geology exclusive of Geology 1, 43 and 44 and all courses taken during the freshman year; inclusive of Geology 3 and 4 (the field trip), and at least 5 hours of courses not open to freshmen or sophomores.

Minors: 20 hours of courses in one or two of the following named departments, exclusive of those taken in the freshman year; astronomy, botany, chemistry, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology. At least eight hours must be offered in each subject if two are chosen.

1. General Geology.—Discussions; quiz; 4 hours' laboratory; one or two field trips.

Note: Seniors receive only 4 credits; students who have credit for Geography 1 receive only 3 credits for Geology 1.

Subject	Credits	Section	Hours	Days	Room	Instructor
Geol. 1	5	A Lect. and Quiz	8	TWTF	247 N. H.	Shepard
		B Lect. and Quiz	9	TWTF	247 N. H.	Savage
		C Lect. and Quiz	10	TWTF	247 N. H.	Quirke
		D Lect. and Quiz	11	TWTF	247 N. H.	Sutton
		E Lect. and Quiz	2	MTWT	247 N. H.	
		1 Lab.	1-3	MF	251 N. H.	Quirke
		2 Lab.	1-3	TT	251 N. H.	Shepard
		3 Lab.	3-5	MF	251 N. H.	Shepard
		4 Lab.	8-10	TT	251 N. H.	
		5 Lab.	10-12	TT	251 N. H.	
		6 Lab.	3-5	TT	251 N. H.	Howard

2a. Historical Geology.—*Prerequisite:* Geol. 1. *Note:* Seniors receive only 4 hours' credit.

Geol. 2a	5	A Lect.	9	MTWTF	241 N. H.	Sutton
		B Lect.	10	MTWTF	241 N. H.	Savage

3. Study of Geological Maps.—*Prerequisite:* Geol. 2a or registration therein. Required of majors in Geology. (1). Lab., 3-5 T; 134 N. H. Assistant Professor Sutton.

20. General Mineralogy.—*Prerequisite:* One year of chemistry. (3). 8-10 TTS; 147 N. H. Assistant Professor Howard.

28. Geological History of Vertebrates.—*Prerequisite:* Geol. 2a. (2). 11 TT; 134 N. H. Assistant Professor Wanless.

43. Engineering Geology.—*Prerequisite:* Sophomore standing in the College of Engineering. (3). 11 TT; 241 N. H. Lab., 9-12 S; 251 N. H. Professor Quirke.

44. Agricultural Geology.—*Prerequisite:* Freshman work in the College of Agriculture.

Geol. 44	3	Lect.	1	MW	247 N. H.	Wanless
		A Quiz	10	T	134 N. H.	Wanless
		B Quiz	10	Th	134 N. H.	Wanless
		C Quiz	1	F	134 N. H.	Wanless
		Laboratory Hours				
		1	1-3	Th	147 N. H.	Wanless
			10-12	F	147 N. H.	Wanless

Courses for Advanced Undergraduates and Graduates

9. Invertebrate Paleontology.—*Prerequisite:* Geol. 2a and junior standing. (3). 8 MWF; 236 N. H. Laboratory hours to be arranged. Professor Savage.

15. Structural Geology.—Discussion and one two-day field trip.—*Prerequisite:* Geol. 4. (3). 9 TTS; 134 N. H. Assistant Professor Shepard.

38. Regional Geology of the United States.—*Prerequisite:* Geol. 2a. (3). 3 MWF; 134 N. H.

47. Systematic Mineralogy.—*Prerequisite:* One year of chemistry, and except for engineering and chemistry students, Geol. 2a. (3). 10-12 MWF; 150 N. H. Professor Bayley.

95. Economic Geology.—*Prerequisite:* Geol. 2a, or 13, and 20 or 48 or 49. (3). 9 MWF; 150 N. H. Assistant Professor HOWARD.

60a. Introduction to Research.—Limited to seniors majoring in Geology. (2). Members of the department.

Courses for Graduates

101. Advanced Crystallography.—(1 unit). Twice a week. Hours to be arranged. 253 N. H. Professor BAYLEY.

102. Igneous Petrography.—(1 unit). Twice a week. 253 N. H. Professor BAYLEY.

125. Sedimentation.—(1 unit). Three times a week. Hours to be arranged. Professor BAYLEY and Assistant Professor WANLESS.

135. Research.—(½-4 units).* Once a week. Hours to be arranged. Members of the department.

142. Stratigraphic Paleontology: Paleozoic.—(1 unit). 1 MWF; 236 N. H. Professor SAVAGE.

143. Stratigraphic Paleontology: Mesozoic and Cenozoic.—(1 unit). 2 MWF; 236 N. H. Assistant Professor SUTTON.

151. Advanced Dynamic Geology.—(1 unit). Three times a week. Hours to be arranged. Professor QUIRKE.

160. Petroleum Geology.—(1 unit). Twice a week. Hours to be arranged. Assistant Professor HOWARD.

B. GEOGRAPHY

For students entering prior to September, 1929

Major: 20 hours of courses that have prerequisites in geography, exclusive of Geography 1.

Minors: 20 hours selected from not more than two of the following: economics, education, history, zoology, and botany.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, and 12 or 8 or 53.

For students entering after September 1, 1929

Major: 20 hours of courses that have prerequisites in geography, exclusive of Geography 1, and all courses taken during the freshman year and including at least 5 hours of courses not open to freshmen.

Minors: 20 hours selected from not more than two of the following named departments, exclusive of those taken in the freshman year: economics, education, history, zoology, botany and geology. At least eight hours must be offered in each subject, if two are chosen.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, and 10 or 11, or 12 or 8 or 53.

Courses for Undergraduates

1. Elements of Geography.—Lectures and discussions; two or three field trips.

Note: Seniors receive only 4 hours' credit and those who have credit for Geol. 1 receive only 3 hours' credit for Geog. 1.

Subject	Credits	Section	Hours	Days	Room	Instructor
Geog. 1	5	A Lect. and Disc.	8	MTWF	435 N. H.	PAGE
		A Lab.	8-10	Th	422 N. H.	
		B Lect. and Disc.	9	MWTF	435 N. H.	BURGY
		B Lab.	8-10	T	422 N. H.	
		C Lect. and Disc.	10	MWTF	435 N. H.	BURGY
		C Lab.	10-12	T	422 N. H.	
		D Lect. and Disc.	10	MTWF	434 N. H.	BLOCK
		D Lab.	10-12	Th	422 N. H.	
		E Lect. and Disc.	11	MTWF	435 N. H.	BLOCK
		E Lab.	3-5	Th	422 N. H.	
		F Lect. and Disc.	1	MWTF	435 N. H.	
		F Lab.	1-3	T	422 N. H.	
		G Lect. and Disc.	2	MTWF	435 N. H.	BLOCK
		G Lab.	1-3	Th	422 N. H.	

2. Industrial and Commercial Geography.—*Prerequisite:* Geog. 1. Lectures and discussion. *Note:* Seniors receive 4 hours' credit.

Geog. 2	5	A	8	MTWTF	434 N. H.	BLANCHARD
		B	11	MTWTF	434 N. H.	POGGI

4. Geography of North America.—*Prerequisite:* Geog. 2. (3). 4 MWF; 422 N. H. Dr. BURGY.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

11. Geography of Asia.—*Prerequisites:* Geog. 2 and 14. (2). 2 TT; 434 N. H. Miss Poggi.

14. Weather.—*Prerequisite:* Geog. 1. (3). 9 MWF; 434 N. H. Dr. Page.

15. Physiography.—Lectures and discussion. *Prerequisite:* Geog. 2. (3). 10 T, 435 N. H.; 1 M, 434 N. H.; 10 Th, 434 N. H. Dr. Page.

Courses for Advanced Undergraduates and Graduates

53a. Advanced Economic Geography.—*Prerequisite:* Geog. 2 or 3 and at least one regional geography course and senior standing. (3). 10 MWF; 422 N. H. Professor Blanchard.

135. See Geology 135.

GERMAN

For students entering prior to September, 1929

Major: 20 hours in German, excluding courses 1 and 2, and including 6 hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list: languages (not less than 8 hours in any one), education, history, philosophy, and psychology.

Seniors taking German 1-2 will receive but three hours' credit.

For students entering after September 1, 1929

Major: 20 hours in German, excluding courses 1 and 2 and all courses taken during the freshman year, and including 6 hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours, exclusive of courses taken during the freshman year, in not more than two subjects chosen from the following list, with not less than eight hours in each subject: education, English (excluding Rhetoric 1, 2, and 12), French (excluding 1a), Greek, history, Italian, Latin, philosophy, Spanish (excluding 1a).

Seniors taking German 1-2 will receive but three hours' credit.

Elementary and Intermediate Courses

1. Elementary Course.—(*Note:* Seniors will receive three hours' credit only.)

Subject	Credits	Section	Hours	Days	Room	Instructor
German 1	4	A1	8	MTWT	202 L. H.	Robinson
		A2	8	MTWT	312 U. H.	Kurtz
		A3	8	MTWT	205 L. H.	Jehle
		A4	8	MTWT	206 L. H.	Schreiber
		A5	8	MTWT	233 L. H.	Kettelkamp
		B1	9	MTWT	233 L. H.	Brooks
		B2	9	MTWT	310 U. H.	Mueller
		B3	9	MTWT	238 L. H.	Voigt
		B4	9	MTWT	219 L. H.	Hettwer
		C1	10	MTWT	233 L. H.	Munro
		C2	10	MTWT	206 L. H.	Schreiber
		D1	11	MTWT	312 U. H.	Blaisdell
		D2	11	MTWT	310 U. H.	Kurtz
		E1	1	MTWT	224 L. H.	Voigt
		E2	1	MTWT	310 U. H.	Kettelkamp
		F1	2	MTWT	205 L. H.	Jehle
		G1	3	MTWT	205 L. H.	Mueller
		G2	3	MTWT	312 U. H.	Hettwer
		H	4	MTWT	205 L. H.	Moore

2. Elementary Course (continued).—*Prerequisite:* German 1, German S1, or 1 year of high-school German. (*Note:* Seniors will receive three hours' credit only.)

German 2	4	A	8	MTWT	310 U. H.	Blaisdell
		B	9	MTWT	312 U. H.	Koller
		C	10	MTWT	238 L. H.	Moore
		D	1	MTWT	233 L. H.	Munro
		E	3	MTWT	233 L. H.	Kurtz
		F	4	MTWT	206 L. H.	Robinson

4. Intermediate Course.—*Prerequisite:* German 2, or German S2, or 2 years of high-school German, or equivalent.

German 4	4	A1	8	MTWT	238 L. H.	Williams
		A2	8	MTWT	219 L. H.	Geissendoerfer
		B	9	MTWT	302 L. H.	Blaisdell
		C	10	MTWT	310 U. H.	Kurtz
		D	11	MTWT	233 L. H.	Moore
		E	1	MTWT	205 L. H.	Geissendoerfer
		F	3	MTWT	206 L. H.	Koller

5. Intermediate Course (continued).—Literary reading. *Prerequisite:* German 4, S4, or 3 years of high-school German, or equivalent. (4). 10 MTWT; 312 U. H. Assistant Professor Koller.

Courses for Advanced Undergraduates

14. Introductory Schiller Course.—*Prerequisite:* German 5, or equivalent. (3). 11 MWF; 205 L. H. Professor Aron.

16a. **Conversation and Writing.**—*Prerequisite:* German 5, or equivalent. (2). 2 TT; 206 L. Assistant Professor KOLLER.

24a. **Nineteenth Century Drama.**—*Prerequisite:* German 5, or equivalent. (2). 3 TT; 204-A L. H. Assistant Professor GEISSENDOERFER.

28a. **Lyrics and Ballads.**—*Prerequisite:* German 5, or equivalent, and sophomore standing. (2). 9 TT; 204-A L. H. Associate Professor WILLIAMS.

29a. **Advanced Conversation and Writing.**—*Prerequisite:* German 16b, or equivalent. (2). 2 TT; 211 L. H. Assistant Professor GEISSENDOERFER.

30a. **Senior Thesis and Honors Course.**—*Prerequisite:* Senior standing; three years of college German, or equivalent. (2). Arrange. Professor ARON and others.

Courses for Advanced Undergraduates and Graduates

19a. **Goethe's Faust I.**—*Prerequisite:* Three years of college German, or equivalent. (2). 11 TT; 206 L. H. Professor BROOKS.

26a. **German Literature up to 1800.**—*Prerequisite:* Three years of college German, or equivalent. (3). 9 MWF; 205 L. H. Professor ARON.

31. **Middle High German.**—*Prerequisite:* Senior or graduate standing; three years of college German, or equivalent. (2). Arrange. Associate Professor WILLIAMS.

54. **Introduction to Comparative Literature.**—See English 54.

Courses for Graduates

101. **Seminar in the Modern German Drama.**—Twice a week. (1 unit). Arrange. Professor ARON.

102. **Thesis.**—(½ to 2 units).* Arrange. Professors ARON, BROOKS; Associate Professor WILLIAMS.

103. **Introduction to the Historical Study of the Germanic Languages.**—Twice a week. (1 unit). Arrange. Associate Professor WILLIAMS.

113. **German Literature of the Fifteenth and Sixteenth Centuries.**—Twice a week. (1 unit). Arrange. Professor BROOKS.

117. **German Literature of the Seventeenth and Eighteenth Centuries.**—Twice a week. (1 unit). Arrange. Professor ARON.

GREEK

(See Classics.)

HISTORY

For students entering prior to September, 1929

Major: 20 hours, excluding History 1a and 2a, and including (a) either History 1b or 2b; (b) six hours selected from courses for advanced undergraduates and graduates; and (c) any other courses offered in the department.

Minors: 20 hours, selected from two of the following subjects: economics, political science, law, sociology, English and American literature, and philosophy. Courses in any foreign language may be accepted in satisfaction of this requirement if the student can show his ability to read ordinary historical prose in that language.

For students entering after September 1, 1929

Major: 20 hours, including (a) ten hours in courses having junior standing as a prerequisite, and (b) any other courses offered by the department (except courses taken in the freshman year).

Minors: 20 hours selected from one or two of the following subjects: economics, political science, geography, philosophy, law, sociology and English and American literature (except such courses as are taken in the freshman year). Courses in one modern language (except such as are primarily designed for freshmen) will be accepted as one of two minor subjects.

Courses for Undergraduates

1a. **Continental European History.**

Subject	Credits	Section	Hours	Days	Room	Instructor
Hist. 1a	4 or 3[1]	Lect. 1[2]	10	TT	M. H.	JONES
		Lect. 2[2]	2	TT	218 U. H.	JONES
[1]Three credits for seniors; four credits for students other than seniors.		A Disc.	8	WF	211 U. H.	TOLO
		B Disc.	8	WF	335 L. H.	MAJOR
		C Disc.	9	WF	303-A L. H.	MAJOR
		D Disc.	10	WF	211 L. H.	JONES
[2]Students in lectures 1 and 2 must elect a discussion in the A-S group.		E Disc.	10	WF	303-A L. H.	CLAUSEN
		F Disc.	10	WF	211 U. H.	SUTHERLAND
		G Disc.	10	WF	335 L. H.	SHAY

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Hist. 1a	4 or 3[1]	H Disc.	1	WF	303-A L. H.	Davenport
		I Disc.	1	WF	211 U. H.	LaFuze
[1]Three credits for seniors; four credits for students other than seniors.		J Disc.	2	WF	211 U. H.	LaFuze
		K Disc.	2	WF	303-A L. H.	Erickson
		L Disc.	3	WF	335 L. H.	Noss
		M Disc.	3	WF	305 L. H.	Rodkey
		N Disc.	4	WF	335 L. H.	Rodkey
		O Disc.	1	TT	305 L. H.	King
[3]Students in lecture 3 must elect a discussion in the T-Z group.		P Disc.	1	TT	321 L. H.	Sutherland
		Q Disc.	2	TT	321 L. H.	King
		R Disc.	4	TT	311 L. H.	Erickson
		S Disc.	9	ThS	335 L. H.	Davenport
		Lect. 3[3]	2	MW	300 Math.	Ronalds
		T Disc.	10	TT	329 L. H.	Ronalds
		U Disc.	11	TT	321 L. H.	Ronalds
		V Disc.	2	TT	335 L. H.	Shay
		W Disc.	2	TT	211 U. H.	Sage
		X Disc.	2	TT	311 L. H.	
		Y Disc.	2	TT	329 L. H.	Erickson
		Z Disc.	11	ThS	303-A L. H.	Ronalds

2a. English History.

Hist. 2a	3 or 2[1]	Lect. 1	11	M	300 Math.	Dietz
		Lect. 2	2	M	M. H.	Dietz
		A Disc.	10	WF	321 L. H.	Erickson
		B Disc.	11	WF	321 L. H.	Dietz
		C Disc.	11	WF	212 U. H.	Sage
		D Disc.	11	WF	329 L. H.	Clausen
[1]Two credits for seniors; three credits for students other than seniors.		E. Disc.	11	WF	224 L. H.	Erickson
		F Disc.	11	WF	335 L. H.	Shay
		G Disc.	11	WF	211 U. H.	Yount
		H Dis.	11	WF	240 L. H.	Noss
		I Disc.	1	WF	305 L. H.	Shay
		J Disc.	2	WF	240 L. H.	Sage
		K Disc.	2	WF	311 L. H.	Shay
		L Disc.	2	WF	329 L. H.	Clausen
		M Disc.	2	TT	203 L. H.	Noss
		N Disc.	3	TT	305 L. H.	Shay
		O Disc.	4	TT	305 L. H.	Tolo
		P Disc.	9	ThS	305 L. H.	Tolo

3a. History of the United States to 1828.—*Prerequisite:* One year of college work.

Hist. 3a	3	Lect. 1[1]	8	MF	218 U. H.	Werner
		A Disc.	8	T	305 L. H.	Werner
		B Disc.	8	T	311 L. H.	LaFuze
		C Disc.	8	T	303-A L. H.	Davenport
		D Disc.	8	W	305 L. H.	Werner
[1]Students in Lecture 1 must elect a discussion in the A-H group. Students in Lecture 2 must elect a discussion in the I-P group. Students in Lecture 3 must elect a discussion in the Q-X group.		E Disc.	8	W	303-A L. H.	LaFuze
		F Disc.	8	W	311 L. H.	Davenport
		G Disc.	8	Th	305 L. H.	Werner
		H Disc.	9	Th	303-A L. H.	
		Lect. 2[1]	11	MF	103 N. Agr.	Dunbar
		I Disc.	10	T	311 L. H.	Dunbar
		J Disc.	11	T	305 L. H.	Dunbar
		K Disc.	11	W	303-A L. H.	Dunbar
		L Disc.	11	W	323 N. Agr.	
		M Disc.	11	W	320 N. Agr.	Major
		N Disc.	10	Th	311 L. H.	Dunbar
		O Disc.	11	Th	311 L. H.	Dunbar
		P Disc.	1	T	311 L. H.	Major
		Lect. 3[1]	2	MF	218 U. H.	Hansen
		Q Disc.	1	W	335 L. H.	King
		R Disc.	1	Th	311 L. H.	Hansen
		S Disc.	2	T	104 L. H.	Hansen
		T Disc.	2	W	335 L. H.	Hansen
		U Disc.	2	W	308 L. H.	King
		V Disc.	2	W	321 L. H.	Sutherland
		W Disc.	3	W	303-A L. H.	Sutherland
		X Disc.	4	Th	303-A L. H.	

5a. The Ancient World.—*Prerequisite:* Sophomore standing.

Hist. 5a	3	Lect.	2	MW	303 L. H.	Swain
		A Disc.	2	Th	326 L. H.	Yount
		B Disc.	1	F	311 L. H.	Yount
		C Disc.	2	F	321 L. H.	Yount
		D Disc.	2	F	335 L. H.	Swain
		E Disc.	9	S	303-A L. H.	Yount

14a. The American Colonies in the Seventeenth Century.—*Prerequisite:* Junior standing. (3). 11 MWF; 305 L. H. Dr. Werner.

18. The Teaching of History.—*Prerequisite:* One year of college history and senior standing. (2). 3 TT; 303 L. H. Dr. Werner.

22a. History of the West, 1634-1815.—*Prerequisite:* History 3a and junior standing. (2). 10 TT; 410 U. H. Professor PEASE.

23a. The Puritan Revolution in England and America.—*Prerequisite:* Sophomore standing and one year of college history. (2). 11 TT; 410 U. H. Professor PEASE.

30a. The Mohammedan World: The Saracen Empire and the Crusades.—*Prerequisite:* One year of college history. (3). 10 MWF; 305 L. H. Professor LYBYER.

33a. History of Russia and Her Slavic Neighbors to 1796.—*Prerequisite:* Junior standing and one year of college history. (3). 8 MWF; 303 L. H. Associate Professor RODKEY.

40. History of the British Empire.—*Prerequisite:* One year of college history. (2). 1 TT; 329 L. H. Dr. ERICKSON.

41. The Middle Ages: the Formation and the Development of the European States.—*Prerequisite:* Sophomore standing. (3). 2 MWF; 204 L. H. Professor LARSON.

45a. History of England in the Eighteenth and Early Nineteenth Centuries (1688-1837).—*Prerequisite:* Junior standing and one year of college history. (2). 2 TT; 303 L. H. Assistant Professor RONALDS.

51a. Hebrew History.—*Prerequisite:* Junior standing. (2). 2 TT; 305 L. H. Associate Professor SWAIN.

90a. Thesis.—*Prerequisite:* Senior standing. (2). Time to be arranged. Professor ROBERTSON.

91a. Honors Course.—*Prerequisite:* Senior standing. (2). Time to be arranged. Professor LYBYER.

Courses for Advanced Undergraduates and Graduates

(Open to seniors and juniors of high standing)

16a. The Foundations of American Society: The Colonies in the Eighteenth Century.—*Prerequisite:* History 3a. (3). 10 MWF; 311 L. H. Assistant Professor DUNBAR.

17a. Social and Economic Forces in the Nineteenth Century (to 1850).—*Prerequisite:* History 3b. (3). 9 MWF; 303 L. H. Professor HANSEN.

19a. The History of American Immigration.—*Prerequisite:* History 3. (2). 9 TT; 203 L. H. Professor HANSEN.

20a. History of the Old South.—*Prerequisite:* History 3a-3b. (2). 8 TT; 335 L. H. Professor RANDALL.

21. The Recent History of the United States.—*Prerequisite:* Hist. 3b. (3). 9 TT; 303 L. H. Professor ROBERTSON.

25. The Civil War and Reconstruction.—*Prerequisite:* History 3b. (3). 11 MWF; 311 L. H. Professor RANDALL.

26. History of the Latin American Colonies.—*Prerequisite:* One year of college history. (3). 2 MWF; 305 L. H. Professor ROBERTSON.

32a. The History of Europe, 1848-1904.—*Prerequisite:* One year of college history, economics, or political science. (3). 8 MWF; 103 New Agr. Professor LYBYER.

34a. Development of Modern Europe, 1648-1789.—*Prerequisite:* One year of college history. (3). 11 MWF; 303 L. H. Associate Professor SWAIN.

36a. History of the German People to the End of the Thirty Years War.—*Prerequisite:* One year of college history. (3). 9 MWF; 211 L. H. Associate Professor RODKEY.

38a. Development of the French Monarchy in Early Modern Times, 1285-1648.—*Prerequisite:* History 1a-1b. (3). 9 MWF; 329 L. H. Professor JONES.

44a. The Constitutional History of England.—*Prerequisite:* One year of college history. (3). 3 MWF; 303 L. H. Professor LARSON.

46a. The Industrial Revolution and English Social Politics, 1750-1832.—*Prerequisite:* One year of college history. (3). 9 MWF; 335 L. H. Professor DIETZ.

55. History of the Ancient Greek States.—*Prerequisite:* One year of college history. (3). 1 MWF; 120 L. H. Professor OLDFATHER.

62a. Political and Constitutional Development of the United States.—*Prerequisite:* History 3a, or 3b, or consent of the instructor. (3). 10 MWF; 329 L. H. Professor RANDALL.

Courses for Graduates

101a. Seminar in American History: Introduction to Research.—(1 unit). 4, 5 T. Professor ROBERTSON.

102a. Seminar in English History.—(1 unit). Time to be arranged. Professor DIETZ.

103a. Studies in Historical Method.—(½ unit). 3 TT. Professor RANDALL.

104a. Seminar in European History.—(1 unit). 4, 5 W. Professor LYBYER.

105. Research in Special Topics (Thesis Course).—(1-2 units.)* Professors LARSON, LYBYER, ROBERTSON, PEASE, JONES, RANDALL, DIETZ, HANSEN; Associate Professors, SWAIN, RODKEY.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

106a. Seminar in the History of the Later Middle Ages.—(1 unit). Time to be arranged. Professor LARSON.

122c. The Westward Movement, 1782-1790.—(1 unit). Two hours. 4 MTh. Professor PEASE.

126. Spain in Europe and America, 1750-1825.—(1 unit). Time to be arranged. Professor ROBERTSON.

138a. History of France during the Religious Civil Wars.—(1 unit). Time to be arranged. Professor JONES.

150a. Research in Ancient History.—(1 unit). Time to be arranged. Associate Professor SWAIN.

HOME ECONOMICS

College of Agriculture

Curriculum in General Home Economics. (See page 51.)
Curriculum in Nutrition and Dietetics. (See page 52.)

College of Education

Home Economics Education. (See page 60.)
Home Economics Education—Smith-Hughes. (See page 60.)

College of Liberal Arts and Sciences

Major A.—General Home Economics: 20 hours from courses offered by the department, excluding Home Economics 1 and 6 (or 44), 7, and including Home Economics 2, 5, 10, 29, and two or more of the following: Home Economics 14, 19, 20, 28, 31, 33, 41, 43a, 43b, 48, 55.

Major B.—Nutrition: 20 hours excluding Home Economics 1 and including Home Economics 5, 6 (or 44), 39a, 39b, 41, and two or more of the following: Home Economics 20, 33, 45, 47.

Minors: 20 hours from (a) chemistry, bacteriology (lecture and laboratory), and physiology (at least one course from each subject), or (b) economics (a minimum of 8 hours), and one or two of the following subjects: education, history, psychology, sociology.

Transfer Students: To satisfy the requirements for graduation, students transferring home economics credits from other institutions must take five hours in residence from the following: Home Economics 20, 28, 31, 33, 39a, 39b, 41, 43a, 43b, 47, 48, 50, 51, 55.

Electives: In addition to the required subjects in each college, it is expected that students will choose electives in accord with their special interest.

1. Textiles, clothing and costume design: Home Economics 19, 30, 31, 42, 43a, 43b, 50, 51.
2. Institutional management and hospital dietetics: Home Economics 20, 33, 46, 47, 48, 55.
3. Household Management: Home Economics 14, 28, 57a, 57b, and additional courses in economics.
4. House planning and furnishing: Art and Design 19, 20; Architecture 11, 12; Home Economics 3, 43a, 43b, and additional courses in art and history.
5. Nutrition: Chemistry 24, 50a; Zoology 1; Home Economics 20, 33, 39a, 39b, 41, 45.
6. Teaching of home economics: Home Economics 11, 13, 34, 45; Education 6, 10, 25.

Courses for Undergraduates

1. Foods.—*Prerequisite:* Chemistry 1, 5.

Subject	Credits	Section	Hours	Days	Room	Instructor
Home Econ. 1	4	Lect.	9	W	113 W. B.	WOODRUFF
		A Quiz	9	M	121 W. B.	SCHREIBER
		B Quiz	9	F	121 W. B.	WOODRUFF
		C Quiz	11	F	121 W. B.	PICKENS
		A Lab.	10, 11	MF	235 W. B.	WOODRUFF
		B Lab.	1, 2	MW	229 W. B.	SCHREIBER
		C Lab.	10, 11	TT	235 W. B.	PICKENS
		D Lab.	1, 2	TT	229 W. B.	SCHREIBER

2. Home Architecture.—*Prerequisite:* Art and Design 13a and sophomore standing; *Prerequisite or concurrent:* Art and Design 13b.

Home Econ. 2	3	Lect.	9	T	113 W. B.	FOSTER
		Lect.	9	Th	113 W. B.	WEAVER
		Lab.	9, 10	S	300 Arch.	FOSTER, WEAVER

3. Home Decoration.—*Prerequisite:* Art and Design 13a, 13b; Home Economics 2.

Home Econ. 3	3	Lect.	11	S	113 W. B.	WEAVER
		A Lab.	10, 11	TT	309 W. B.	
		B Lab.	1, 2	TT	309 W. B.	

5. Dietetics.—*Prerequisite:* Chemistry 33; Home Economics 6 or 44; Physiology 4.

Home Econ. 5	4	Lect.	9	M	113 W. B.	BARTO
		A Quiz	9	W	117 W. B.	BARTO
		B Quiz	9	F	117 W. B.	BARTO
		A Lab.	10, 11	MW	227 W. B.	JOHNSON
		B Lab.	10, 11	TT	227 W. B.	JOHNSON
		C Lab.	3, 4	TT	227 W. B.	JOHNSON

6. Foods.—*Prerequisite:* Home Economics 1.

Subject	Credits	Section	Hours	Days	Room	Instructor
Home Econ. 6	4	Lect. and Disc.	4	TT	121 W. B.	Schreiber
		Lab.	3, 4	MW	235 W. B.	

7. Textiles.

Home Econ. 7	3 or 2[1]	Lect.	10	M	113 W. B.	Jacobsen
		A Quiz	2	T	117 W. B.	Jacobsen
		B Quiz	10	W	117 W. B.	Jacobsen
		C Quiz	2	Th	117 W. B.	Jacobsen
		D Quiz	10	F	117 W. B.	Beam
		A Lab.	1, 2	M	304 W. B.	Beam
		B Lab.	3, 4	T	304 W. B.	Jacobsen
		C Lab.[2]	10, 11	W	304 W. B.	Beam
		D Lab.[2]	1, 2	W	304 W. B.	Beam
		E Lab.[2]	3, 4	Th	304 W. B.	Jacobsen

10. Organization and Management of the Household.—*Prerequisite:* Economics 1 or 2; Home Economics 2, 6 or 44, 7.

Home Econ. 10	3	Lect. and Disc.	1	F	121 W. B.	Munger
		A Quiz	8	MW	121 W. B.	
		B Quiz	1	MW	121 W. B.	

11. Teachers' Course.—*Prerequisite:* Home Economics 6, 29. *Prerequisite or concurrent:* Education 10, Home Economics 5, 10, 19; *Recommended:* Home Economics 34. One inspection trip (approximate cost, $3). Required of all who wish to be recommended to teach home economics. (Same as Home Economics Education 1.) (3). Lect. 2 TT; 121 W. B. Miss Robinson.

11a.[3] Supervised Teaching.—*Prerequisite or concurrent:* Home Economics 11. (2). Time to be arranged daily for twenty lessons. Miss Robinson, Miss Todd, Miss King.

13. Home Economics in Education.—*Prerequisite or concurrent:* Home Economics 10, 29. Recommended for all seniors in home economics. (Same as Home Economics Education 2.) (3). Lect., 3 TT; 117 W. B. Miss Todd.

14. Practice House.—Lecture, conference, and laboratory work in practice apartment. The students reside in the apartment four weeks during the semester. *Prerequisite:* Home Economics 5, 10; consent of the instructor. (3). Conference 4 Th; 117 W. B.; laboratory to be arranged, 317-19 W. B. Miss Munger.

19. Costume Design.—*Prerequisite:* Art and Design 13a, 13b; Home Economics 29.

Home Econ. 19	3	Lect.	10	F	121 W. B.	Barnes
		A Lab. and Disc.	10, 11	MW	309 W. B.	
		B Lab. and Disc.	1, 2	MW	309 W. B.	

29. Clothing.—*Prerequisite:* Art and Design 13a or 13b; Home Economics 7.

Home Econ. 29	4	Lect.	9	F	113 W. B.	Whitlock
		A Quiz	9	W	121 W. B.	Whitlock
		B Quiz	9	Th	121 W. B.	Whitlock
		A Lab.	10, 11	MW	205 W. B.	Whitlock
		B Lab.	10, 11	TT	327 W. B.	Beam
		C Lab.	1, 2	TT	327 W. B.	Beam

30. Clothing.—*Prerequisite or concurrent:* Home Economics 19.

Home Econ. 30	3	Lect.	2	F	121 W. B.	Whitlock
		A Lab.	1, 2	MW	203-5 W. B.	
		B Lab.	1, 2	TT	203-5 W. B.	

34. Teachers' Course in Clothing.—*Prerequisite:* Home Economics 19. (Same as Home Economics Education 3.)

Home Econ. 34	1	Lab.	3, 4	W	203-5 W. B.	King

38. Elements of Food and Nutrition.—*Prerequisite:* Section A, senior standing; Section B, junior standing. Open only to students not majoring in home economics.

Home Econ. 38	2	A Lect. (for women)	1	TT	121 W. B.	Woodruff
		B Lect. (for men)	2	MW	121 W. B.	

42. History of Costume.—*Prerequisite or concurrent:* Home Economics 19. (1). Lect., 3 T; 113 W. B. Miss Barnes.

44. Foods.—*Prerequisite:* Transfer credit of one year each in general chemistry and foods.

Home Econ. 44	3	Lect. and Disc.	1	MW	117 W. B.	Pickens
		A Lab.	1, 2, 3	T	235 W. B.	
		B Lab.	1, 2, 3	Th	235 W. B.	

[1]Two credits for seniors; three credits for other students.

[2]Sections C, D, and E in laboratory are open only to home economics students.

[3]Students wishing a five-hour course in supervised teaching in home economics should take Educational Practice 14. (See page 96.) Credit is not allowed for supervised teaching in the College of Liberal Arts and Sciences.

46. Quantity Cookery.—*Prerequisite:* Home Economics 6 or 44.

Subject	Credits	Section	Hours	Days	Room	Instructor
Home Econ. 46	3	Quiz	4	W	121 W. B.	SMITH, BENNETT
		Lab.	8, 9, 10	two mornings a week, to be arranged with instructor; advised not to have 11:00 classes as students are required to serve at noon at least two days a week.		

47. Institutional Management.—*Prerequisite:* Economics 1 or 2; *Prerequisite or concurrent:* Home Economics 46. (3). Lect. and disc., 2 MWF; 117 W. B. Assistant Professor SMITH.

Courses for Advanced Undergraduates and Graduates

20. Infant Nutrition.—*Prerequisite:* Home Economics 5, senior standing. (2). Lect. and Disc., 1 MW; 113 W. B. Miss PLANT.

33. Diet in Disease.—*Prerequisite:* Home Economics 5.

Home Econ. 33	3	Lect.	3	F	117 W. B.	BARTO
		Quiz	3	W	117 W. B.	
		Lab.	3, 4	M	229 W. B.	

39a. Readings in Food and Nutrition.—*Prerequisite:* Home Economics 5; senior standing; *Prerequisite or concurrent:* Chemistry 50 a, or Home Economics 20, 33, 41, or 55. (1). Seminar, 4-5:30 Th; 205 W. B. Assistant Professor BARTO, Mrs. MEYER.

43a. Problems in Textiles and Clothing.—*Prerequisite:* Economics 1 or 2; Home Economics 30 or 51. Each student will undertake an individual problem which may require prerequisites of chemistry and physics.

Home Econ. 43a	3	Conf.	11	F	327 W. B.	JACOBSEN, WEAVER
		Lab.	arrange			WHITLOCK, BARNES

51. Textiles.—*Prerequisite:* Chemistry 5, Economics 1 or 2, Home Economics 7, junior standing.

Home Econ. 51	3	Lect.	3	F	121 W. B.	JACOBSEN
		Lab.	3, 4	MW	304 W. B.	

55. Food and Nutrition.—*Prerequisite or concurrent:* Home Economics 5, senior standing.

Home Econ. 55	5	Lect.	1	TT	117 W. B.	Plant, MEYER
		A Lab.	2, 3, 4	T	215 W. B.	PLANT
			2, 3	Th		
			8, 9, 10	S		
		B Lab.	2, 3, 4	MF	215 W. B.	MEYER
			2, 3	W		

Courses for Graduates

101. Home Economics.—(1 unit). Professor WARDALL

102. Research in Food and Nutrition.—(½-3 units).* Assistant Professor WOODRUFF.

103. Nutrition Seminar,—(½ unit). To be arranged. Assistant Professor WOODRUFF.

HORTICULTURE

Courses for Undergraduates

1a. Elements of Horticulture.—(No credit in this course allowed to juniors and seniors.)

Hort. 1a	2	A Quiz	1	MF	127 New Agr.	COLBY
		Lab.	1, 2	W	H. F. Lab.	
		B Quiz	1	WF	211 New Agr.	
		Lab.	1, 2	M	H. F. Lab.	
		C Quiz	8	TT	127 New Agr.	
		Lab.	8, 9	S	H. F. Lab.	
		D Quiz	8	WF	127 New Agr.	
		Lab.	8, 9	M	H. F. Lab.	
		E Quiz	3	TT	127 New Agr.	
		Lab.	10, 11	S	H. F. Lab.	
		F Quiz	8	MW	211 New Agr.	
		Lab.	8, 9	F	H. F. Lab.	

5. Plant Propagation.—(3). 1, 2 MWF; F. G. Professor DORNER, Mr. DECKER.

6a. Nursery Methods.—*Prerequisite:* Hort. 5. An inspection trip is required; expenses not to exceed $20. (3). Lect., 10 TT; 201 F. G. Lab., 10-12 S; F. G. Mr. DECKER.

8a. Orcharding.—*Prerequisite:* Hort. 1a and 1b. An inspection trip is required; expenses not to exceed $15. (3). Lect., 10 Th; 211 New Agr. Lab., 10, 11 TS; 106 H. F. Lab. Mr. MCMUNN.

15b. Commercial Floricultural Crops.—*Prerequisite:* Hort. 15a. (3). 10, 11 MWF; F. G. Associate Professor HALL.

21a. Landscape Design.—*Prerequisite:* Arch. 72. (4). Lect., 8 M; 214 New Agr. Lab., 9 M, 8-10 WF, 8-12 S; 203 New Agr. Mr. MITCHELL.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

22a-j. **Investigation with Thesis.**—(This course is continuous throughout the year. Credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work including not less than 20 hours pertinent to the thesis problem, and the approval of the head of the department. (5). Arrange.

(a) **Pomology.** Professors DORSEY, RUTH, COLBY; Associate Professor ANDERSON.
(c) **Olericulture.** Professor LLOYD.
(e) **Floriculture.** Professor DORNER, Associate Professor WEINARD.
(g) **Landscape Architecture.** Professor SCHAFFER.
(j) **Plant Breeding.** Professor DORSEY

23a. **Landscape Design.**—*Prerequisite:* Hort. 21b. (4). Lect., 1 T; 214 New Agr. Lab., 2-5 T, 1-5 Th, 8-12 S; 200 New Agr. Professor WHITE.

24a. **Trees and Shrubs.**—*Prerequisite:* Botany 5; open only to landscape architecture and floriculture students. (3). Lect., 3 W; 214 New Agr. Lab., landscape students, 10-12 TT; floriculture students, 3-5 MF; 214 New Agr. Assistant Professor ROBINSON.

25a. **Advanced Landscape Design.**—*Prerequisite:* Hort. 23b. (5). Lect., 9 M; 214 New Agr. Lab., 10-12 M, 9-12 WFS; 203 New Agr. Professor LOHMANN.

26a. **Planting Design.**—*Prerequisite:* Hort. 23b, 24b, and 31. (3). Lect., 1 M; 214 New Agr. Lab., 2 M, 1-3 WF; 203 New Agr. Assistant Professor ROBINSON.

27a. **Landscape Construction.**—*Prerequisite:* C. E. 32. (3). Lect., 10 M, 9 F; 214 New Agr. Lab., 11 M, 10-12 WF; 200 New Agr. Professor SCHAFFER.

32a. **Floral Decorations.**—(For floriculture students.) (3). Lect., 11 TT; lab., arrange; F. G. Professor DORNER.

33. **Systematic Pomology.**—*Prerequisite:* 60 hours of university work. (2). 3, 4 TT; H. F. Lab. Mr. MCMUNN.

34. **Vegetables under Glass.**—*Prerequisite:* Hort. 3 or 15a. Inspection trip, costing about $20, required. (3). 1, 2 MWF; 203 V. G. Mr. WEAVER.

36. **History of Landscape Architecture.**—(3). 11 MWF; 214 New Agr. Assistant Professor PETERSON.

37a. **City Planning.**—*Prerequisite:* 90 hours of university work. (2). 10 TT; other hours arrange; 127 New Agr. Professors BARTHOLOMEW and LOHMANN.

40. **Care of Plant Materials.**—*Prerequisite:* Hort. 24b; 90 hours of university work. (2). 11 TT; other hours arrange; 211 New Agr. Professors SCHAFFER and WHITE.

49. **Systematic Vegetable Crops.**—*Prerequisite:* Hort. 1b. (2). 3, 4 TT; 203 V. G. Professor LLOYD, Mr. WEAVER.

53. **Viticulture.**—*Prerequisite:* Hort. 1a and 1b. (2). 1, 2 TT; H. F. Lab. Professor COLBY.

54. **Horticultural Manufactures.**—*Prerequisite:* Farm Mech. 1; registration in Bact. 5a. Inspection trip, costing about $20, required. (3). Lect., 1 TT; 2-5 TT; H. F. Lab. Associate Professor HUELSEN.

Courses for Advanced Undergraduates and Graduates

12. **Evolution of Horticultural Plants.**—*Prerequisite:* Zoology 15. (3). Arrange. 203 V. G. Professor DORSEY.

43. **Greenhouse Fertilizers.**—*Prerequisite:* Botany 3; Agron. 28; Hort. 3 or 15a. (3). 2 MWF; F. G. Associate Professor WEINARD.

44. **Pomology Seminar.**—*Prerequisite:* 90 hours of university work. (1). 4 W; 214 New Agr. Professors RUTH and DORSEY.

46. **Marketing Horticultural Products.**—*Prerequisite:* Econ. 1 or 2; Hort. 3 or 8a; 90 hours of university work. Inspection trip, costing about $20, required. (3). 3 MWF; 203 V. G. Professor LLOYD.

47. **Fruit Production and Storage.**—*Prerequisite:* Chem. 32; Bot. 3, or concurrent registration in Bot. 3. (3). 1, 2 MWF; 102 H. F. Lab. Professor RUTH.

Courses for Graduates

103. **Olericulture.**—(1-2 units.)* Time to be arranged. Professor LLOYD.

108. **Pomology.**—(1-2 units).* Time to be arranged. Professors BLAIR, LLOYD, DORSEY, RUTH; Associate Professor ANDERSON.

115. **Floriculture.**—(1-2 units).* Time to be arranged. Professor DORNER.

HYGIENE

1. **Elementary Hygiene and Sanitation.**—Required of all undergraduate men during their first year of residence.

Subject	Credits	Section	Hours	Days	Room	Instructor
Hyg. 1	½	A1	8	M	128 New Agr.	BEARD
		A2	8	T	128 New Agr.	ROSS
		A3	8	W	128 New Agr.	CAIN

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Hyg. 1	½	A4	8	Th	128 New Agr.	Judah
		A5	8	F	128 New Agr.	Blackstone
		A6	8	S	128 New Agr.	Lewis
		A7	8	M	111 New Agr.	Gebhart
		A8	8	T	111 New Agr.	
		A9	8	W	111 New Agr.	
		A10	8	Th	111 New Agr.	
		A11	8	F	111 New Agr.	
		A12	8	S	111 New Agr.	
		B1	9	M	128 New Agr.	
		B2	9	T	128 New Agr.	
		B3	9	W	128 New Agr.	
		B4	9	Th	128 New Agr.	
		B5	9	F	128 New Agr.	
		B6	9	S	128 New Agr.	
		B7	9	M	111 New Agr.	
		B8	9	T	111 New Agr.	
		B9	9	W	111 New Agr.	
		B10	9	Th	111 New Agr.	
		B11	9	F	111 New Agr.	
		B12	9	S	111 New Agr.	
		C1	10	M	128 New Agr.	
		C2	10	T	128 New Agr.	
		C3	10	W	128 New Agr.	
		C4	10	Th	128 New Agr.	
		C5	10	F	128 New Agr.	
		C6	10	S	128 New Agr.	
		C7	10	M	111 New Agr.	
		C8	10	T	204 Adm.	
		C9	10	W	111 New Agr.	
		C10	10	Th	204 Adm.	
		C11	10	F	111 New Agr.	
		C12	10	S	202 Entom.	
		D1	11	M	128 New Agr.	
		D2	11	T	128 New Agr.	
		D3	11	W	128 New Agr.	
		D4	11	Th	128 New Agr.	
		D5	11	F	128 New Agr.	
		D6	11	S	128 New Agr.	
		D7	11	M	111 New Agr.	
		D8	11	T	202 Entom.	
		D9	11	W	111 New Agr.	
		D10	11	Th	202 Entom.	
		D11	11	F	111 New Agr.	
		D12	11	S	202 Entom.	
		F1	3	M	128 New Agr.	
		F2	3	T	128 New Agr.	
		F3	3	W	128 New Agr.	
		F4	3	Th	128 New Agr.	
		F5	3	F	128 New Agr.	
		F7	3	M	308 Adm. Bldg.	
		F8	3	T	202 Entom.	
		F9	3	W	308 Adm.	
		F10	3	Th	202 Entom.	
		F11	3	F	308 Adm.	

HYGIENE

2. Essentials of Hygiene and Sanitation.—Required of all undergraduate women during their first year of residence.

Hyg. 2	½	A2	8	T	106 L. H.	Millbrook
		A4	8	Th	106 L. H.	Smarzo
		A5	8	F	106 L. H.	Millbrook
		B1	9	M	106 L. H.	Smarzo
		B2	9	T	106 L. H.	Etheredge
		B3	9	W	106 L. H.	Etheredge
		B4	9	Th	106 L. H.	Etheredge
		B5	9	F	106 L. H.	Etheredge
		C1	10	M	106 L. H.	Etheredge
		C2	10	T	106 L. H.	Wheeler
		C3	10	W	106 L. H.	Wheeler
		C4	10	Th	106 L. H.	Wheeler
		C5	10	F	106 L. H.	Wheeler
		D3	11	W	106 L. H.	Millbrook
		D5	11	F	106 L. H.	Smarzo
		F2	2	T	106 L. H.	Smarzo
		F4	2	Th	106 L. H.	Millbrook

INDUSTRIAL EDUCATION

(See Education.)

ITALIAN

(See Romance Languages and Literature.)

JOURNALISM

(Credit in journalism will be given for Rhet. 6, Engl. 45, Pol. Sci. 22, 27, 28, Law 2, 5, Hist. 21.)

Courses for Undergraduates

1. Introduction to Journalism.—*Prerequisite:* Open to pre-journalism freshmen only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Journ. 1	1	B	9	Th	204 U. H.	Barlow
		C	10	Th	212 U. H.	Barlow
		E	1	Th	204 U. H.	Barlow
		F	2	Th	204 U. H.	Barlow

3. The Newspaper and the News.—*Prerequisite:* 30 hours of university work. Not open to students with credit in Journalism 1-2, or to students registered in Journalism 5.

Journ. 3	2	C	10	TT	411 U. H.	Heitman
		D	11	TT	412 U. H.	Heitman

4. Newspaper Reference Service.—*Prerequisite:* Sophomore standing. (2). 10 MW; 2 hours laboratory to be arranged; 104 L. H. Mr. Heitman.

5. Reporting.—*Prerequisite:* Sophomore standing.

Journ. 5	3	Lect.	2	T	410 U. H.	Davis
		Disc. B	9	MW	312 Adm.	Davis
		C1	10	TT	307 Adm.	Davis
		D1	11	MW	241 N. H.	Davis
		D2	11	TT	207 Adm.	Davis
		Lab. 2 hours to be arranged			122 U. H.	Leiter

7. Sports Writing.—(For students in Athletic Coaching). *Prerequisite:* Sophomore standing.

Journ. 7	3	B	9	MWF	207 Adm.	Dickinson
		D	11	MWF	303 Adm.	Schooley
		E	1	MWF	304 Adm.	Dickinson

9a. History and Practice of Printing and Publishing.—*Prerequisite:* Sophomore standing. (See also Indus. Ed. 8.)

Journ. 9a	2 or 3[1]	Lect.	11	Th	303 Adm.	Allen
		Lab. A1	8-10	T	126 U. H.	Allen
		A2	8-10	W	126 U. H.	Allen
		A3	8-10	Th	126 U. H.	Allen
		C1	10-12	M	126 U. H.	Allen
		C2	10-12	T	126 U. H.	Allen
		C3	10-12	W	126 U. H.	Allen
		G1	3-5	M	126 U. H.	Allen
		G3	3-5	W	126 U. H.	Allen

Courses for Advanced Undergraduates

10. Newspaper Advertising.—(Same as B. O. and O. 10). *Prerequisite:* Journ. 5-6. (3). 11 MWF; 307 Com. (Offered first semester only.) Professor Russell.

12. Publicity Methods.—*Prerequisite:* Junior standing. (2). 9 TT; 315 U. H. Associate Professor Wright.

13. Copyreading, Head Writing, and Make-up.—*Prerequisite:* Journ. 5 or equivalent and junior standing.

Journ. 13	3	Lect. A	3	M	318 U. H.	Siebert
		Lab. E1	1-3	TT	118 U. H.	Siebert
		E2	1-3	WF	118 U. H.	Siebert
		G1	3-5	TT	118 U. H.	Siebert
		G2[2]	3-5	WF	118 U. H.	Siebert

15. Special and Feature Articles.—*Prerequisite:* Junior standing. (2). 11 TT; 114 L. H. Dr. Dickinson.

17. History of Journalism.—*Prerequisite:* Junior standing. (3). 10 MWF; 410 U. H. Professor Murphy.

19. Editorials and the Editorial Page.—*Prerequisite:* Journ. 5-6 or equivalent and junior standing. (2). 11 MW; 204 U. H. Professor Murphy.

21. Community and Country Journalism.—*Prerequisite:* Junior standing. (2). 3 TT; 126 U. H. Assistant Professor Allen.

29. Advanced Reporting.—*Prerequisite:* Journ. 5-6 or equivalent and junior standing. (3). 2 MWF.

(a) Section E. General news and correspondence. Room 204 U. H. Assistant Professor Barlow.
(b) Section F. Financial and labor news. Room 318 U. H. Dr. Dickinson.

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[1]Three credits for Industrial Education students registering for 4 hours of laboratory work.
[2]For students with desk experience. Consult adviser before registering.

33. **Newspaper Advertising Copy and Layouts.**—*Prerequisite:* Junior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Journ. 33	2	Lect.	1	T	126 U. H.	ALLEN
		Lab. A	8-10	F	126 U. H.	ALLEN
		E	1-3	Th	126 U. H.	ALLEN

35. **Contemporary Life and Thought.**—*Prerequisite:* Junior standing and 6 hours of journalism. (2). 10 TT; 204 U. H. Dr. SIEBERT.

39. **Special Problems.**—(For seniors not writing theses in journalism.) (2). 3 W; 204 U. H. Assistant Professor BARLOW.

43. **Newspaper Accounting.**—*Prerequisite:* Junior standing. (3). 9 MWF; 113 U. H. (Offered first semester only). Mr. KRANNERT.

48. **Teaching of Journalism.**—Supervision of school publications. *Prerequisite:* Junior standing and one course in journalism. (2). 1 MW; 204 U. H. Mr. HEITMAN.

60a. **Thesis Course.**—Open to seniors with consent of the Director. (2). Time to be arranged. Professor MURPHY and staff.

LAW

First Year Courses

1a. **Contracts.**—Corbin: *Cases on Contracts.*

Law 1a	3	A	9	MWF	106 Law	GOBLE
		B	10	MWF	106 Law	

2a. **Torts.**—Bohlen: *Cases on Torts* (2d ed.).

Law 2a	3	A	8	MWF	103 Law	WEISIGER
		B	9	MWF	103 Law	

3. **Personal Property.**—Bigelow: *Cases on Personal Property.*

Law 3	3	A	2	TTF	106 Law	FULLER
		B	3	TTF	106 Law	

4a. **Procedure I.**—McCaskill: *Cases on Action and Suit.*

Law 4a	2	A	9	TT	106 Law	MCCASKILL
		B	10	TT	106 Law	

5. **Criminal Law.**—Harno: Cases on Criminal Law. (4). 11 MWTF; 103 Law. Professor HARNO.
Note: In addition to the program for which a first year student registers, he is asked to hold open the 11 o'clock hour on Tuesdays during the first semester for quizzes to be scheduled during the course of the semester.

Second and Third Year Courses

6a. **International Law.**—Law of Peace. (3). 2 MWF; 300 L. H. Professor GARNER.

7. **Persons.**—McCurdy: *Cases on the Law of Persons and Domestic Relations.* (2). 10 MW; 306 Law. Professor HOLT.

9. **Sales.**—Woodward: *Cases on Sales.* (2d ed.). (3). 2 MTW; 306 Law. Professor BRITTON.

10. **Real Property II.**—Titles. Bigelow: *Introduction to the Law of Real Property*, and Aigler: *Cases on Property.* (4). 8 TWTF; 303 Law. Professor SUMMERS.

12. **Equity Jurisdiction I.**—Cook: *Cases on Equity.* (One volume edition). (5). 11 MTWTF; 303 Law. Professor SCHNEBLY.

13. **Damages.**—Crane: *Cases on Damages.* (2). 4 TT; 303 Law. Professor WEISIGER.

14. **Carriers and Public Utilities.**—Green: *Cases on Carriers* (2d. ed.). (3). 9 MWF; 303 Law. Professor GREEN.

16a. **Trusts.**—Scott: *Cases on Trusts.* (2). 10 TT; 103 Law. Professor SCHNEBLY.

17. **Private Corporations.**—Richards: *Cases on Private Corporations.* (2d. ed.). (4). 8 TWTF; 106 Law. Professor JOHNSON.

19. **Partnership.**—Gilmore: *Cases on Partnership*; Britton's *Supplementary Cases.* (2). 3 TW; 306 Law. Professor BRITTON.

22a. **Constitutional Law.**—Government and the Individual. Hall: *Cases on Constitutional Law.* (3). 11 MWF; 106 Law. Professor GREEN.

23. **Mortgages.**—Parks: *Cases on Mortgages.* (3). 4 MWF; 103 Law. Professor FULLER.

24. **Municipal Corporations.**—Macy: *Cases on Municipal Corporations.* (2). 3 TF; 306 Law Professor HOLT.

34. **Legislation.**—Problems of legislative drafting and the general principles of statutory interpretation. This course is open only to advanced students who have an average in their law work of 3.5 or over. (1). 3 M; 306 Law. Professor BRITTON.

35. **Procedure III.**—Hinton: *Cases on Trial Practice.* (4). 2 MTWT; 103 Law. Professor MCCASKILL.

39a. **Thesis Course.**—This course is open to students who are candidates for the J. D. degree during the academic year next preceding their graduation. (2). Credit deferred until completion of 39b. Professor HOLT and other members of the staff.

52. **Law of Oil and Gas.**—Summers: *The Law of Oil and Gas*, and selected cases. (2). 9 TT; 306 Law. Professor SUMMERS.

53. **Trade Regulation.**—Oliphant: *Cases on Trade Regulation.* (2). 9 TT; 303 Law. Professor GOBLE.

54. **Legal Problems I.**—Legal problems to be assigned. (1). *Prerequisite:* One year of law work and at least an average grade of 4. in law courses. Professor HOLT.

56. **Legal Problems III.**—Legal problems to be assigned. (1). *Prerequisite:* Legal Problems I or II, two years of law work, and at least an average grade of 4. in law courses. Professor HOLT.

Note: In addition to the program for which a second or a third year student registers, he is asked to hold open the eight o'clock hour on Mondays during the first semester for quizzes to be scheduled during the course of the semester.

LIBRARY SCIENCE

Course for Freshmen and Sophomores

Subject	Credits	Section	Hours	Days	Room	Instructor
12. General Reference.						
Lib. Sci. 12	2	A	9	T	104 Lib.	BLACK
		B	3	T	106 Lib.	HARDING
		C	2	W	106 Lib.	SIGNOR
		D	10	T	104 Lib.	NEWTON
		E	11	T	104 Lib.	HOUCHENS

Courses for First Year Library School Students

2a. Reference.						
Lib. Sci. 2a	3	A	8	MWF	118 Lib.	NEWTON
		B	8	MWF	314 Lib.	DURAND
		C	11	MWF	118 Lib.	DURAND
		D	1	MWF	118 Lib.	DURAND
3a. Selection of Books.						
Lib. Sci. 3a	2	A	11	TT	314 Lib.	BOYD
		B	9	TT	314 Lib.	BOYD
		C	10	WF	106 Lib.	BOYD
		D	9	WF	104 Lib.	BOYD
31a. Cataloging.						
Lib. Sci. 31a	2	A	2-5	MW	118 Lib.	BOND
		B	2-5	MW	314 Lib.	
		C	2-5	TT	118 Lib.	BOND
		D	2-5	TT	314 Lib.	
34. Administration.						
Lib. Sci. 34	3	A	9	MWF	118 Lib.	GRAMESLY
		B	10	MWF	118 Lib.	GRAMESLY
		C	1	MWF	314 Lib.	GRAMESLY
35. Order and Accessions.						
Lib. Sci. 35	3	A	10	MWF	314 Lib.	HOSTETTER
		B	9	MWF	106 Lib.	HOSTETTER
		C	9	TTS	106 Lib.	HOSTETTER
		D	9	TTS	314 Lib.	
36. Classification.						
Lib. Sci. 36	2	A	10	TT	118 Lib.	BOND
		B	10	TT	314 Lib.	
		C	9	MW	314 Lib.	BOND
		D	11	TT	118 Lib.	

Courses for Advanced Library School Students and Graduates

13a. **Government Publications.**—*Prerequisite:* Lib. 2a, 2b. (2). 11 WF; 106 Lib. Miss NEWTON.

24a. **Selection of Books.**—*Prerequisite:* Lib. 3a and 3b. (2). 10 TT; 328 Lib. Miss HOSTETTER.

44. **Book Buying for the Large Library.**—*Prerequisite:* Senior standing. (2). 11 TT; 106 Lib. Miss GARVER.

45. **Library Buildings and Equipment.**—*Prerequisite:* Senior standing. (2). 2 TT; 328 Lib. Miss GRAMESLY.

Courses for Graduates

101a. **Thesis.**—(1-2 units).* Professor WINDSOR, Associate Professor SIMPSON and others.

102a. **Seminar in Library Economy.**—(1 unit). 3, 4 M; 328 Lib. Professor WINDSOR and Assistant Professor BOYD.

103. **Advanced Reference.**—*Prerequisite:* Lib. 2a and 2b. (½ unit). 10 WF; 328 Lib. Associate Professor SIMPSON.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

MATHEMATICS

For students entering prior to September, 1929

Major: 20 hours made up from any undergraduate courses offered by the department except Math. 1a, 2, 3, 4, 5, and 8. The courses selected must include Math. 7 and 9, and at least one of the following courses: Math. 10, 16, 18, 20, 21, 30, 40, 90. For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: Math. 1; or first semester, Math. 2 (or 3) and 4; second semester, Math. 6. Sophomore year: first semester, Math. 7 (Section T); second semester, Math. 9 (Section T) and 19.

Minors: 20 hours selected from not more than three of the following subjects: astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), philosophy, theoretical and applied mechanics, and surveying. At least 8 hours must be offered in some one subject.

Credit for seniors who take Math. 1a, 1b, 2, 3, 4, 5, 6, or 6a will be reduced one hour.

For students entering after September 1, 1929

Major: 20 hours exclusive of Math. 1a, 1b, 2, 3, 4, 5, 6, 6a, and 8, and all courses taken during the freshman year; inclusive of Math. 7 and 9, and at least one of the following courses: Math. 10, 16, 18, 20, 21, 30, 40, 90, 91.

For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: Math. 1; or first semester, Math. 2 (or 3) and 4, second semester, Math. 6. Sophomore year: first semester, Math. 7 (Section T); second semester, Math. 9 (Section T) and 19.

Minors: 20 hours exclusive of courses taken during the freshman year selected from one or two of the following subjects: astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), philosophy, theoretical and applied mechanics, surveying. If two subjects are chosen, at least eight hours must be offered in each.

Credit for seniors who take Math. 1a, 1b, 2, 3, 4, 5, 6, or 6a will be reduced one hour.

Courses for Undergraduates

1a. Introduction to College Mathematics.—This course is designed as a two-semester course to give in a unified way an introduction to mathematics, including material from college algebra, trigonometry, analytical geometry, and elementary calculus. A student taking Math. 1a and 1b will not take Math. 2, 4, or 6. *Prerequisite:* Entrance algebra, 1½ units, plane geometry, 1 unit.

Note: Seniors will receive 4 hours' credit only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Math. 1a	5	R	8	MTWTF	103 Entom.	Bird
		S	9	MTWTF	102 Entom.	Ott
		T	10	MTWTF	156 Math.	Wood
		U	11	MTWTF	302 U. H.	McClellan
		W	1	MTWTF	206 U. H.	Moore
		X	2	MTWTF	158 Math.	Hoersch

2. College Algebra.—*Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit. *Note:* Seniors will receive 2 hours' credit only.

Math. 2	3	A1[1]	8	MWF	202 U. H.	Rogers
		A2[1]	8	MWF	302 U. H.	Hook
		R1	8	MWF	208 U. H.	Peters
		R2	8	TTS	104 U. H.	Rees
		B1[1]	9	MWF	159 Math.	Armstrong
		B2[1]	9	MWF	158 Math.	Miller, B. I.
		B3[1]	9	MWF	155 Math.	Wolever
		S1	9	MWF	202 U. H.	Emch
		S2	9	MWF	154 Math.	Pepper
		S3	9	TTS	302 U. H.	McClellan
		C1[1]	10	TTS	202 U. H.	Rees
		T1	10	MWF	206 U. H.	Bower
		T2	10	MWF	202 U. H.	Bird
		T3	10	MWF	103 Entom.	Jacokes
		T4	10	MWF	204 U. H.	Ott
		D1[1]	11	MWF	102 Entom.	Ott
		D2[1]	11	MWF	156 Math.	Wolever
		D3[1]	11	MWF	155 Math.	Kingsley
		D4[1]	11	MWF	103 Entom.	Jacokes
		U1	11	MWF	104 U. H.	Hook
		E1[1]	1	MWF	104 U. H.	Bristow
		E2[1]	1	MWF	302 U. H.	Smith
		W1	1	MWF	154 Math.	Miles
		W2	1	MWF	158 Math.	Bird
		F1[1]	2	MWF	155 Math.	Ketchum
		F2[1]	2	MWF	202 U. H.	Hopkins
		F3[1]	2	MWF	208 U. H.	Dennis
		X1	2	MWF	102 Entom.	Barber
		X2	2	MWF	159 Math.	Cooley
		G1[1]	3	MWF	104 U. H.	Bristow
		G2[1]	3	MWF	159 Math.	Locke
		G3[1]	3	MWF	206 U. H.	Moore
		Y1	3	MWF	154 Math.	Wood
		Y2	3	MWF	103 Entom.	Lang
		H1[1]	4	MWF	159 Math.	Locke
		Z1	4	MWF	103 Entom.	Lang
		Z2	4	MWF	154 Math.	Barber

[1]For freshman engineers only.

3. Algebra.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit. Students having 1½ entrance units in algebra will receive but 3 hours' credit for this course. *Note:* Seniors will receive 4 hours' credit only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Math. 3	5	R1	8	MTWTF	110 L. H.	Sigley
		R2	8	MTWTF	154 Math.	Kingsley
		R3	8	MTWTF	155 Math.	Wolever
		S1	9	MTWTF	110 L. H.	Shaw
		S2	9	MTWTF	206 U. H.	Bower
		S3	9	MTWTF	103 Entom.	Jacokes
		T1	10	MTWTF	159 Math.	Miller, G. A.
		T2	10	MTWTF	102 Ent.	Wilson
		T3	10	MTWTF	302 U. H.	McClellan
		U1	11	MTWTF	159 Math.	Armstrong
		U2	11	MTWTF	110 L. H.	Peters
		W1	1	MTWTF	156 Math.	Ogg
		W2	1	MTWTF	208 U. H.	Locke
		X1	2	MTWTF	206 U. H.	Moore
		X2	2	MTWTF	302 U. H.	Smith
		X3	2	MTWTF	103 Ent.	Lang
		Y1	3	MTWTF	155 Math.	Ketchum
		Y2	3	MTWTF	208 U. H.	Dennis
		Y3	3	MTWTF	202 U. H.	Cooley
		Y4	3	MTWTF	302 U. H.	

4. Plane Trigonometry.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit. *Note:* Seniors will receive 1 hour's credit only.

Math. 4	2	A1[1]	8	TT	202 U. H.	Rogers
		A2[1]	8	TT	302 U. H.	Hook
		R1	8	TT	156 Math.	Miles
		R2	8	WF	102 Ent.	Wilson
		B1[1]	9	TT	159 Math.	Armstrong
		B2[1]	9	TT	158 Math.	Miller, B. I.
		B3[1]	9	TT	202 U. H.	Brahana
		S1	9	TS	204 U. H.	Hook
		S2	9	TT	154 Math.	Pepper
		C1[1]	10	MF	311 U. H.	Cooley
		T1	10	TT	206 U. H.	Bower
		T2	10	TT	155 Math.	Kingsley
		T3	10	TS	103 Ent.	Jacokes
		D1[1]	11	TT	102 Ent.	Ott
		D2[1]	11	TT	156 Math.	Wolever
		D3[1]	11	TT	155 Math.	Kingsley
		D4[1]	11	TT	103 Ent.	Wilson
		U1	11	TT	104 U. H.	Lytle
		U2	11	TS	204 U. H.	Wood
		E1[1]	1	TT	104 U. H.	Bristow
		E2[1]	1	TT	302 U. H.	Smith
		W1	1	TT	154 Math.	Miles
		F1[1]	2	TT	155 Math.	Ketchum
		F2[1]	2	TT	202 U. H.	Hopkins
		F3[1]	2	TT	203 U. H.	Levy
		X1	2	TT	159 Math.	Hazlett
		X2	2	TT	102 Entom.	Wood
		G1[1]	3	TT	104 U. H.	Bristow
		G2[1]	3	TT	159 Math.	Locke
		G3[1]	3	TT	206 U. H.	Barber
		Y1	3	TT	154 Math.	Maria
		Y2	3	TT	103 Entom.	Lang
		H1[1]	4	T	156 Math.	Rees
			9	S		
		Z1	4	T	154 Math.	Barber
			9	S		

5. Advanced Trigonometry.—Intended for students having entrance credit in trigonometry. The course will include such topics as trigonometric equations, De Moivre's theorem, complex numbers with applications to more complicated problems in plane trigonometry, and a brief introduction to spherical trigonometry. *Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit; solid geometry, ½ unit; entrance trigonometry, ½ unit (or Math. 4). *Note:* seniors will receive 1 hour's credit only.

Math. 5	2	A	8	TT	206 U. H.	Peters
		B	9	TT	307 Adm.	Bird
		D	11	TT	206 U. H.	Bower
		E	1	TT	110 L. H.	Hoersch
		F	2	TT	208 U. H.	Dennis
		G	3	TT	110 L. H.	Ogg

[1]For freshman engineers only.

6. Analytic Geometry.—*Prerequisite:* Math. 2 (or 3), 4. *Note:* Seniors will receive 4 hours' credit only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Math. 6	5	B[1]	9	MTWTF	156 Math.	Miles
		T1	10	MTWTF	110 L. H.	Shaw
		T2	10	MTWTF	312 Adm. (E).	Bear
		D1[1]	11	MTWTF	207 U. H.	Sigley
		U1	11	MTWTF	154 Math.	Pepper
		U2	11	MTWTF	158 Math.	Miller, B. I.
		E[1]	1	MTWTF	202 U. H.	Bourgin
		X	2	MTWTF	156 Math.	Ogg

7. Calculus.—*Prerequisite:* Math. 6 (or 1a-b).

Math. 7	5	A1	8	MTWTF	159 Math.	Armstrong
		A2	8	MTWTF	158 Math.	Miller, B. I.
		B1	9	MTWTF	104 U. H.	Bailey
		B2	9	MTWTF	311 U. H.	Peters
		C1	10	MTWTF	158 Math.	Levy
		C2	10	MTWTF	154 Math.	Pepper
		T[2]	10	MTWTF	208 U. H.	Brahana
		D1	11	MTWTF	208 U. H.	Bourgin
		D2	11	MTWTF	202 U. H.	Hopkins
		E1	1	MTWTF	159 Math.	Hazlett
		E2	1	MTWTF	155 Math.	Ketchum
		F1	2	MTWTF	154 Math.	Maria
		F2	2	MTWTF	110 L. H.	Steimley
		G1	3	MTWTF	158 Math.	Hoersch

8a. Differential Calculus.—*Prerequisite:* Math. 6a or 6.

Math. 8a	3	A1	8	MWF	206 U. H.	Bower
		A2	8	MWF	156 Math.	Miles
		C1	10	MWF	155 Math.	Crathorne
		C2	10	MWF	203 U. H.	Emch

9. Integral Calculus.—*Prerequisite:* Math. 7.

Math. 9.	3	A1	8	TTS	102 Entom.	Wilson
		B1	9	TTS	207 U. H.	Wilson
		G1	3	MWF	110 L. H.	Steimley
		G2	3	MWF	156 Math.	Ogg
		H1	4	MWF	158 Math.	Hoersch

Courses for Advanced Undergraduates and Graduates

10. Theory of Equations and Determinants.—*Prerequisite:* Math. 7 and 9 (or 8). (3). 1 MWF; 254 Math. Dr. Hopkins.

16. Differential Equations and Advanced Calculus.—*Prerequisite:* Math. 7 and 9 (or 8).

Math. 16	3	A	8	MWF	104 U. H.	Bailey
		E	1	MWF	110 L. H.	Steimley

22. Statistics.—*Prerequisite:* Math. 2 and 6, junior standing. (3). 11 MWF; 206 U. H. Associate Professor Crathorne.

35. Teachers Course.—*Prerequisite:* 18 hours of mathematics, including Mathematics 7 and 9. (3). 10 TTS; 104 U. H. Associate Professor Lytle.

36. Advanced Aspects of Euclidean Geometry.—*Prerequisite:* 18 hours of mathematics, including Mathematics 7 and 9. (3). 10 MWF; 104 U. H. Associate Professor Lytle.

53. Integral and Operational Equations in Mathematical Physics.—*Prerequisite:* Math. 9a. (3). 10 MWF; 254 Math. Dr. Bourgin.

90a. Undergraduate Thesis.—*Prerequisite:* 24 hours of college mathematics. (2). Arrange.

91a. Introduction to Modern Mathematics.—*Prerequisite:* 20 hours of mathematics and permission of instructor. (3). 9 TTS; 155 Math. Professor Coble.

Courses for Graduates

100. Seminar and Thesis.—(1-2 units).* Arrange.

102. Functions of a Complex Variable.—(1 unit). 3 MWF; 254 Math. Assistant Professor Maria.

113. Linear Differential Equations.—(1 unit). 11 MWF; 254 Math. Professor Carmichael.

124. The Theory of Numbers.—(1 unit). 2 MWF; 254 Math. Associate Professor Hazlett.

127. Theory of Groups.—(1 unit). 9 MWF; 366 Math. Professor Miller.

129. Theory of Statistics.—(1 unit). 9 MWF; 254 Math. Associate Professor Crathorne.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]For freshman engineers only.

[2]For L. A. S. students only.

131. Algebraic Geometry.—(1 unit). 10 TTS; 254 Math. Professor COBLE.

132. Analytic Projective Geometry.—(1 unit). 8 MWF; 254 Math. Professor EMCH.

135. Differential Geometry.—(1 unit). 11 TTS; 254 Math. Assistant Professor LEVY.

139. Analysis Situs.—(1 unit). 8 TTS; 254 Math. Assistant Professor BRAHANA.

143. Linear Algebra.—(1 unit). 1 MWF; 366 Math. Professor SHAW.

MECHANICAL ENGINEERING

1. Steam and Air Machinery.—*Prerequisite:* Math. 9, Phys. 1 and 3.

Subject	Credits	Section	Hours	Days	Room	Instructor
M. E. 1	3	E1	1	MWF	216 M. E. L.	
		F	10	MWF	216 M. E. L.	
		G	8	MWF	216 M. E. L.	
		HU	8	MWF	216 M. E. L.	

3. Steam Engineering.—*Prerequisite:* M. E. 10, registration in M. E. 61.

M. E. 3	3	LMN	10	TTS	216 M. E. L.	
		JKV	11	TTS	216 M. E. L.	

7. Internal Combustion Engines.—*Prerequisite:* M. E. 6.

M. E. 7	3	PQ	11	MWF	208 M. E. L.	

10. Thermodynamics.—*Prerequisite:* Math. 9; Phys. 1 and 3.

M. E. 10	3	N	10	MWF	217 M. E. L.	
		Y	8	MWF	217 M. E. L.	

13. Thermodynamics.—*Prerequisite:* Math. 9, Phys. 1 and 3.

M. E. 13	3	PS	10	WF	202 T. B.	
			10-12	S	112, 114 T. B.	
		QRW	11	TT	202 T. B.	
			10-12	S	112, 114 T. B.	

17. Refrigeration Engineering.—*Prerequisite:* M. E. 16.

M. E. 17	3	PQ	11	MW	202 T. B.	
			8-10	S	112 T. B.	

23. Mechanical Equipment of Buildings.—*Prerequisite:* Senior standing.

M. E. 23	5	C	11	MWFS	M. E. L.	
			8-11	W	M. E. L.	

25. Heating and Ventilation for Architects.—*Prerequisite:* Senior standing.

M. E. 25	2	A	11	TT	M. E. L.	

31. Mechanics of Machinery.—*Prerequisite:* T. A. M. 20.

M. E. 31	5	PQ	8	MWF	216 T. B.	
			8-11	TT	216 T. B.	
		RS	2	MWF	216 T. B.	
			2-5	TT	216 T. B.	

33. Aeronautical Engineering.—*Prerequisite:* Senior standing.

M. E. 33	3	PQ	11	MWF	216 M. E. L.	

41. Mechanical Engineering Design.—*Prerequisite:* M. E. 40.

M. E. 41	4	P	8	TT	112, 114 T. B.	
			8-11	MWF	112, 114 T. B.	
		Q	1	TT	112, 114 T. B.	
			1-4	MWF	112, 114 T. B.	

61. Power Measurement.—*Prerequisite:* M. E. 1 or 2 or 3.

M. E. 61	2	LMCh1	1-4	MF	M. E. L.	
		KVCh2	1-4	W	M. E. L.	
			8-11	S	M. E. L.	
		N	8-11	MF	M. E. L.	

65. Heat and Power Laboratory.—*Prerequisite:* M. E. 64.

M. E. 65	3	P	1-5	TT	M. E. L.	
		Q	8-12	TT	M. E. L.	

85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing.

M. E. 85	3	J_2KP	8-12	TT	Pat. Lab.	
		LQ	8-12	MF	Pat. Lab.	
		MR	1-5	TT	Pat. Lab.	
		J_1NS	1-5	MF	Pat. Lab.	

87. Machine Laboratory.—*Prerequisite:* M. E. 85 and junior standing.

M. E. 87	3	NQW	1-5	MF	Mach. Lab.	
		LR	8-12	MF	Mach. Lab.	
		JKS	8-12	TT	Mach. Lab.	
		MPV	1-5	TT	Mach. Lab.	

89. Heat Treatment of Metals.—*Prerequisite:* Senior standing in Mechanical or Railway Mechanical Engineering.

M. E. 89	3	P	2-4	MWF	Mach. Lab.	
		QW	8-10	MWF	Mach. Lab.	

98. Thesis.—*Prerequisite:* Senior standing. (3). Time to be arranged.

99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

Entrance on graduate work in Mechanical Engineering presupposes the full undergraduate course in that subject.

107. Thermodynamics.—Application of thermodynamics to the solution of physical and engineering problems. (1 unit). Twice a week; time to be arranged. Associate Professor Goff.

108. The Flow of Fluids and Heat Transfer.—The application of dimensional analysis and other rational formulas. Special problems. (1 unit). Twice a week; time to be arranged. Associate Professor Macintire.

109. Machine Design.—Rational design; the application of mechanics of materials. Individual problems. (1 unit). Twice a week; time to be arranged. Professor Leutwiler.

112. Laboratory Investigation.—Combustion of fuel, boiler economy; steam engines and turbines; gas engines and producers; explosive mixtures; mechanical refrigeration. Original work. (1½ units). Three times a week; time to be arranged. Professors Willard, Polson, Kratz; Associate Professor Macintire.

MECHANICS, THEORETICAL AND APPLIED

1. Analytical Mechanics (Statics).—*Prerequisite:* Math. 7; registration in Math. 9.

Subject	Credits	Section	Hours	Days	Room	Instructor
T. A. M. 1	2	A	9	TT	315 M. T. L.	
		B	9	TT	202 E. H.	
		C	9	WF	315 M. T. L.	
		E	4	TT	202 E. H.	
		F	4	TT	305 M. T. L.	

3. Resistance of Materials.—*Prerequisite:* T. A. M. 1 or 20.

T. A. M. 3	3	C	8	MWF	305 M. T. L.	
		Ch	8	MWF	315 M. T. L.	
		G	8	MWF	313 M. T. L.	
		J	9	MWF	313 M. T. L.	
		Q	9	MWF	202 E. H.	
		S	9	MWF	305 M. T. L.	
		E	10	MWF	309 M. T. L.	
		H	10	MWF	313 M. T. L.	
		X	10	MWF	305 M. T. L.	
		F	11	MWF	305 M. T. L.	
		D	1	MWF	305 M. T. L.	
		PR	1	MWF	309 M. T. L.	

4. Hydraulics.—*Prerequisite:* registration in T. A. M. 2 or 21.

T. A. M. 4	2	M	8	TT	309 M. T. L.	
		K	10	TT	305 M. T. L.	
		N	10	TT	309 M. T. L.	
		L	2	WF	305 M. T. L.	

15. Strength of Materials.—*Prerequisite:* T. A. M. 14.

T. A. M. 15	3	A	9	MW	309 M. T. L.	
			8-10	F	309 M. T. L.	
		B	10	WF	315 M. T. L.	
			8-10	S	315 M. T. L.	

21. Analytical Mechanics.—*Prerequisite:* T. A. M. 20.

T. A. M. 21	2	G	8	TT	313 M. T. L.	
		K	9	TT	309 M. T. L.	
		N	9	TT	313 M. T. L.	
		X	9	TT	305 M. T. L.	
		E	10	TT	313 M. T. L.	
		H	10	TT	315 M. T. L.	
		R	10	TT	202 E. H.	
		Y	10	WF	202 E. H.	
		F	11	TT	305 M. T. L.	
		P	11	TT	202 E. H.	
		J	1	TT	305 M. T. L.	
		Q	1	TT	309 M. T. L.	
		L	2	TT	305 M. T. L.	

63. Resistance of Materials Laboratory.—*Prerequisite:* Registration in T. A. M. 3.

T. A. M. 63	1	PS	10-12	M	M. T. L.	
		F	3-5	M	M. T. L.	
		C	8-10	T	M. T. L.	
		O	3-5	T	M. T. L.	
		R	8-10	W	M. T. L.	
		J	1-3	W	M. T. L.	
		E	3-5	W	M. T. L.	
		H	8-10	Th	M. T. L.	
		G	10-12	Th	M. T. L.	
		D	1-3	Th	M. T. L.	
		Q	3-5	Th	M. T. L.	
		Ch	1-3	F	M. T. L.	
		X	10-12	S	M. T. L.	

64. Hydraulics Laboratory.—*Prerequisite:* Registration in T. A. M. 4.

Subject	Credits	Section	Hours	Days	Room	Instructor
T. A. M. 64	1	Y	10-12	M	M. T. L.	
		M	1-3	M	M. T. L.	
		L	3-5	T	M. T. L.	
		K	1-3	W	M. T. L.	
		N	8-10	S	M. T. L.	

Courses for Advanced Undergraduates and Graduates

41. Advanced Mechanics of Materials.—*Prerequisite:* T. A. M. 29 or 25. (3). Time to be arranged. Professor SEELY.

43. Laboratory Work in Hydraulics.—Advanced experimental work in hydraulics. *Prerequisite:* T. A. M. 10 or 26. (2). Time to be arranged. Professor ENGER.

45. Advanced Technical Mechanics.—*Prerequisite:* T. A. M. 20 and 25, or equivalent work in mathematics and physics. (3). Time to be arranged. Professor WESTERGAARD.

Courses for Graduates

101. Analytical Mechanics.—(1 unit). Twice a week; time to be arranged. Professor MOORE.

104. Experimental Work in the Laboratory of Applied Mechanics.—(½-2 units).* Twice a week; time to be arranged. Professors MOORE, ENGER; Associate Professor RICHART.

105. Experimental and Analytical Work in Reinforced Concrete.—(1-2 units).* Twice a week; time to be arranged. Associate Professor RICHART.

106. Theory of Elasticity and Applications to Engineering Problems.—(1 unit). Three times a week; time to be arranged. Professor WESTERGAARD.

MILITARY BANDS

Note: The following courses are open only to those who have passed the examination for admittance to one of the bands. All new students who play band instruments and who desire to try for places in the bands should make application at the Band Office, in the Band Building, at the earliest possible time. Those who are accepted for membership will be given a slip indicating that they have been accepted.

Service in the bands takes the place of the regular military drill.

1. Freshman Band.—(1). Twice a week. Days and section to be assigned according to proficiency. Director HARDING.

3. Sophomore Band.—(1). See foregoing. Director HARDING.

5. Junior Band.—(1). Twice a week. Days and section to be assigned. Director HARDING.

7. Senior Band.—(1). See foregoing. Director HARDING.

MILITARY SCIENCE

All military courses consist of two parts designated by the same number: a practical course lettered with "a" and a theoretical course lettered with "b." Students who have had training in a senior ROTC unit are permitted to register for work one year advanced for each year they have had in the senior unit. All students who register for junior and senior courses are required to sign a contract with the Government to take five hours of military per week during two years in the University and to attend one summer camp of six weeks.

Infantry

1a. Freshman Infantry.						
Mil. Sci. 1a	½	Co. A	8-10	M	Arm.	KELLOGG
		Co. B	8-10	M	Arm.	
		Co. E	10-12	W	Arm.	
		Co. G	1-3	Th	Arm.	
		Co. H	1-3	Th	Arm.	
		Co. L	10-12	S	Arm.	
		Co. M	10-12	S	Arm.	
1b. Freshman Infantry.						
Mil. Sci. 1b	½	1	10	M	150 Arm.	KELLOGG
		2	11	M	150 Arm.	
		3	3	M	150 Arm.	
		4	4	M	150 Arm.	
		5	9	T	150 Arm.	
		6	1	T	150 Arm.	
		7	2	T	150 Arm.	
		8	8	W	150 Arm.	
		9	9	W	150 Arm.	
		10	1	W	150 Arm.	
		11	2	W	150 Arm.	
		12	8	Th	150 Arm.	
		13	9	Th	150 Arm.	
		14	10	Th	150 Arm.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 1b	½	15	11	Th	150 Arm.	
		16	3	Th	150 Arm.	
		17	10	F	150 Arm.	
		18	11	F	150 Arm.	
		19	8	S	150 Arm.	
		20	9	S	150 Arm.	
3a. Sophomore Infantry.						
Mil. Sci. 3a	½	Co. C	1-3	M	Arm.	INNIS
		Co. D	1-3	M	Arm.	
		Co. F	10-12	W	Arm.	
		Co. I	1-3	Th	Arm.	
		Co. K	10-12	S	Arm.	
3b. Sophomore Infantry.						
Mil. Sci. 3b	½	50	10	M	151 Arm.	INNIS
		51	11	M	151 Arm.	
		52	3	M	151 Arm.	
		53	10	T	151 Arm.	
		54	11	T	151 Arm.	
		55	8	W	151 Arm.	
		56	9	W	151 Arm.	
		57	11	Th	151 Arm.	
		58	3	Th	151 Arm.	
		59	9	F	151 Arm.	
		60	9	S	151 Arm.	
5a. Junior Infantry.—*Prerequisite:* First and second year basic credits.						
Mil. Sci. 5a	½	Group I	10-12	W	Arm.	BURNEY
		and	4	F	Arm.	
		Group II	1-3	Th	Arm.	
		and	4	F	Arm.	
5b. Junior Infantry.—*Prerequisite:* First and second year basic credits.						
Mil. Sci. 5b	1	80	10-12	M	152 Arm.	BURNEY
		81	1-3	T	152 Arm.	
		82	1-3	W	152 Arm.	
		83	10-12	Th	152 Arm.	
		84	10-12	F	151 Arm.	
7a. Senior Infantry.—(Cadet Officers only.)						
Mil. Sci. 7a	½	Co.'s A to M incl.	(See 1a and 3a for hours.)			
		and	4	F	Arm.	KRAMER
7b. Senior Infantry.—(Cadet Officers only.)						
Mil. Sci. 7b	1	90	9	TT	151 Arm.	KRAMER
		91	2	TT	151 Arm.	
		92	2	WF	151 Arm.	
		Field Artillery				
11a. Freshman Field Artillery.						
Mil. Sci. 11a	½	1st Bn.	3-5	M	Arm.	WEILAND
		2nd Bn.	1-3	T	Arm.	DALFERES
		3rd Bn.	3-5	W	Arm.	
		4th Bn.	3-5	Th	Arm.	
		5th Bn.	1-3	F	Arm.	
11b. Freshman Field Artillery.						
Mil. Sci. 11b	½	100	9	M	155 Arm.	WEILAND
		101	10	M	155 Arm.	DALFERES
		102	11	M	155 Arm.	MARCH
		103	2	M	155 Arm.	
		104	9	T	155 Arm.	
		105	10	T	155 Arm.	
		106	11	T	155 Arm.	
		107	9	W	155 Arm.	
		108	10	W	155 Arm.	
		109	11	W	155 Arm.	
		110	9	Th	155 Arm.	
		111	10	Th	155 Arm.	
		112	11	Th	155 Arm.	
		113	2	Th	155 Arm.	
		114	9	F	155 Arm.	
		115	10	F	155 Arm.	
		116	11	F	155 Arm.	
		117	10	S	155 Arm.	
13a. Sophomore Field Artillery.—*Prerequisite:* Mil. Sci. 12a.						
Mil. Sci. 13a	½	1st Bn.	3-5	M	Arm.	DAUGHERTY
		2nd Bn.	1-3	T	Arm.	MARCH
		3rd Bn.	3-5	W	Arm.	
		4th Bn.	3-5	Th	Arm.	
		5th Bn.	1-3	F	Arm.	

13b. Sophomore Field Artillery.—*Prerequisite:* Mil. Sci. 12b.

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 13b	½	130	9	M	154 Arm.	Daugherty
		131	10	M	154 Arm.	Dalferes
		132	11	M	154 Arm.	March
		133	9	T	154 Arm.	
		134	10	T	154 Arm.	
		135	11	T	154 Arm.	
		136	10	W	154 Arm.	
		137	9	Th	154 Arm.	
		138	10	Th	154 Arm.	
		139	11	Th	154 Arm.	
		140	9	F	154 Arm.	
		141	10	F	154 Arm.	
		142	11	S	154 Arm.	

15a. Junior Field Artillery.—*Prerequisite:* Mil. Sci. 14a.

Mil. Sci. 15a	½	1st Bn.	3-5	M	Arm.	Lee
		2nd Bn.	1-3	T	Arm.	
		3rd Bn.	3-5	W	Arm.	
		4th Bn.	3-5	Th	Arm.	
		5th Bn.	1-3	F	Arm.	

15b. Junior Field Artillery.—*Prerequisite:* Mil. Sci. 14b.

Mil. Sci. 15b	1	160	9	M	152 Arm.	Lee
		and	9	W	152 Arm.	
		and	4	F	152 Arm.	
		161	11	M	153 Arm.	
		and	11	W	153 Arm.	
		and	4	F	154 Arm.	
		162	9	T	152 Arm.	
		and	9	Th	152 Arm.	
		and	4	F	152 Arm.	
		163	10	T	153 Arm.	
		and	10	Th	153 Arm.	
		and	4	F	152 Arm.	

17a. Senior Field Artillery.—*Prerequisite:* Mil. Sci. 16a.

Mil. Sci. 17a	½	1st Bn.	3-5	M	Arm.	McCleave
		2nd Bn.	1-3	T	Arm.	
		3rd Bn.	3-5	W	Arm.	
		4th Bn.	3-5	Th	Arm.	
		5th Bn.	1-3	F	Arm.	

17b. Senior Field Artillery.—*Prerequisite:* Mil. Sci. 16b.

Mil. Sci. 17b	1	190	9	M	153 Arm.	McCleave
		and	9	W	153 Arm.	
		and	4	F	155 Arm.	
		191	10	M	153 Arm.	
		and	10	W	153 Arm.	
		and	4	F	155 Arm.	
		192	9	T	153 Arm.	
		and	9	Th	153 Arm.	
		and	4	F	155 Arm.	
		193	11	T	153 Arm.	
		and	11	Th	153 Arm.	
		and	4	F	155 Arm.	

Cavalry

21a. Freshman Cavalry.

Mil. Sci. 21a	½	1A	10-12	M	Arm.	Patterson
		1B	8-10	T	Arm.	Sullivan
		1C	8-10	W	Arm.	
		1D	8-10	Th	Arm.	
		1E	10-12	Th	Arm.	
		1F	8-10	F	Arm.	
		1G	10-12	F	Arm.	
		1H[1]	3-5	F	Arm.	

21b. Freshman Cavalry.

Mil. Sci. 21b	½	201	1	M	146 Arm.	Patterson
		202	2	M	146 Arm.	Sullivan
		203	3	M	146 Arm.	
		204	9	T	146 Arm.	
		205	10	T	146 Arm.	
		206	1	T	146 Arm.	
		207	8	W	146 Arm.	
		208	9	W	146 Arm.	
		209	2	W	146 Arm.	
		210	10	Th	146 Arm.	
		211	11	Th	146 Arm.	
		212	1	Th	146 Arm.	
		213	9	F	146 Arm.	
		214	10	F	146 Arm.	
		215	11	F	146 Arm.	

[1]Sections 1H and 2D are for buglers and drummers only.

23a. Sophomore Cavalry.—*Prerequisite:* Mil. Sci. 22a.

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 23a		2A	8-10	M	Arm.	Conard
		2B	9-11	T	Arm.	Rogers
		2C	9-11	F	Arm.	
		2D[1]	3-5	F	Arm.	
		2E	8-10	S	Arm.	
		2F	10-12	S	Arm.	

23b. Sophomore Cavalry.—*Prerequisite:* Mil. Sci. 22b.

Mil. Sci. 23b		221	10	M	147 Arm.	Conard
		222	11	M	147 Arm.	Rogers
		223	1	M	147 Arm.	
		224	11	T	147 Arm.	
		225	2	T	147 Arm.	
		226	3	T	147 Arm.	
		227	8	W	147 Arm.	
		228	9	W	147 Arm.	
		229	11	Th	147 Arm.	
		230	1	Th	147 Arm.	
		231	2	Th	147 Arm.	
		232	11	F	147 Arm.	
		233	1	F	147 Arm.	
		234	2	F	147 Arm.	
		235	10	S	147 Arm.	

25a. Junior Cavalry.—*Prerequisite:* Mil. Sci. 24a.

Mil. Sci. 25a		3A	8-10	W	Arm.	Featherstone
		3B	9-11	S	Arm.	

25b. Junior Cavalry.—*Prerequisite:* Mil. Sci. 24b.

Mil. Sci. 25b	1	241	3-5	M	145 Arm.	Featherstone
			4	F	146 Arm.	
		242	3-5	T	146 Arm.	
			4	F	146 Arm.	
		243	10-12	Th	144 Arm.	
			4	F	146 Arm.	
		244	3-5	Th	146 Arm.	
			4	F	146 Arm.	

27a. Senior Cavalry.—*Prerequisite:* Mil. Sci. 26a.

Mil. Sci. 27a	½	1A-1H incl. (See 21a and 23a for hours)				Smith
		2A-2F incl.				Rogers
						Patterson

27b. Senior Cavalry.—*Prerequisite:* Mil. Sci. 26b.

Mil. Sci. 27b	1	251	3-5	M	147 Arm.	Smith
			4	F	147 Arm.	
		252	8-10	T	147 Arm.	
			4	F	147 Arm.	
		253	3-5	Th	147 Arm.	
			4	F	147 Arm.	
		254	9-11	F	147 Arm.	
			4	F	147 Arm.	

Engineers

31a. Freshman Engineers.

Mil. Sci. 31a	½	A	3-5	W	Arm.	Lemen
		B	3-5	W	Arm.	Griffiths
		C	3-5	W	Arm.	
		Hq.	3-5	Th	Arm.	
		D	10-12	S	Arm.	
		E	10-12	S	Arm.	
		F	10-12	S	Arm.	

31b. Freshman Engineers.

Mil. Sci. 31b	½	300	11	T	143 Arm.	Griffiths
		301	2	T	143 Arm.	
		302	3	T	143 Arm.	
		303	11	Th	143 Arm.	
		304	9	F	143 Arm.	
		305	10	F	143 Arm.	

33a. Sophomore Engineers.—*Prerequisite:* Mil. Sci. 32a.

Mil. Sci. 33a	½	A-F incl. (See 31a for hours.)				Lemen
						Griffiths

33b. Sophomore Engineers.—*Prerequisite:* Mil. Sci. 32b.

Mil. Sci. 33b	½	320	11	T	145 Arm.	Lemen
		321	3	T	145 Arm.	
		322	4	T	145 Arm.	
		323	2	W	145 Arm.	
		324	11	Th	145 Arm.	

[1]Sections 1H and 2D are for buglers and drummers only.

35a. Junior Engineers.—*Prerequisite:* Mil. Sci. 34a.

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 35a	½	A-F incl. (See 31a for hours.)				Lemen Griffiths

35b. Junior Engineers.—*Prerequisite:* Mil. Sci. 34b.

Mil. Sci. 35b	1	340	2-4	F	143 Arm.	Griffiths
		and	4	F	143 Arm.	
		341	8-10	S	143 Arm.	
		and	4	F	143 Arm.	

37a. Senior Engineers.—*Prerequisite:* Mil. Sci. 36a.

Mil. Sci. 37a	½	A-F incl. (See 31a for hours.)				Lemen Griffiths

37b. Senior Engineers.—*Prerequisite:* Mil. Sci. 36b.

Mil. Sci. 37b	1	350	9-11	F	145 Arm.	Lemen
		and	4	F	145 Arm.	
		351	8-10	S	145 Arm.	
		and	4	F	145 Arm.	

Signal Corps

41a. Freshman Signal Corps.

Mil. Sci. 41a	½	A	3-5	T	Arm.	Parsons
		B	3-5	W	Arm.	Engerud
		C	3-5	Th	Arm.	
		D	2-4	F	Arm.	

41b. Freshman Signal Corps.

Mil. Sci. 41b	½	400	10	M	222 Arm.	Engerud
		401	10	T	222 Arm.	
		402	8	W	222 Arm.	
		403	1	W	222 Arm.	
		404	1	Th	222 Arm.	
		405	10	F	222 Arm.	

43a. Sophomore Signal Corps.—*Prerequisite:* Mil. Sci. 42a.

Mil. Sci. 43a	½	A-D incl. (See 41a for hours.)				Parsons Engerud

43b. Sophomore Signal Corps.—*Prerequisite:* Mil. Sci. 42b.

Mil. Sci. 43b	½	410	9	T	222 Arm.	Parsons
		411	11	T	222 Arm.	
		412	9	F	222 Arm.	
		413	11	F	222 Arm.	

45a. Junior Signal Corps.—*Prerequisite:* Mil. Sci. 44a.

Mil. Sci. 45a	½	A-D incl. (See 41a for hours.)				Parsons Engerud

45b. Junior Signal Corps.—*Prerequisite:* Mil. Sci. 44b.

Mil. Sci. 45b	1	420	3-5	M	222 Arm.	Engerud
			4	F	222 Arm.	
		421	9-11	S	222 Arm.	
			4	F	222 Arm.	

47a. Senior Signal Corps.—*Prerequisite:* Mil. Sci. 46a.

Mil. Sci. 47a	½	A-D incl. (See 41a for hours.)				Parsons

47b. Senior Signal Corps.—*Prerequisite:* Mil. Sci. 46b.

Mil. Sci. 47b	1	430 Radio Engineering registration in E. E. 51.				Brown
		431	3-5	M	144 Arm.	Parsons
			4	F	144 Arm.	
		432	9-11	W	144 Arm.	
			4	F	144 Arm.	

Air Corps

51a. Freshman Air Corps.

Mil. Sci. 51a	½	AC	1-3	Th	Arm.	Hildreth

51b. Freshman Air Corps.

Mil. Sci. 51b	½	501	11	T	148 Arm.	Hildreth
		502	2	T	148 Arm.	

53a. Sophomore Air Corps.—*Prerequisite:* Mil. Sci. 52a.

Mil. Sci. 53a	½	AC (See 51a for hours.)				Hildreth

53b. Sophomore Air Corps.—*Prerequisite:* Mil. Sci. 52b.

Mil. Sci. 53b	½	510	2	W	148 Arm.	Hildreth
		511	11	Th	148 Arm.	

55a. Junior Air Corps.—*Prerequisite:* Mil. Sci. 54a.

Mil Sci. 55a	½	AC	3-5	Th	Arm.	Hildreth

55b. Junior Air Corps.—*Prerequisite:* Mil. Sci. 54b.

Mil. Sci. 55b	1	515	2-4	F	148 Arm.	Hildreth
			4	F	148 Arm.	

57a. Senior Air Corps.—*Prerequisite:* Mil. Sci. 56a.

Mil. Sci. 57a	½	AC (See 51a for hours.)			Arm.	Hildreth

57b. Senior Air Corps.—*Prerequisite:* Mil. Sci. 56b.

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 57b	1	520	9-11	F	148 Arm.	HILDRETH
			4	F	148 Arm.	

Coast Artillery (Antiaircraft)

61a. Freshman Coast Artillery (AA).—

Mil. Sci. 61a	½	A	10-12	M	Arm.
		B	10-12	T	Arm.
		C	8-10	Th	Arm.
		D	8-10	F	Arm.

61b. Freshman Coast Artillery (AA).—

Mil. Sci. 61b	½	601	8	M	153 Arm.
		602	1	M	153 Arm.
		603	3	M	153 Arm.
		604	1	T	153 Arm.
		605	3	T	153 Arm.
		606	1	Th	153 Arm.
		607	3	Th	153 Arm.
		608	11	F	153 Arm.
		609	3	F	153 Arm.
		610	1	F	153 Arm.

63a. Sophomore Coast Artillery (AA).—*Prerequisite:* First year basic credit.

63b. Sophomore Coast Artillery (AA).—*Prerequisite:* First year basic credit.

65a. Junior Coast Artillery (AA).—*Prerequisite:* First and second year basic credits.

65b. Junior Coast Artillery (AA).—*Prerequisite:* First and second year basic credits.

67a. Senior Coast Artillery (AA).—*Prerequisite:* Junior credits.

67b. Senior Coast Artillery (AA).—*Prerequisite:* Junior credits.

MINERALOGY

(See Geology.)

MINING ENGINEERING

Courses for Undergraduates

1. Elements of Mining.—(For students in Mining Engineering only). *Prerequisite:* Phys. 1b-3b. (3). 8 MW, 10-12 S; 206 T. B. Mr. NICHOLSON.

2. Mining Principles.—(For students in courses other than mining). *Prerequisite:* Chem. and Phys.; junior standing. (3). 9 MWF; 206 T. B. Mr. NICHOLSON.

6. Mechanical Engineering of Mines.—*Prerequisite:* Mining 4 and 10; Mechanical Engineering 62; T. A. M. 26. (3). 10 TTS; 206 T. B. Professor CALLEN.

8. Mine Administration.—*Prerequisite:* Min. 4. (3). 10 MWF; 206 T. B. Mr. MITCHELL.

9. Preparation of Coal and Ores.—*Prerequisite:* Chem. 24, Phys. 1b-3b, Geol. 20 or equivalent. (3). 11 TT, 1-4 W; 206 T. B. and Min. Lab. Mr. MITCHELL.

13. Utilization of Fuels.—*Prerequisite:* Chem. 24; junior standing in College of Engineering. (3). 11 MF, 206 T. B.; 1-4 T, Min. Lab. Professor CALLEN.

41. Mining and Metallurgical Design.—*Prerequisite:* C. E. 58, senior standing in Mining Engineering. (3). 9, 1-4 Th., 1-4 F; 207 T. B. Mr. MITCHELL.

61. Elementary Mine Surveying.—*Prerequisite:* G. E. D. 1 or 4, Math. 4. (3). 1-4 MW, 1 F; 207 T. B. Mr. NICHOLSON.

69. Fire Assaying.—*Prerequisite:* Chem. 24, Geol. 20. (2). 1-6 M; Min. Lab. Mr. MITCHELL.

97. Thesis.—Hours arranged when thesis is permitted, in accordance with the regulations of the College of Engineering.

99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

101. Advanced Mining Practice.—(1 unit). Arrange time. Professor CALLEN.

104.[1] Mining Reports.—(1 unit). Arrange time. Professor CALLEN.

105.[1] Welfare Work and Education among Mine Employees.—(1 unit). Arrange time. Professor CALLEN.

MUSIC

1. History of Music.—*Prerequisite:* One year of university work. (2). 11 MWF; Lect. Room, S. M. H. Associate Professor SCHWARTZ.

[1]Of courses 104 and 105 only one will be given, at the election of students.

3-4. Theory of Music (Harmony).

Subject	Credits	Section	Hours	Days	Room	Instructor
Music 3	2	A	8	TT	106 S. M. H.	Kessler
		B	9	TT	106 S. M. H.	Kessler
		C	1	TT	106 S. M. H.	Kessler
		D	2	TT	103 S. M. H.	Kessler
Music 4	2		10	TT	106 S. M. H.	Phipps

5. Theory of Music (Harmony).—Continuation of Music 3-4. *Prerequisite:* Music 3-4.

Music 5	3	A	10	MWF	103 S. M. H.	Kessler
		B	3	MWF	103 S. M. H.	Kessler

7. Counterpoint, Canon, and Fugue.—*Prerequisite:* Music 5-6.

Music 7	3	A	11	MWF	103 S. M. H.	Miles
		B	2	MWF	103 S. M. H.	Miles

9. Analysis, Musical Form.—*Prerequisite:* Music 7-8.

Music 9	2	A	9	MT	103 S. M. H.	Schwartz
		B	9	TT	103 S. M. H.	Schwartz

11. Advanced Composition.—*Prerequisite:* Music 9-10. (4). Arrange time. Associate Professor Miles.

13. Music Appreciation.—The appreciation of good music from the standpoint of the listener. Copiously illustrated with phonograph and reproducing piano. Primarily for students from the other colleges of the University. Attendance at Star Course concerts required.

Music 13	1	A	3	TT	Lecture Room Third Floor S. M. H.	Director Stiven
		B	3	TT	106 S. M. H.	Miss Kitchell

15. Instrumentation.—*Prerequisite:* Junior standing. (1 or 2).* 2 TT; Band Building. Professor Harding.

17. Advanced Orchestration.—*Prerequisite:* Music 10, 15, and 16. (4). Arrange time. Professor Harding.

19. Rudiments of Theory.

Music 19	1	A	11	T	103 S. M. H.	Schwartz
		B	11	Th	103 S. M. H.	Schwartz

21. Ear Training and Sight Singing.

Music 21	1	A	10	MWF	106 S. M. H.	Percival
		B	1	MWF	106 S. M. H.	Percival

23. Ear Training and Sight Singing.—*Prerequisite:* Music 22.

Music 23	1	A	9	MWF	106 S. M. H.	Percival
		B	11	MWF	106 S. M. H.	Percival

25a. Public School Methods.—*Prerequisite:* Junior standing. (4). 2 MWTF; 106 S. M. H. Mr. Holmes.

26a. Public School Methods.—*Prerequisite:* Music 25a and b. (4). 1 MTWT; 103 S. M. H. Miss Kitchell.

27. Thesis.—Arrange.

28. Keyboard Harmony.

Music 28	2	A	8	MW	103 S. M. H.	Phipps
		B	8	TT	103 S. M. H.	Phipps

30a. Accompanying and Ensemble.—*Prerequisite:* Junior standing. (½-1).* Arrange time.

31a. Accompanying and Ensemble.—*Prerequisite:* Music 30a-b. (½-1).* Arrange time.

32. Advanced History of Music.—*Prerequisite:* Music 1 and 2. (1). 9 F; 103 S. M. H. Associate Professor Schwartz.

34. Recital Course in Applied Music.—(For Juniors in Music 44b, 54b, 64b, 74b, 84b, or 94b). *Prerequisite:* At least two satisfactory appearances in major subject in Students' Recitals. (2). Arrange time.

35. Recital Course in Applied Music.—(For Seniors in Music 45b, 65b, 75b, 85b, or 95b.) (4). Arrange time.

36. Recital Course in Applied Music.—(For Seniors in Music 55b). (3). Arrange time.

37. Recital Course in Composition.—(For Seniors in Theory Major). (4). Arrange time.

38a. Band Conducting.—*Prerequisite:* Music 16. (2). 2 M, 1 TT; Band Building. Professor Harding.

APPLIED MUSIC COURSES

Students in the School of Music will receive 4 to 5 hours' credit for their major subject in Applied Music. They will ordinarily receive 2½ hours' credit for their minor subject. Students from other colleges will ordinarily receive 2 hours' credit if in accordance with the regulations of their college.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Courses in Applied Music which require one half-hour lesson per week of recitation and one hour daily of preparation receive 2 hours' credit.

Courses in Applied Music which require two twenty-minute lessons per week of recitation and *one* hour daily of preparation receive 3 hours' credit.

Courses in Applied Music which require two half-hour lessons per week of recitation and *two* hours daily of preparation receive 4 hours' credit.

Courses in Music 44a-b, 45a-b, 64a-b, 65a-b, 74a-b, 75a-b, 84a-b, 85a-b, require two half-hour lessons per week of recitation and *three* hours daily of preparation.

PIANO

Associate Professor VAN DEN BERG, Mr. MACNEILL, Mr. SCHOONMAKER, Mrs. PHIPPS, Miss DE LANCY, Miss RUFFIN

Hours to be arranged.

42a-42b. Piano, First Year.—(2-4).*

43a-43b. Piano, Second Year.—(2-4).*

44a-44b. Piano, Third Year.—(2-5).*

45a-45b. Piano, Fourth Year.—(2-5).*

VOICE

Assistant Professor BERESFORD, Mr. JOHNSON, Mrs. SAGE, Mrs. THOMAS

Hours to be arranged.

52a-52b. Voice, First Year.—(2-4).*

53a-53b. Voice, Second Year.—(2-4).*

54a-54b. Voice, Third Year.—(2-4).*

55a-55b. Voice, Fourth Year.—(2-4).*

VIOLIN

Assistant Professor ROOSA, Mr. HOLMES

Hours to be arranged.

62a-62b. Violin, First Year.—(2-4).*

63a-63b. Violin, Second Year.—(2-4).*

64a-64b. Violin, Third Year.—(2-5).*

65a-65b. Violin, Fourth Year.—(2-5).*

VIOLONCELLO

Associate Professor SCHWARTZ

Hours to be arranged.

72a-72b. Violoncello, First Year.—(2-4).*

73a-73b. Violoncello, Second Year.—(2-4).*

74a-74b. Violoncello, Third Year.—(2-5).*

75a-75b. Violoncello, Fourth Year.—(2-5).*

ORGAN

Associate Professor MILES, Mr. DEMMING

Hours to be arranged.

Students desiring to take organ will be obliged to pass without conditions the entrance examination in piano. Under no circumstances will they be accepted if their piano work falls below the standard represented by this examination.

82a-82b. Organ, First Year.—(2-4).*

83a-83b. Organ, Second Year.—(2-4).*

84a-84b. Organ, Third Year.—(2-5).*

85a-85b. Organ, Fourth Year.—(2-5).*

BAND AND ORCHESTRAL INSTRUMENTS

Mr. DVORAK, Mr. KJOS

Hours to be arranged.

92a-92b. Wind Instruments, First Year.—(2-4).*

93a-93b. Wind Instruments, Second Year.—(2-4).*

94a-94b. Wind Instruments, Third Year.—(2-4).*

95a-95b. Wind Instruments, Fourth Year.—(2-4).*

PHILOSOPHY

For students entering prior to September, 1929

(See also Psychology and Education.)

Major: 20 hours from any courses offered by the department, including Phil. 1, 2, 3, 4, and 7. Six hours in psychology may be counted toward a major in philosophy.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Minors: 20 hours in (a) psychology (at least 6 additional hours, if psychology is counted toward a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) botany, chemistry, mathematics, physics, zoology, geology. No course in any subject of the above groups may be counted for the minor requirement if it is excluded from the major requirement of its respective department.

For students entering after September 1, 1929

Major: 20 hours from any courses offered by the department, including Phil. 2, 3, 4, and 7. Six hours in psychology may be counted toward a major in philosophy.

Minors: 20 hours, excluding courses taken during the freshman year, in (a) psychology (at least 6 additional hours if psychology is counted toward a major), and one other subject in the following list: or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) astronomy, botany, chemistry, mathematics, physics, zoology, geology. At least 8 hours must be offered in each subject, if two are chosen.

1. Logic.—*Prerequisite:* One year of university work.

Subject	Credits	Section	Hours	Days	Room	Instructor
Phil. 1	3	A	8	MWF	117 L. H.	Nicholson
		B	9	MWF	117 L. H.	Nicholson
		C	10	MWF	117 L. H.	Sanford
		D	11	MWF	117 L. H.	DeLargy
		E	8	MWF	113 L. H.	DeLargy
		F	9	MWF	113 L. H.	Kubitz
		G	10	MWF	308 L. H.	Kubitz
		H	1	MWF	117 L. H.	Sanford
		I	2	MWF	117 L. H.	Kubitz
		J	3	MWF	117 L. H.	
		K	8	TTS	117 L. H.	Gotshalk
		L	9	TTS	117 L. H.	Gotshalk
		M	10	TTS	117 L. H.	Morrow
		N	11	TTS	117 L. H.	McClure

Courses for Advanced Undergraduates and Graduates

3. History of Ancient and Medieval Philosophy.—*Prerequisite:* Junior standing.

Phil. 3	4	Lect.	10	TT	300 Math.	McClure
		A Disc.	11	Th	113 L. H.	DeLargy
		B Disc.	1	Th	117 L. H.	Gotshalk
		C Disc.	2	Th	117 L. H.	Nicholson
		D Disc.	3	Th	117 L. H.	Nicholson
		E Disc.	2	F	113 L. H.	McClure
		F Disc.	3	F	133 L. H.	Morrow
		G Disc.	(To be arranged; majors and graduate students only.)			McClure

7. Ethics.—*Prerequisite:* Three hours in philosophy and junior standing.

Phil. 7	3	Lect.	11	TT	109 L. H.	Morrow
		A Disc.	2	Th	133 L. H.	Morrow
		B Disc.	2	F	139 L. H.	Morrow

8. Philosophy of the Recent Past.—*Prerequisite:* Philosophy 4. (3). 11 MWF; 211 L. H. Assistant Professor Nicholson.

11. Philosophy of Religion.—*Prerequisite:* Three hours in philosophy. (3). 10 MWF; 202 L. H. Professor Tawney.

12. Philosophy of Art.—*Prerequisite:* Three hours in philosophy. (3). 2 MWF; 219 L. H. Dr. Gotshalk.

22. American Philosophy.—*Prerequisite:* Philosophy 2. (3). 10 MWF; 340 L. H. Dr. DeLargy.

20. Honors Course.—*Prerequisite:* Senior standing. (2). Time to be arranged.

Courses for Graduates

101. Early Greek Philosophy.—Twice a week. (1 unit). Hours to be arranged. Professor McClure.

103. Ethics.—Twice a week. (1 unit). Hours to be arranged. 108 Adm. Professor Daniels.

108. Plato.—Twice a week. (1 unit). Hours to be arranged. Professor Tawney.

110. Locke, Berkeley, Hume.—Twice a week. (1 unit). Hours to be arranged. Professor Morrow.

PHYSICAL EDUCATION FOR MEN

Note: Freshmen must register in courses numbered 11, 12, 13, 14, 15, 16, and 17.

Sophomores must register in courses numbered 21, 22, 23, 24, 25, 26, and 27.

Students previously enrolled in Individual Gymnastics must continue to take this course until notified otherwise.

All students excepting those taking Individual Gymnastics must elect a different course each semester.

For information, late registration, and changing sections, call at Room 201, Old Gymnasium.

1930-31

11. Individual Gymnastics.—(Freshmen who do not pass the health examination are excused from Military and must register in this course.)

Subject	Credits	Section	Hours	Days	Room	Instructor
P. E. 11	1½	A	9	MTWTF	New Gym.	Derr
		B	10	MTWTF	New Gym.	Stafford
		C	11	MTWTF	New Gym.	Stafford
		D	1	MTWTF	New Gym.	Derr
		E	2	MTWTF	New Gym.	Derr
		F	3	MTWTF	New Gym.	McCristal
		G	4	MTWTF	New Gym.	Derr
		H	10	MTWTF	Gym. Annex	Hankner
		I	11	MTWTF	Gym. Annex	Hankner
		J	2	MTWTF	Gym. Annex	Brown
		K	3	MTWTF	Gym. Annex	Hankner
		L	4	MTWTF	Gym. Annex	Hankner

12. Individual Gymnastics.—*Prerequisite:* P. E. 11.

P. E. 12	1½	A	9	MTWTF	New Gym.	Derr
		B	10	MTWTF	New Gym.	Stafford
		C	11	MTWTF	New Gym.	Stafford
		D	1	MTWTF	New Gym.	Derr
		E	2	MTWTF	New Gym.	Derr
		F	3	MTWTF	New Gym.	McCristal
		G	4	MTWTF	New Gym.	Derr
		H	10	MTWTF	Gym. Annex	Hankner
		I	11	MTWTF	Gym. Annex	Hankner
		J	2	MTWTF	Gym. Annex	Brown
		K	3	MTWTF	Gym. Annex	Hankner
		L	4	MTWTF	Gym. Annex	Hankner

13. Beginning Swimming.—(This course is open to non-swimmers only. Freshmen who cannot swim fifty yards are advised to register in this course.)

P. E. 13	½	A	9	MW	Old Pool	Craig
		B	10	MW	Old Pool	Treece
		C	11	MW	Old Pool	Treece
		D	1	MW	Old Pool	Hankner
		E	2	MW	Old Pool	Gerard
		F	3	MW	Old Pool	Gerard
		G	4	MW	Old Pool	Law
		H	9	TT	Old Pool	Craig
		I	10	TT	Old Pool	Treece
		J	11	TT	Old Pool	Treece
		K	1	TT	Old Pool	Hankner
		L	2	TT	Old Pool	Gerard
		M	3	TT	Old Pool	Gerard
		N	4	TT	Old Pool	Law

14. Individual Athletics.

P. E. 14	½	A	8	MW	Old Gym.	Gerard
		B	9	MW	Old Gym.	Gerard
		C	10	MW	Old Gym.	Law
		D	11	MW	Old Gym.	Burt
		E	2	MW	Old Gym.	Hankner
		F	3	MW	Old Gym.	Burt
		G	9	TT	Old Gym.	Gerard
		H	10	TT	Old Gym.	Law
		I	3	TT	Old Gym.	Burt

15. Tumbling Stunts.

P. E. 15	½	A	8	MW	Old Gym.	Burt
		B	9	MW	Old Gym.	Burt
		C	10	MW	Old Gym.	Gerard
		D	1	MW	Old Gym.	Brown
		E	2	MW	Old Gym.	Burt
		F	8	TT	Old Gym.	Gerard
		G	9	TT	Old Gym.	Burt
		H	10	TT	Old Gym.	Gerard
		I	11	TT	Old Gym.	McCristal
		J	1	TT	Old Gym.	Brown
		K	2	TT	Old Gym.	Burt
		L	3	TT	Old Gym.	Law

16. Soccer Football.

P. E. 16	½	A	10	MW	Soccer Field	Derr
		B	11	MW	Soccer Field	Craig
		C	1	MW	Soccer Field	Treece
		D	2	MW	Soccer Field	Treece
		E	3	MW	Soccer Field	Paterson
		F	4	MW	Soccer Field	Paterson
		G	10	TT	Soccer Field	Derr
		H	11	TT	Soccer Field	Gerard
		I	2	TT	Soccer Field	Treece
		J	3	TT	Soccer Field	Treece
		K	4	TT	Soccer Field	Paterson

17. Gymnastic Dancing.

Subject	Credits	Section	Hours	Days	Room	Instructor
P. E. 17	½	A	10	MW	New Gym.	Burt
		B	1	MW	New Gym.	McCristal
		C	4	MW	New Gym.	McCristal
		D	10	TT	New Gym.	Burt
		E	1	TT	New Gym.	McCristal
		F	4	TT	New Gym.	McCristal

21. Individual Gymnastics.

P. E. 21	1½	A	9	MTWTF	New Gym.	Derr
		B	10	MTWTF	New Gym.	Stafford
		C	11	MTWTF	New Gym.	Stafford
		D	1	MTWTF	New Gym.	Derr
		E	2	MTWTF	New Gym.	Derr
		F	3	MTWTF	New Gym.	McCristal
		G	4	MTWTF	New Gym.	Derr
		H	10	MTWTF	Gym. Annex	Hankner
		I	11	MTWTF	Gym. Annex	Hankner
		J	2	MTWTF	Gym. Annex	Brown
		K	3	MTWTF	Gym. Annex	Hankner
		L	4	MTWTF	Gym. Annex	Hankner

22. Individual Gymnastics.—*Prerequisite:* P. E. 21.

P. E. 22	1½	A	9	MTWTF	New Gym.	Derr
		B	10	MTWTF	New Gym.	Stafford
		C	11	MTWTF	New Gym.	Stafford
		D	1	MTWTF	New Gym.	Derr
		E	2	MTWTF	New Gym.	Derr
		F	3	MTWTF	New Gym.	McCristal
		G	4	MTWTF	New Gym.	Derr
		H	10	MTWTF	Gym. Annex	Hankner
		I	11	MTWTF	Gym. Annex	Hankner
		J	2	MTWTF	Gym. Annex	Brown
		K	3	MTWTF	Gym. Annex	Hankner
		L	4	MTWTF	Gym. Annex	Hankner

23. Advanced Swimming.

P. E. 23	½	A	9	MW	New Pool	Treece
		B	10	MW	New Pool	Paterson
		C	11	MW	New Pool	Paterson
		D	1	MW	New Pool	Paterson
		E	2	MW	New Pool	Paterson
		F	8	TT	New Pool	Treece
		G	9	TT	New Pool	Treece
		H	10	TT	New Pool	Paterson
		I	11	TT	New Pool	Paterson
		J	1	TT	New Pool	Paterson
		K	2	TT	New Pool	Paterson
		L	3	TT	New Pool	Paterson

24. Boxing.

P. E. 24	½	A	9	MW	Gym. Annex	Law
		B	10	MW	Gym. Annex	
		C	11	MW	Gym. Annex	
		D	1	MW	Gym. Annex	Gerard
		E	2	MW	Gym. Annex	
		F	8	TT	Gym. Annex	Law
		G	9	TT	Gym. Annex	Law
		H	10	TT	Gym. Annex	
		I	11	TT	Gym. Annex	
		J	1	TT	Gym. Annex	Gerard
		K	2	TT	Gym. Annex	

25. Wrestling.

P. E. 25	½	A	10	MW	Wrestling Room	Kenney
		B	11	MW	Wrestling Room	Kenney
		C	1	MW	Wrestling Room	Law
		D	2	MW	Wrestling Room	Kenney
		E	3	MW	Wrestling Room	Kenney
		F	4	MW	Wrestling Room	
		G	10	TT	Wrestling Room	Kenney
		H	11	TT	Wrestling Room	Kenney
		I	1	TT	Wrestling Room	Law
		J	2	TT	Wrestling Room	Kenney
		K	3	TT	Wrestling Room	Kenney
		L	4	TT	Wrestling Room	

26. Fencing.

P. E. 26	½	A	2	MW	Gym. Annex	Craig
		B	3	MW	Gym. Annex	Craig
		C	4	MW	Gym. Annex	Craig
		D	2	TT	Gym. Annex	Craig
		E	3	TT	Gym. Annex	Craig
		F	4	TT	Gym. Annex	Craig

27. Apparatus Stunts.

Subject	Credits	Section	Hours	Days	Room	Instructor
P. E. 27	½	A	11	MW	Old Gym.	McCristal
		B	4	MW	Old Gym.	Burt
		C	11	TT	Old Gym.	Law
		D	4	TT	Old Gym.	Burt

9. Circus Stunts.—(Open to juniors and seniors only.)

P. E. 9	1	A	4	MW	Old Gym.	Jackson
		B	4	TT	Old Gym.	Jackson

PHYSICAL EDUCATION FOR WOMEN

Major: (Subject of specialization) in the College of Education. 20 hours in courses given in the department in addition to 7a, 7b, 8a and 8b.

7a. Physical Education Practice.—Required of all freshmen.

Gymnastics	1	A	3	MTWTF	W. B.	
		(Section A open only to freshmen who expect to specialize in P. E.)				
		B	9	MWF	W. B.	Lawson
		C	9	TT	W. B.	
			1	M		Robertson
		D	10	TT	W. B.	
			1	W		Kitzinger
		E	11	MWF	W. B.	
		F	11	TT	W. B.	Huelster
			4	M		
		G	10	MWF		
Clogging (Elementary)	1	H	8	MWF	W. B.	
Elementary Rhythms	1	I	2	MWF	W. B.	
Folk Dancing (Elementary)	1	J1	3	MWF	W. B.	Johnson
Elementary Rhythms	1	J2	10	TT		
			1	F	W. B.	
Swimming (Elementary)	1	K1	10	MWF	W. B.	
		K2	2	TT	W. B.	
			1	F		
		L	11	MWF	W. B.	Smith
		M[1]	3	MWF	W. B.	
Intermediate Swimming	1	N	9	MWF	W. B.	
		O	2	MWF	W. B.	
		P	4	MWF	W. B.	Stahmer
		Q	10	TT	W. B.	
			1	M		
Advanced Swimming and Diving	1	R	11	TT	W. B.	
			1	M		
		S	3	TT	W. B.	
			1	W		
Life Saving	1	T	4	TT	W. B.	
			8	W		
Individual and Remedial Gymnastics	1	U	9	MWF	W. B.	
(To be chosen only on recommendation of the Health Service.)		V	10	MWF	W. B.	
		W	11	MWF	W. B.	Schnauber
		X	2	MWF	W. B.	
		Y	3	MWF	W. B.	
		Z1	11	TT	W. B.	
			1	W	W. B.	
		Z2	10	TT	W. B.	
			1	M		

8a. Physical Education Practice.—Required of all sophomores. *Prerequisite:* P. E. 7a and 7b.

Advanced Gymnastic Practice	1	A	2	MTWTF	W. B.	
		(Open only to sophomores who expect to major in P. E.)				
Folk Dancing (Intermediate)	1	B	8	MWF	W. B.	Robertson
Group Games	1	C	9	TT	W. B.	
			1	M		Kitzinger
Clogging (Elementary)	1	D	10	MWF	W. B.	
Group Games	1	E	11	TT	W. B.	
			1	W		

[1]For freshmen majoring in Physical Education.

Subject	Credits	Section	Hours	Days	Room	Instructor
Folk Dancing (Elementary)	1	F	11	MWF	W. B.	JOHNSON
Apparatus	1	G	2	TT	W. B.	
			4	W		
Intermediate Rhythms	1	H	8	TT	W. B.	
			1	F		
Elementary Rhythms	1	I	2	MWF	W. B.	
Fundamental Gymnastics	1	J1	3	TT	W. B.	
			4	M		
Intermediate Clogging	1	J2	4	TT	W. B.	
			1	F		
Advanced Rhythms	1	J3	(Time to be arranged.)			
Swimming (Elementary)	1	K	10	MWF	W. B.	
		L	11	MWF	W. B.	SMITH
		M	3	MWF	W. B.	
Intermediate Swimming	1	N	9	MWF	W. B.	
		O	2	MWF	W. B.	STAHMER
		P	4	MWF	W. B.	
		Q	10	TT	W. B.	
			1	M		
Advanced Swimming and Diving	1	R	11	TT	W. B.	
			1	M		
		S	3	TT	W. B.	
			1	W		
Life Saving	1	T	4	TT	W. B.	
			8	W		
Individual and Remedial Gymnastics	1	U	9	MWF	W. B.	
(To be chosen only on recommendation of the Health Service.)		V	10	MWF	W. B.	SCHNAUBER
		W	11	MWF	W. B.	
		X	2	MWF	W. B.	
		Y	3	MWF	W. B.	
		Z1	11	TT	W. B.	
			1	W		
		Z2	10	TT	W. B.	
			1	M		

10a. History of Physical Education.—*Prerequisite:* Senior standing in College of Education. (1). 11 TT; W. B. Professor FREER.

11a. Therapeutics.—*Prerequisite:* Senior standing in College of Education; P. E. 16a. (1). 9 TT; W. B. Miss SCHNAUBER.

15a. Methods.—*Prerequisite:* Junior standing in the College of Education, or consent of the instructor. (3). 9 MWF; W. B. Miss ROBERTSON.

16. Kinesiology.—*Prerequisite:* Junior standing, for students specializing in P. E.; registration in College of Education. (3). 8 MWF; W. B. Miss KITZINGER.

17a. Educational Practice.—*Prerequisite:* Senior standing in College of Education; P. E. 15 and 16. (3). 1 MWF; W. B. Assistant Professor LAWSON.

PHYSICS

Major: 20 hours from courses offered in the department. At least 5 hours must be offered from the advanced group.

Minors: 20 hours exclusive of courses taken during the freshman year in one or two of the following subjects, with not less than 8 hours in each department, if two subjects are chosen: mathematics, astronomy, chemistry, education.

Physics 7a-7b and 8a-8b are recommended to students not specializing in physics, mathematics, chemistry, or engineering. For undergraduate students taking advanced work or a major in physics, the following courses are suggested.

Freshman year: Trigonometry (Math. 4) and chemistry.
Sophomore year: Physics 1a-1b, 3a-3b, or Physics 7a-7b, 8a-8b.
Junior year: Physics 14, 16, 23, 33, 36, 44.
Senior year: Physics 14, 20, 22, 30, 31, 45, 46, 78, 97, 98.

Introductory Courses for Undergraduates

1a. General Physics.—*Prerequisite:* Credit in Math. 2 and 4; registration in Math. 6 and Physics 3a.

Physics 1a	3	Lect. A	9	MW	100 P. L.	Associate Professor SCHULZ and others
		Lect. B	11	MW	100 P. L.	
		Lect. C	3	MW	100 P. L.	

Subject	Credits	Section	Hours	Days	Room	Instructor
Physics 1a	3	Quiz A	8	TT	204, 302, 305 P. L.	
		Quiz B	9	TT	305, 403, 406 P. L.	
		Quiz C	10	TT	306, 403, 406 P. L.	
		Quiz D	11	TT	302, 403 P. L.	
		Quiz E	1	TT	208, 302, 306 P. L.	
		Quiz F	2	TT	406 P. L.	
		Quiz G	3	TT	406 P .L.	
		Quiz H	8	WF	302, 305 P. L.	
		Quiz J	10	WF	305 P. L.	
		Quiz K	1	WF	306 P. L.	
		Quiz L	2	WF	403, 406 P. L.	

3a. Physical Measurements.—*Prerequisite:* Physics 1a or registration therein.

Physics 3a	2	A	8-11	M	305, 408 P. L.	Associate Professor SCHULZ and others
		B	1-4	M	305, 403 P. L.	
		C	8-11	T	403, 406, 408 P. L.	
		D	1-4	T	305, 403, 406 P. L.	
		E	8-11	W	403, 406, 408 P. L.	
		F	1-4	W	305, 403, 406 P. L.	
		G	8-11	Th	403, 406, 408 P. L.	
		H	1-4	Th	305, 403, 406 P. L.	
		J	8-11	F	403, 406 P. L.	
		K	1-4	F	403, 406 P. L.	
		L	8-11	S	403 P. L.	

7a. General Physics.—*Prerequisite:* Math. 4 or registration therein; sophomore standing; registration in Physics 8a.

Physics 7a	3	Lect.	11	TT	100 P. L.	Professor WATSON and others
		A Quiz	9	WF	305 P. L.	
		B Quiz	9	WF	302 P. L.	
		C Quiz	2	TT	208 P. L.	
		D Quiz	3	TT	208 P. L.	
		E Quiz	11	WF	305 P. L.	
		F Quiz	2	WF	208 P. L.	
		G Quiz	8	WF	208 P. L.	
		H Quiz	11	WF	208 P. L.	
		I Quiz	10	WF	208 P. L.	
		J Quiz	11	WF	208 P. L.	
		K Quiz	2	TT	305 P. L.	
		L Quiz	10	WF	302 P. L.	

8a. Introductory Laboratory Physics.—*Prerequisite:* Registration in Physics 7a.

Physics 8a	2	A	8-11	M	208 P. L.	Associate Professor PATON and others
		B	8-11	M	302 P. L.	
		C	1-4	M	208 P. L.	
		D	2-5	M	208 P. L.	
		E	8-11	T	208 P. L.	
		F	2-5	T	208 P. L.	
		G	9-12	W	208 P. L.	
		H	2-5	W	208 P. L.	
		I	8-11	Th	208 P. L.	
		J	2-5	Th	208 P. L.	
		K	9-12	F	208 P. L.	
		L	1-4	F	208 P. L.	
		M	1-4	F	302 P. L.	
		N	8-11	S	208 P. L.	

Intermediate Course

17a. Light.—*Prerequisite:* Physics 1a-1b, 3a-3b; or Physics 7a-7b, 8a-8b. (3). 9 TT, 204 P. L.; 2-5 F, 313 P. L. Associate Professor SCHULZ.

Courses for Advanced Undergraduates and Graduates

14a. Theoretical Mechanics.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 8a-8b or 7 and 9. (3). 8 MWF; 204 P. L. Dr. SANDERS.

20a. Light.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 8a-8b or 7 and 9. (2). 9 TT; 306 P. L. Dr. ALMY.

22a. Light Laboratory.—*Prerequisite:* Registration in Physics 20a. (2). 2-5 MW; 313 P. L. Dr. ALMY.

23. Sound.—*Prerequisite:* Physics 1a-1b, 3a-3b; or Physics 7a-7b, 8a-8b. (3). 9 MWF; 204 P. L. Professor WATSON.

31a. Special Problems in Advanced Physical Measurements.—(3-5).* Arrange. P. L. Professor LOOMIS and others.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

33. **Sound Laboratory.**—*Prerequisite:* Registration in Physics 23. (1). 2-5 T; 213 P. L. Professor WATSON.

44a. **Electrical and Magnetic Measurements.**—*Prerequisite:* Physics 1a-1b, 3a-3b; or Physics 7a-7b, 8a-8b, Math. 8a-8b or 7 and 9.

Subject	Credits	Section	Hours	Days	Room	Instructor
Physics 44a	3	K	1-4	TT	112 P. L.	KNIPP, WILLIAMS and others
		L	8-11	TT	112 P. L.	
		M	8-11	MF	112 P. L.	
		N	1-4	MF	112 P. L.	
		Y	2-5	W	112 P. L.	
			8-11	S	112 P. L.	

45. **Heat Radiation.**—*Prerequisite:* Physics 1a-1b, 3a-3b; or Physics 7a-7b, 8a-8b; Math. 8a-8b or 7 and 9. (3). 10 TTS; 208 P. L. Associate Professor PATON.

46a. **Advanced Electrical Measurements by High Frequency Currents.**—*Prerequisite:* Physics 44a and 44b or their equivalent. Consult instructor. (2). 1-4 TT; 102 P. L. Associate Professor WILLIAMS.

50. **Theory and Use of Optometric Instruments.**—*Prerequisite:* Registration in Physics 17. (4). 2 MW, 2-4 TT; 313 P. L. Associate Professor SCHULZ.

97. **Thesis.**—(2-5).* Professor LOOMIS and others.

Courses for Graduates

104a. **Electrical and Magnetic Measurements.**—(¾ or 1 unit).* Arrange. 112 P. L. Professor KNIPP and Associate Professor WILLIAMS.

120. **Light.**—Physical Optics and Spectroscopy. (1-2 units).* Arrange. 313 P. L. Associate Professor PATON and Dr. ALMY.

124. **Conduction of Electricity Through Gases.**—(1 unit). 9 MWF; 119 P. L. Professor KNIPP.

126. **Physics Colloquium.**—(No credit). 7 p.m., Th; 100 P. L. Professor LOOMIS.

131. **Investigation of Special Problems.**—(1-2 units).* Arrange. P. L. Professors in the department.

132a. **Dynamics.**—(1 unit). 8 MWFS; 306 P. L. Professor KUNZ.

132c. **Hydrodynamics.**—(½ unit). 8 TT; 306 P. L. Professor KUNZ.

133. **Seminar.**—(1-2 units).* Arrange. P. L. Professors in the department.

184. **Line Spectra and Atomic Structure.**—(1 unit). 10 MWF; 204 P. L. Professor LOOMIS.

186a. **Quantum Mechanics and Wave Mechanics.**—(1 unit). 9 MWF; 306 P. L. Assistant Professor BARTLETT.

190. **Research.**—(1-2 units).* Arrange. P. L. Professors in the department.

PHYSIOLOGY

For students entering prior to September, 1929

Major: 20 hours from courses offered in the department exclusive of Physiology 1.
Minors: 20 hours in not more than three of the following: botany, bacteriology, chemistry, entomology, and zoology.
Seniors registered in Physiology 1, 2, 4, 6 will receive one hour less credit.

For students entering after September 1, 1929

Major: 20 hours from courses offered in the department exclusive of Physiology 1, and all courses taken during the freshman year.
Minors: 20 hours, excluding work taken during the freshman year, in not more than two of the following: botany, bacteriology, chemistry, entomology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

1. **Elements of Physiology.**—A survey of the field of mammalian physiology. *Note:* Seniors will receive 1 hour's credit only.

Physiol. 1	2	Lect. and Demonstration	8	TT	M. H.	BURGE and VERDA
		A Quiz	9	T	425 N. H.	
		B Quiz	10	T	425 N. H.	
		C Quiz	11	T	425 N. H.	
		D Quiz	9	Th	425 N. H.	
		E Quiz	10	Th	425 N. H.	
		F Quiz	8	S	425 N. H.	
		G Quiz	9	S	425 N. H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

2. Physiology of Physical Exercise.—(Required of Athletic Coaching and Physical Education students.) *Prerequisite:* Physiol. 1. *Note:* Seniors will receive 3 hours' credit only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Physiol. 2	4	Lect.	10	TT	228 N. H.	ELHARDT and assistant
		A Lab.	10, 11	M	413 N. H.	
		B Lab.	1, 2	M	413 N. H.	
		C Lab.	3, 4	M	413 N. H.	
		D Lab.	8, 9	W	413 N. H.	
		E Lab.	10, 11	W	413 N. H.	
		F Lab.	3, 4	W	413 N. H.	
		G Quiz	9	F	425 N. H.	
		H Quiz	10	F	425 N. H.	
		I Quiz	11	F	425 N. H.	
		J Quiz	2	F	425 N. H.	

4. General Physiology.—(Required of Home Economics students; not open to students who have had Physiol. 1.) *Note:* Seniors will receive 4 hours' credit only.

Physiol. 4	5	Lect. and Demonstration	8	TT	M. H.	BURGE
		A Quiz	10	M	425 N. H.	WILLIAMS
		B Quiz	8	W	229 N. H.	
		C Quiz	9	W	425 N. H.	
		D Quiz	9	M	247 N. H.	
		A Lab.	8, 9	MF	413 N. H.	
		B Lab.	1, 2	TT	413 N. H.	
		C Lab.	3, 4	TT	413 N. H.	
		D Lab.	1, 2	WF	413 N. H.	

6. Advanced Physiology.—(Recommended for the general student). *Prerequisite:* Physiol. 1. *Note:* Seniors will receive 2 hours' credit only.

Physiol. 6	3	Lect.	9	T	229 N. H.	WICKWIRE
		A Lab.	10, 11	T	413 N. H.	
		B Lab.	10, 11	F	413 N. H.	
		C Lab.	10, 11	Th	413 N. H.	
		D Quiz	8	Th	423 N. H.	
		E Quiz	9	Th	423 N. H.	

Courses for Advanced Undergraduates and Graduates

7. Advanced Mammalian Physiology.—*Prerequisite:* Physiol. 1, and 8 hours of Chemistry.

Physiol. 7	3	Lect.	9	F	229 N. H.	BURGE
		Quiz	11	M	425 N. H.	WICKWIRE
		Lab.	10, 11	W	413 N. H.	

8. Thesis.—*Prerequisite:* Senior standing and 15 hours of Physiology. (3-5).* Time to be arranged before registration. Associate Professor BURGE.

Courses for Graduates

101. Journal Club.—Review of literature. (¼ unit). Members of staff.

102. Research.—(1-2 units).* Associate Professor BURGE.

103. Experimental Physiology.—(½-1 unit).* Associate Professor BURGE.

POLITICAL SCIENCE

For students entering prior to September, 1929

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 27, 44, or 62).

Minors: 20 hours, selected from two of the following subjects: history, economics, law, sociology, philosophy, and education.

Courses 1 and 3 give a general survey of national, state, and local government in the United States. Undergraduates beginning the study of political science are advised to take first, course 1, 3, or 16, and those planning for advanced work should take course 1 and either 3 or 16 in their sophomore year. Course 3 is offered the second semester.

For students entering after September 1, 1929

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 27, 44, or 62).

Minors: 20 hours exclusive of courses taken during the freshman year, selected from two of the following subjects: history, economics, law, sociology, philosophy, and education. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

1. American National Government.—*Prerequisite:* 30 hours of university work.

Pol. Sci. 1	3	A1 Disc.	8	MWF	300 L. H.	LENOIR
		A2 Disc.	8	MWF	146 L. H.	WALTZ
		A3 Disc.	8	MWF	204 L. H.	HYNEMAN
		B1 Disc.	9	MWF	300 L. H.	BERDAHL
		B2 Disc.	9	MWF	326 New Agr.	WALTZ
		B3 Disc.	9	MWF	308 L. H.	MATHEWS
		C1 Disc.	10	MWF	320 New Agr.	LENOIR
		C2 Disc.	10	MWF	204 L. H.	CARLETON

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Pol. Sci 1	3	C3 Disc.	10	MWF	300 L. H.	Kneier
		D1 Disc.	11	MWF	148 L. H.	Lenoir
		D2 Disc.	11	MWF	204 L. H.	Carleton
		D3 Disc.	11	MWF	203-A L. H.	Hyneman
		E1 Disc.	1	MWF	204 L. H.	Sikes
		E2 Disc.	1	MWF	238 L. H.	Waltz
		F Disc.	2	MWF	238 L. H.	Waltz
		G Disc.	3	MWF	204 L. H.	Sikes
		L Disc.	9	TTS	206 L. H.	Carleton
		M Disc.	10	TTS	204 L. H.	Carleton

Courses for Advanced Undergraduates and Graduates

Note: Junior standing is required for admission to the following courses.

4. **Municipal Government.**—*Prerequisite:* Junior standing.

Pol. Sci. 4	3	Lect.	9	TT	Theatre	Kneier
		A Quiz	2	Th	300 L. H.	Kneier
		B Quiz	3	Th	300 L. H.	Kneier
		C Quiz	9	F	302 L. H.	Kneier
		D Quiz	9	S	300 L. H.	Kneier

6a. **International Law: Law of Peace.**—*Prerequisite:* Open to seniors, graduate students, and law students of junior standing. (3). 2 MWF; 202 L. H. Professor Garner.

7. **American Diplomacy.**—*Prerequisite:* Pol. Sci. 1 or Hist. 3a-3b; junior standing. (3). 11 MWF; 306 L. H. Professor Mathews.

11. **Constitutional Aspects of Social and Industrial Problems.**—*Prerequisite:* 6 hours of political science or economics; junior standing. (3). 9 MWF; 204 L. H. Assistant Professor Hyneman.

14a. **Political Parties: Party History and Issues.**—*Prerequisite:* Junior standing. (3). 11 MWF; 300 L. H. Professor Berdahl.

21. **British Government.**—*Prerequisite:* Graduate or senior standing, or junior standing with 6 hours of political science. (2). 11 TT; 300 L. H. Professor Berdahl.

36a. **Thesis and Honors Course.**—*Prerequisite:* Senior standing. (2-4).* Time to be arranged. Members of the department.

Courses for Graduates

101. **History of Political Theories.**—(1 unit). Twice a week. Time to be arranged. Professor Garner.

103. **Seminar in Political Science and Public Law.**—Once a week. Time to be arranged. Members of the department.

105. **Topics in Constitutional Law.**—(1 unit). Twice a week. Time to be arranged. Professor Mathews.

106a. **Special Topics in International Law.**—(1 unit). Twice a week. Time to be arranged. Professor Garner.

114. **Studies in Political Parties.**—(1 unit). Twice a week. Time to be arranged. Professor Berdahl.

PSYCHOLOGY

For students entering prior to September, 1929

Major: 20 hours chosen from courses announced by the department, excepting 1.

Minors: 20 hours chosen from not more than three of the following subjects: education, physiology, philosophy, sociology, and zoology.

For students entering after September 1, 1929

Major: 20 hours chosen from courses announced by the department, excepting 1. At least 5 hours must be offered in the advanced group.

Minors: 20 hours, excluding those taken during the freshman year, chosen from not more than two of the following subjects: education, mathematics, physiology, sociology, and zoology. At least 8 hours must be offered in each, if two are chosen.

Courses for Undergraduates

1. **Introduction to Psychology.**—*Prerequisite:* One year of university work.

Psychology 1	4	Lect. A	9	MW	218 U. H.	Young
		Quiz A1	8	TT	211 U. H.	
		A2	9	TT	211 U. H.	
		A3	10	TS	212 U. H.	
		A4	10	TT	211 U. H.	
		A5	11	TT	211 U. H.	
		A6	2	TT	207 U. H.	
		A7	3	TT	211 U. H.	
		A8	4	TT	211 U. H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Psychology 1	4	Lect. B	11	MW	218 U. H.	YOUNG
		Quiz B1	8	TT	212 U. H.	
		B2	9	TT	212 U. H.	
		B3	10	TT	203 U. H.	
		B4	11	TS	403 U. H.	
		B5	2	TT	403 U. H.	
		B6	3	TT	403 U. H.	
		B7	4	TT	403 U. H.	
		Lect. C	10	TT	218 U. H.	SULLIVAN
		Quiz C1	8	MW	408 U. H.	
		C2	11	MW	403 U. H.	
		C3	1	MW	311 U. H.	
		C4	2	MW	212 U. H.	
		C5	3	MW	212 U. H.	
		C6	8	ThS	407 U. H.	
		C7	9	ThS	413 U. H.	
		Lect. D	11	TT	218 U. H.	WILLIAMS
		Quiz D1	8	MW	212 U. H.	
		D2	9	MW	211 U. H.	
		D3	10	MW	315 U. H.	
		D4	11	MW	423 N. H.	
		D5	2	MW	315 U. H.	
		D6	3	MW	211 U. H.	
		D7	4	MW	212 U. H.	
		D8	8	TT	408 U. H.	

2. General Psychology.—*Prerequisite:* Psychology 1 or senior standing.

Psychology 2	4	Lect.	9	TT	218 U. H.	HIGGINSON
		Quiz A	8	MW	311 U. H.	
		B	9	MW	212 U. H.	
		C	10	MW	423 N. H.	
		D	2	MW	302 L. H.	
		E	3	MW	302 L. H.	

3. Laboratory Practice (Elementary).—*Prerequisite:* Psychology 1.

Psychology 3	2	A	10, 11	MW	417 U. H.	HIGGINSON and assistants
		B	2, 3	MW	417 U. H.	
		C	10, 11	TT	417 U. H.	
		D	2, 3	TT	417 U. H.	

Courses for Advanced Undergraduates and Graduates

4. Psychological Measurements.—*Prerequisite:* Psych. 1 and 2. (2). 2, 3 TT; 419 U. H. Dr. McALLISTER.

12. Minor Problems (Advanced Laboratory).—*Prerequisite:* Psych. 1, 2, 3. (3). 4 M, other times to be arranged; 419 U. H. Professor WOODROW, Assistant Professors HIGGINSON and WILLIAMS.

16. Genetic Psychology.—*Prerequisite:* Psych. 2. (2). 2 TT; 413 U. H. Dr. SULLIVAN.

18. Perception.—*Prerequisite:* Psych. 2 or 3. (2). 10 TT; 408 U. H. Dr. MÖLLER.

27a. Thesis Course and Honors Course.—*Prerequisite:* Psych. 1, 2, 3, and consent of the department. (2). Time to be arranged; 419 U. H. Professor WOODROW.

28. The Psychology of Motivation.—*Prerequisite:* Psych. 2. (2). 11 TT; 106 Entom. Associate Professor YOUNG.

34. Individual Differences.—*Prerequisite:* Psych. 2 and senior standing. (3). 9 MWF; 302 U. H. Professor WOODROW.

Courses for Graduates

102. Translation of Psychological Treatises.—(½ unit). Time to be arranged; 419 U. H. Professor WOODROW.

103. Research.—(½-2 units).* Time to be arranged; 507 U. H. Professor WOODROW, Associate Professor YOUNG, Assistant Professor HIGGINSON.

105. Seminar.—(1 unit). Time to be arranged; 419 U. H. Professor WOODROW.

108. Quantitative Methods; Theory and Technic.—(1 unit). 4, 5 Th; 419 U. H. Assistant Professor WILLIAMS.

PUBLIC SPEAKING

(See English.)

RAILWAY ADMINISTRATION

(See Transportation.)

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

RAILWAY ENGINEERING

(See also Transportation.)

2. Locomotive Design.—*Prerequisite:* M. E. 16, 64; R. E. 4. (3). Sec. W, 1-4 MWF; 104 T. B.

3. Locomotives.—*Prerequisite:* Junior standing in the College of Engineering. (2). Sec. W, 9 TT; 104 T. B.

5. Railway Laboratory.—*Prerequisite:* M. E. 16, 64; R. E. 4. (3). Sec. W, 1-4 TT, 11 T; 104 T. B.

9. Seminar.—*Prerequisite:* Open to seniors in railway courses only. (1). Sec. W, 11 W; 117 T. B.

25. Railway Development.—*Prerequisite:* Open to students in railway courses only. (2). Sec. UVW, 9 TT; 105 T. B.

31. Railway Yards and Terminals.—*Prerequisite:* C. E. 37, or senior standing in R. E. (3). Sec. U, 10 TT, 9-12 S; 117 T. B.

32. Railway Construction.—*Prerequisite:* Registration in C. E. 60. (3). Sec. U, 9 MF, 1-4 W; 117 T. B.

35. Railway Signaling.—*Prerequisite:* Senior standing in Engineering. (2). Sec. UV, 10 WF; 105 T. B.

59. Electric Railway Principles.—*Prerequisite:* Registration in E. E. 25 and 75. (2). Sec. V, 10 TT; 105 T. B.

62. Electric Railway Laboratory.—*Prerequisite:* R. E. 60. (2). Sec. V, 1-4 TT; 117 T. B.

64. Electric Railway Practice.—*Prerequisite:* E. E. 26 and 76; R. E. 60. (3). Sec. V, 11 MWF; 105 T. B.

99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

102. Locomotive Design.—(1 unit). Time to be arranged. Professor YOUNG.

106. Locomotive Operation.—(1 unit). Time to be arranged. Professor SCHMIDT.

110. Railway Location.—(1 unit). Time to be arranged. Professor KING.

RHETORIC

(See English.)

ROMANCE LANGUAGES AND LITERATURES

For students entering prior to September, 1929

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, 6b, and including at least two semester courses or the equivalent from the group for advanced undergraduates and graduates.

Minors; 20 hours in not more than two of the following subjects: comparative literature, English (excluding Rhet. 1, 2, 12), German, Greek, history, Italian, Latin, Spanish, provided that at least 8 hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, 2a, and including at least two semester courses or the equivalent from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: comparative literature, English (excluding Rhet. 1, 2, 12), French, German, Greek, history, Italian, Latin, provided that at least 8 hours be taken in any subject chosen.

For students entering after September 1, 1929

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, 6b, and all work taken during the freshman year, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours, excluding all courses taken during the freshman year, in not more than two of the following subjects: education, English (excluding Rhet. 1, 2, 12), German, Greek, history, Italian, Latin, philosophy, Spanish, provided that 8 hours be taken in any subject chosen.

Spanish

Major. 20 hours of Spanish, excluding Spanish 1a, 1b, 2a and all courses taken during the freshman year, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors; 20 hours, excluding courses taken during the freshman year, in not more than two of the following subjects: education, English (excluding Rhet. 1, 2, 12), French, German, Greek, history, Italian, Latin, philosophy, provided that at least eight hours be taken in any subject chosen.

A. FRENCH

Courses for Undergraduates

1a. Elementary Course.—For students who have no credit in French.

Note: French 1a and Spanish 1a may not be taken at the same time. Seniors will receive only 3 hours' credit in French 1a.

Subject	Credits	Section	Hours	Days	Room	Instructor
French 1a	4	A1	8	TWTF	133 L. H.	KISSEL
		A2	8	TWTF	214 U. H.	STEEP

Subject	Credits	Section	Hours	Days	Room	Instructor
French 1a	4	A3	8	TWTF	208 Adm.	Balthazard
		A4	8	TWTF	204 Adm.	Alexander
		B1	9	TWTF	304 Adm.	Alexander
		B2	9	TWTF	227 L. H.	Rew
		B3	9	TWTF	106 Entom.	Pietrangeli
		B4	9	TWTF	224 L. H.	Burnier
		C1	10	TWTF	208 Adm.	Pietrangeli
		C2	10	TWTF	227 L. H.	Rew
		C3	10	TWTF	214 U. H.	Smith
		C4	10	TWTF	205 L. H.	Gullette
		D1	11	TWTF	214 U. H.	Kissel
		D2	11	TWTF	318 U. H.	Dismukes
		D3	11	TWTF	204 Adm.	Woodworth
		E1	1	MTWT	102 Entom.	Woodworth
		E2	1	MTWT	208 Adm.	Bussard
		E3	1	MTWT	318 U. H.	Dismukes
		F1	2	MTWT	104 U. H.	Bussard
		F2	2	MTWT	304 Adm.	Alexander
		G1	3	MTWT	102 Entom.	Steep
		G2	3	MTWT	203 U. H.	Alexander
		H	4	MTWT	102 Entom.	Balthazard

1b. Elementary Course (continued).—*Prerequisite:* French 1a or S1a, or one year of high-school French. *Note:* Seniors will receive only 3 hours' credit.

French 1b	4	A1	8	TWTF	224 L. H.	Burnier
		A2	8	TWTF	308 Adm.	Goggin
		C	10	TWTF	224 L. H.	Mayeur
		F1	2	MTWT	303 Adm.	Thénaud
		F2	2	MTWT	224 L. H.	Burnier
		G	3	MTWT	214 L. H.	Mayeur

2a. Modern French.—*Prerequisite:* French 1a-1b, or two years of high-school French.

French 2a	4	†A1	8	TWTF	303 Adm.	Bussard
		A2	8	TWTF	318 U. H.	Pietrangeli
		A3	8	TWTF	136 L. H.	Dismukes
		†B1	9	TWTF	403 U. H.	Roche
		B2	9	TWTF	318 U. H.	Bussard
		B3	9	TWTF	136 L. H.	Pegues
		†C1	10	TWTF	240 L. H.	Dismukes
		C2	10	TWTF	318 U. H.	Pegues
		†D1	11	TWTF	232 L. H.	Burnier
		D2	11	TWTF	307 Adm.	Balthazard
		†E1	1	MTWT	315 U. H.	Steep
		E2	1	MTWT	133 L. H.	Rew
		F	2	MTWT	208 Adm.	Mayeur
		G	3	MTWT	139 L. H.	Rew
		H	4	MTWT	139 L. H.	Mayeur

2b. Modern French.—*Prerequisite:* French 2a, or three years of high-school French.

French 2b	4	B	9	TWTF	208 Adm.	Steep
		C	10	TWTF	235 L. H.	Goggin
		D	11	TWTF	208 Adm.	Goggin
		G	3	MTWT	310 U. H.	Smith

3a. Introduction to French Literature.—*Prerequisite:* French 2a-2b or the equivalent.

French 3a	3	A	8	MWF	211 L. H.	Gullette
		B1	9	MWF	105 L. H.	Jacob
		B2	9	MWF	203-A L. H.	Thénaud
		C	10	MWF	123 L. H.	Oliver
		D	11	MWF	128 L. H.	Roche
		E	1	MWF	109 L. H.	Gullette
		F	2	MWF	206 L. H.	Jacob

6a. Second Year Composition and Conversation.—*Prerequisite:* French 1a-1b.

French 6a	2	C	10	MW	113 U. H.	Kissel
		D	11	MW	304 Adm.	Thénaud
		E	1	TT	304 Adm.	Kissel
		F	2	TT	106 Entom.	Balthazard

7a. Intermediate Composition and Conversation.—*Prerequisite:* French 2a-2b, or French 6a-6b.

French 7a	2	A	8	TT	104 L. H.	Roche
		B1	9	TT	104 L. H.	Kissel
		B2	9	TT	321 L. H.	Thénaud
		C	10	TT	211 L. H.	Roche
		D	11	TT	224 L. H.	Thénaud
		E	1	MW	128 L. H.	Thénaud
		F	2	MW	233 L. H.	Roche

Note: Required of those who desire the departmental recommendation to teach French.

†Primarily for students who expect to go beyond French 2b. More attention is paid to the speaking and hearing of French.

8a. **Advanced Composition and Conversation.**—*Prerequisite:* French 7a-7b. (2). 2 TT; 113 L. H. Mr. ROCHE.

25. **Methods of Teaching French.**—Discussions and laboratory work in phonetics. *Prerequisite:* 20 hours' credit in French, or 16 hours' credit in French plus 20 in Spanish. Not open to students other than seniors except by permission of instructor. (3). 2 MWF; 310 U. H. Dr. GULLETTE.

28a. **Senior Thesis.**—For candidates for honors in French. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Prerequisite: French 3a-3b and junior standing, or senior standing and permission of the instructor

10a. **Survey of French Literature.**

Subject	Credits	Section	Hours	Days	Room	Instructor
French 10a	3	C	10	MWF	128 L. H.	CARNAHAN
		D	11	MWF	113 L. H.	JACOB

17a. **French Drama of the Nineteenth Century.**—(2). 1 TT; 104 L. H. Associate Professor HAMILTON.

24a. **French Drama of the Seventeenth and Eighteenth Centuries.**—(3). 9 MWF; 203 L. H. Professor OLIVER.

32a. **French Novel of the Nineteenth Century.**—(3). 8 MWF; 104 L. H. Dr. JACOB.

33a. **La Littérature Contemporaine.**—(In French). (2). 11 TT; 104 L. H. Professor MICHAUD.

Courses for Graduates

101. **Old French Literature.**—(1 unit). 9 TT. 205 L. H. Professor OLIVER.

103. **Seventeenth Century Prose Writers.**—(1 unit). 4 TT; 204-A L. H. Professor OLIVER.

127. **French Romanticism.**—(1 unit). 3 TT; 425-A Lib. Professor CARNAHAN.

129. **Research Problems in French Romanticism.**—(½-1 unit).* 4 T; 425-A Lib. Professor CARNAHAN.

132. **French Lyric Poetry.**—(1 unit). 3 MW; 222 L. H. Professor MICHAUD.

144. **Le Réalisme et le Naturalisme français.**—(In French). (1 unit). 3, 4 F; 120 L. H. Professor MICHAUD.

195. **Seminar.**—Research work in preparation for theses in French. (1-2 units).* Members of the department.

B. ITALIAN

Courses for Undergraduates

1a. **Elementary Course.**—*Prerequisite:* Sophomore standing.

Italian 1a	4	B	9	TWTF	128 L. H.	WELCH
		D	11	TWTF	136 L. H.	PIETRANGELI
		F	2	MTWT	128 L. H.	VAN HORNE

2a. **Modern Italian Authors.**—*Prerequisite:* Italian 1a-1b. (3). 11 MWF; 219 L. H. Miss WELCH.

Course for Advanced Undergraduates

3a. **Dante.**—*Prerequisite:* Italian 1a-1b; junior standing. (2). 2 TT; 219 L. H. Miss WELCH.

Courses for Graduates

146. **Modern Italian Literature.**—(1 unit). Time to be arranged. 216 L. H. Associate Professor VAN HORNE.

195. **Seminar.**—Research work in preparation for theses in Italian. (1-2 units).* Members of the department.

C. SPANISH

Courses for Undergraduates

1a. **Elementary Course.**—For students who have no credit in Spanish. *Note:* Spanish 1a and French 1a may not be taken at the same time. Seniors will receive only 3 hours' credit in Spanish 1a.

Spanish 1a	4	A1	8	TWTF	128 L. H.	DALLERA
		A2	8	TWTF	304 Adm.	AVILÉS
		A3	8	TWTF	235 L. H.	ABBAS
		A4	8	TWTF	232 L. H.	UTLEY
		B1	9	TWTF	311 L. H.	MCLAIN
		B2	9	TWTF	232 L. H.	SÁENZ
		B3	9	TWTF	304 L. H.	KENDALL
		B4	9	TWTF	240 L. H.	ABBAS
		C1	10	TWTF	114 L. H.	SWAIN
		C2	10	TWTF	304 Adm.	ELLIES
		C3	10	TWTF	105 L. H.	DALLERA
		C4	10	TWTF	133 L. H.	WELCH

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Spanish 1a	4	D1	11	TWTF	139 L. H.	SÁENZ
		D2	11	TWTF	312 Adm.	YOUNG
		D3	11	TWTF	105 L. H.	UTLEY
		D4	11	TWTF	238 L. H.	SMITH
		E1	1	MTWT	312 U. H.	YOUNG
		E2	1	MTWT	235 L. H.	UTLEY
		E3	1	MTWT	214 U. H.	GOGGIN
		E4	1	MTWT	303 Adm.	KENDALL
		F1	2	MTWT	227 L. H.	KIDDER
		F2	2	MTWT	136 L. H.	MCLAIN
		F3	2	MTWT	232 L. H.	AVILÉS
		G1	3	MTWT	240 L. H.	KIDDER
		G2	3	MTWT	211 L. H.	SWAIN
		H	4	MTWT	233 L. H.	BURNIER

1b. Elementary Course (continued).—*Prerequisite:* Spanish 1a or S1a, or one year of high-school Spanish. *Note:* Seniors will receive only 3 hours' credit.

Spanish 1b	4	A	8	TWTF	139 L. H.	KENDALL
		B	9	TWTF	235 L. H.	UTLEY
		C1	10	TWTF	207 Adm.	YOUNG
		C2	10	TWTF	203-A L. H.	KENDALL
		F1	2	MTWT	214 U. H.	SMITH
		F2	2	MTWT	139 L. H.	DALLERA
		G	3	MTWT	114 L. H.	MCLAIN

2a. Modern Spanish.—*Prerequisite:* Spanish 1a-1b, or two years of high-school Spanish.

Spanish 2a	4	†A1	8	TWTF	240 L. H.	KIDDER
		A2	8	TWTF	302 L. H.	MCLAIN
		†B1	9	TWTF	139 L. H.	KIDDER
		B2	9	TWTF	326 L. H.	AVILÉS
		C1	10	TWTF	136 L. H.	HAMILTON
		C2	10	TWTF	139 L. H.	LUNDEBERG
		D	11	TWTF	227 L. H.	AVILÉS
		E	1	MTWT	240 L. H.	LUNDEBERG
		F	2	MTWT	203-A L. H.	SWAIN
		G	3	MTWT	136 L. H.	BURNIER

2b. Modern Spanish.—*Prerequisite:* Spanish 2a, or 3 years of high-school Spanish.

Spanish 2b	4	D	11	TWTF	235 L. H.	ELLIES
		G	3	MTWT	304 Adm.	YOUNG

3a. Introduction to Spanish Literature.—*Prerequisite:* Spanish 2a-2b, or the equivalent.

Spanish 3a	3	B	9	MWF	133 L. H.	LUNDEBERG
		D	11	MWF	133 L. H.	BALSEIRO
		F	2	MWF	133 L. H.	LUNDEBERG

5a. Commercial Spanish.—*Prerequisite:* Spanish 2a-2b or the equivalent.

Spanish 5a	2	B	9	TT	133 L. H.	SWAIN
		D	11	TT	120 L. H.	DALLERA
		E	1	MW	113 L. H.	ELLIES

7a. Intermediate Composition and Conversation.—*Prerequisite:* Spanish 2a-2b, or the equivalent.

Spanish 7a	2	A	8	MW	227 L. H.	SÁENZ
		C	10	TT	120 L. H.	SÁENZ
		F1	2	TT	123 L. H.	ELLIES
		F2	2	MW	104 L. H.	ELLIES

Note: Required of those who are given the departmental recommendation to teach Spanish.

8a. Advanced Composition and Conversation.—*Prerequisite:* Spanish 7a-7b. (2). 8 TT; 123 L. H. Mr. SÁENZ.

28a. Senior Thesis.—For candidates for honors in Spanish. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Prerequisite: Spanish 3a-3b and junior standing, or senior standing and permission of the instructor.

10a. Survey of Spanish Literature.—(3). 11 MWF; 302 L. H. Associate Professor HAMILTON.

11a. Masterpieces of the Golden Age.—Don Quixote, Calderon, Lope de Vega. (2). 11 TT; 205 L. H. Associate Professor VAN HORNE.

17a. Modern Spanish Drama.—(2). 10 TT; 303-A L. H. Assistant Professor BALSEIRO.

Courses for Graduates

130. Spanish Literature in the Sixteenth Century.—(1 unit). Time to be arranged. 216 L. H. Associate Professor VAN HORNE.

134. Spanish Literature in the Eighteenth Century.—(1 unit). Time to be arranged. 214 L. H. Associate Professor HAMILTON.

137. La Crítica Literaria en España.—(In Spanish). (1 unit). Time to be arranged. 214 L. H. Assistant Professor BALSEIRO.

†Primarily for students who expect to go beyond Spanish 2b. More attention is paid to the speaking and hearing of Spanish.

195. Seminar.—Research work in preparation for theses in Spanish. (1-2 units).* Members of the department.

SCANDINAVIAN LANGUAGES AND LITERATURE

(See English.)

THE SOCIAL SCIENCES

(See Economics, History, Political Science, and Sociology.)

SOCIOLOGY

For students entering prior to September, 1929

Major: 20 hours from any courses in the department.

Minors: 20 hours from any two of the following subjects: history, philosophy, psychology, economics, political science.

Note: Sociology 1 is regularly a prerequisite to all other courses in the department. Sociology 2 is required of all sophomores registering for other courses in the department beyond Sociology 1, and of all juniors majoring in the department. In subsequent semesters Sociology 2 will be required of all students registering for Sociology 4, 8, 9, 10, 17, 27, and 28; and Sociology 4 will be required of all students registering for Sociology 8, 10, 27, and 28.

For students entering after September 1, 1929

Major: 20 hours from any courses in the department.

Minors: 20 hours, excluding courses taken during the freshman year, from any two of the following subjects: History, philosophy, psychology, economics, political science. At least 8 hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

1. Principles of Sociology.—*Prerequisite:* Junior standing, or sophomore standing with the principles of economics, or 5 hours of history. Sophomores are received in Sections A, D, F, J, M, and N.

Subject	Credits	Section	Hours	Days	Room	Instructor
Sociol. 1	3	A	8	MWF	306 L. H.	Houghton
		B	8	MWF	326 L. H.	Timmons
		C	8	TTS	334 L. H.	Albig
		D	9	MWF	306 L. H.	Voelker
		E	9	MWF	334 L. H.	Albig
		F	9	TTS	334 L. H.	Hiller
		G	10	MWF	326 L. H.	Voelker
		H	10	MWF	306 L. H.	Tylor
		J	11	MWF	340 L. H.	Houghton
		K	11	MWF	326 L. H.	Albig
		L	1	MWF	308 L. H.	Voelker
		M	2	MWF	306 L. H.	Timmons
		N	3	MWF	306 L. H.	Voelker

2. Social Factors in Personality.—*Prerequisite:* Sociol. 1. No seniors will be admitted to this course except those who need it as a concurrent requirement for Sociology 4 or 8.

Sociol. 2	3	A	8	MWF	304 L. H.	Ahrens
		B	9	MWF	340 L. H.	Ahrens
		C	9	TTS	308 L. H.	Ahrens

Courses for Advanced Undergraduates and Graduates

3. Social Evolution.—*Prerequisite:* Sociol. 1 and junior standing. (3). 11 MWF. 308 L. H. Mr. Ahrens.

4. Social Control.—*Prerequisite:* Sociol. 1 and 2. The latter may be taken concurrently with this course.

Sociol. 4	2	A	10	TT	334 L. H.	Albig
		B	11	TT	334 L. H.	Albig

6. Urban Sociology.—*Prerequisite:* Sociol. 1 and junior standing.

Sociol. 6	3	A	8	MWF	334 L. H.	Tylor
		B	2	MWF	334 L. H.	Tylor

8. Charities.—*Prerequisite:* Sociol. 1 and Sociol. 2 or 4 and economic theory or 5 hours of history. Sociol. 2 or 4 may be taken concurrently with this course.

Sociol. 8	3	A	9	MWF	321 L. H.	Timmons
		B	3	MWF	308 L. H.	Timmons

9. Criminology.—*Prerequisite:* Sociol. 1 and senior standing.

Sociol. 9	3	A	10	MWF	304 L. H.	
		B	4	MWF	334 L. H.	

17. Methods of Sociological Research.—*Prerequisite:* 8 hours credit in sociology. Sociol. 17 is required of all graduate majors in sociology. (3). 10 TT and two hours of supervised research weekly at time to be arranged; 326 L. H. Assistant Professor Hiller.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

30. Races of Mankind.—*Prerequisite:* Sociol. 1 and junior standing. (3). 11 MWF; 334 L. H. Assistant Professor KELLY.

40. Ethnology of the American Indians.—*Prerequisite:* Sociol. 1 and Sociol. 3. (3). 1 MWF; 334 L. H. Assistant Professor KELLY.

42. Early Civilizations.—*Prerequisite:* Sociol. 1 and junior standing. (3). 10 MWF; 334 L. H. Assistant Professor KELLY.

90a. Honors Course.—For senior majors in sociology. Consent of the instructor required. (2). Arrange. Professor TAFT.

Courses for Graduates

106. Urban Communities and Urbanization.—(1 unit). Two hours per week. Arrange; 201 L. H. Assistant Professor TYLOR.

110. Population.—(1 unit). Two hours per week. Arrange; 201 L. H. Professor TAFT.

150. Seminar.—Preparation of theses. (½-2 units).* Arrange. Members of the department.

TRANSPORTATION

(See also Railway Engineering.)

1. Economics of Transportation.—*Prerequisite:* Econ. 1, junior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Trans. 1	3	A1 Quiz	8	TTS	305 Com.	ORLAND
		A2 Quiz	8	TTS	106 Com.	HAINES
		B1 Quiz	9	MWF	306 Com.	ORLAND
		B2 Quiz	9	TTS	106 Com.	HAINES
		C Quiz	10	MWF	306 Com.	ORLAND
		D Quiz	10	TTS	306 Com.	ORLAND
		E Quiz	11	MWF	106 Com.	HAINES
		F Quiz	1	MWF	101 Com.	LOCKLIN
		G Quiz	2	MWF	101 Com.	LOCKLIN

Courses for Advanced Undergraduates and Graduates

8. Railroad Organization.—*Prerequisite:* Junior standing. (2). 11 TT; 100 Com. Mr. ORLAND.

10. Railroad Rates.—*Prerequisite:* Trans. 1. (3). 9 TTS; 100 Com. Assistant Professor LOCKLIN.

22. Ocean Shipping.—*Prerequisite:* Trans. 1. (3). 9 MWF; 322 Com. Professor LITMAN.

Courses for Graduates

100. Railroad Problems.—(1 unit). Time to be arranged. Assistant Professor LOCKLIN.

ZOOLOGY

For students entering prior to September, 1929

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9.

Minors; 20 hours chosen from one or two of the following subjects: animal husbandry, bacteriology, botany, chemistry, entomology, physics, physiology, psychology, paleontology, and physiography.

Note: Credit for seniors who take Zoology 1, 2 will be reduced one hour.

For students entering after September 1, 1929

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and all courses taken during the freshman year, and including Zoology 2, 3, 4, 5 (or 7), and 9. At least five hours must be offered from the advanced group.

Minors: 20 hours, excluding courses taken during the freshman year, chosen from one or two of the following subjects: animal husbandry, bacteriology, botany, chemistry, entomology, geology, physics, physiology, psychology. At least 8 hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

1. General Zoology.—*Note:* Seniors will receive 4 hours' credit only.

Zool. 1	5	Lect.	9	MWF	228 N. H.	THOMAS
		E1 Quiz	8	W	423 N. H.	KUDO
		E2 Quiz	8	W	241 N. H.	LUCE
		E3 Quiz	8	W	425 N. H.	and
		F1 Quiz	8	F	241 N. H.	assistants
		F2 Quiz	8	F	425 N. H.	
		F3 Quiz	8	F	423 N. H.	
		G1 Quiz	1	T	423 N. H.	
		G2 Quiz	1	T	425 N. H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Zool. 1	5	G3 Quiz	1	T	229 N. H.	
		H1 Quiz	1	Th	229 N. H.	
		H2 Quiz	1	Th	423 N. H.	
		K1 Quiz	10	W	229 N. H.	
		K2 Quiz	10	F	423 N. H.	
		L1 Quiz	1	M	425 N. H.	
		L2 Quiz	1	M	423 N. H.	
		A1 Lab.	8, 9	TTS	312 N. H.	
		A2 Lab.	8, 9	TTS	310 N. H.	
		B1 Lab.	10, 11	MWF	312 N. H.	
		B2 Lab.	10, 11	MWF	310 N. H.	
		B3 Lab.	10, 11	MWF	418 N. H.	
		C1 Lab.	1, 2	MWF	312 N. H.	
		C2 Lab.	1, 2	MWF	310 N. H.	
		C3 Lab.	1, 2	MWF	418 N. H.	
		D1 Lab.	10, 11	TTS	312 N. H.	
		D2 Lab.	10, 11	TTS	418 N. H.	
		M1 Lab.	1, 2, 3	TT	312 N. H.	
		M2 Lab.	1, 2, 3	TT	418 N. H.	

2. **Vertebrate Zoology and Comparative Anatomy.**—*Prerequisite:* Zoology 1. *Note:* Seniors will receive 4 hours' credit only.

Zool. 2	5	Lect.	10	MW	228 N. H.	ADAMS
		A Lab.	8, 9	MWF	330 N. H.	CAHN
		B Lab.	8, 9	TTS	330 N. H.	and
		(C)[1] Lab.	1, 2	MWF	330 N. H.	assistants
		D Quiz	8	TT	425 N. H.	
		E Quiz	3	MW	425 N. H.	
		F Quiz	4	TT	425 N. H.	

3. **Microscopical Technic and Vertebrate Embryology.**—*Prerequisite:* Zoology 1, 2.

Zool. 3	5	Lect.	1	TT	228 N. H.	SHUMWAY
		A Lab.	8, 9	MWF	323 N. H.	ADAMSTONE
		B Lab.	10, 11	MWF	323 N. H.	and
		C Lab.	1, 2	MWF	323 N. H.	assistants
		D Lab.	3, 4	MWF	323 N. H.	
		(E)[1] Lab.	8, 9	TTS	323 N. H.	
		(F)[1] Lab.	10, 11	TTS	323 N. H.	
		1 Quiz	10	T	229 N. H.	
		2 Quiz	10	Th	229 N. H.	
		3 Quiz	2	T	229 N. H.	
		4 Quiz	2	Th	229 N. H.	
		(5)[1] Quiz	1	M	229 N. H.	
		(6)[1] Quiz	2	M	229 N. H.	

7. **Evolution.**—With special reference to the biological processes in which man is involved. *Prerequisite:* 30 hours of university work, including one university semester of laboratory science or its equivalent in high-school courses.

Zool. 7	3	Lect.	11	TT	228 N. H.	ZELENY
		A Quiz	2	F	229 N. H.	and others
		B Quiz	11	S	229 N. H.	
		C Quiz	10	M	229 N. H.	
		D Quiz	9	T	423 N. H.	
		E Quiz	8	F	229 N. H.	

15. **Genetics.**—(For students in the College of Agriculture). *Prerequisite:* Two years of university work and Botany 1 or 5, and Zoology 1 or Entomology 1.

Zool. 15	3	Lect.	11	MW	228 N. H.	ZELENY
		A Disc.	9	Th	229 N. H.	and
		B Disc.	11	F	241 N. H.	assistants
		C Disc.	11	Th	425 N. H.	

Courses for Advanced Undergraduates and Graduates

11. **Animal Ecology and Geography.**—*Prerequisite:* One year of Zoology and senior standing.

Zool. 11	3-5[2]	Lect.	4	MWF	229 N. H.
		Lab. or Field	8-12	S	202 Viv.

17. **Field Zoology.**—*Prerequisite:* One year in zoology. (3). 2, 3, 4 TT; 420 N. H. Professor VAN CLEAVE.

19. **Advanced Ornithology.**—*Prerequisite:* Zool. 1, 2, and 16. (2 or 3).* Assistant Professor CAHN.

31. **Introduction to Parasitology.**—*Prerequisite:* Zool. 1 and 2 and junior standing. (2). 1, 2 TT; 418 N. H. Assistant Professor THOMAS.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Will not be opened until other sections have been filled.

[2]3 hours' credit requires the lectures and field all day September 27, October 4, October 25 and one selected day. 4 and 5 hours' credit require additional field work, or the laboratory work, or both as arranged for the individual.

63. Ontogeny of Vertebrates.—*Prerequisite:* One year of zoology and senior standing. (2-4).* Time to be arranged. Professor SHUMWAY.

22. Morphology of Vertebrates.—*Prerequisite:* Zoology 3.

Subject	Credits	Section	Hours	Days	Room	Instructor
Zool. 22	2-4*	Lect.	4	W	419 N. H.	ADAMS
		Lab.	1, 5	TT	419 N. H.	

20a. Current Investigation.—Required of all graduate students majoring in zoology; may be elected by seniors majoring in zoology with consent of instructor. (1). 3 F; 229 N. H. Members of the department.

21a. Introduction to Zoological Research.—*Prerequisite:* One year in zoological courses and senior standing. (2-5).* Time to be arranged. 314 N. H. Professor WARD.

8a. Thesis Investigation.—*Prerequisite:* Two years of Zoology. (3-5).* Time to be arranged. Members of the department.

Courses for Graduates

Students entering on graduate study in the department of zoology should have had two years of undergraduate work in the subject. When chosen as a minor the courses listed for graduates and undergraduates must be preceded by at least one full year's undergraduate work in zoology. Work done at other institutions will be evaluated on conference with the head of the department.

107. Parasitology.—(1 unit). 3 MW; 229 N. H. Professor WARD.

111. Experimental and Field Ecology.—(½-2 units).* Time to be arranged. Professor SHELFORD.

115. Factors of Individual and Racial Development.—(1 unit). Twice a week. Time to be arranged. Professor ZELENY.

117. Advanced Field and Faunistic Zoology.—(1 unit). 8, 9 TT, 8-12 S; 420 N. H. Professor VAN CLEAVE.

Individual Research Courses

121. Invertebrate Morphology and Parasitology.—(1-2 units).* Time to be arranged. Professor WARD.

122. Vertebrate Morphology.—(1-2 units).* Time to be arranged. Assistant Professor ADAMS.

123. Faunistic and Systematic Zoology.—(1-2 units).* Time to be arranged. Professor VAN CLEAVE.

124. Experimental Zoology and Genetics.—(1-2 units).* Time to be arranged. Professor ZELENY.

125. Animal Ecology and Behavior.—Time and credits to be arranged. Professor SHELFORD.

126. Embryology and Cytology.—(1-2 units).* Time to be arranged. Professor SHUMWAY.

ANATOMY

1. Anatomy.—(For students in Athletic Coaching only.)

Anat. 1	3	Lect.	2	T	228 N. H.	CAHN
		A1 Quiz	8	F	229 N. H.	and
		Lab.	8, 9	MW	405 N. H.	assistants
		A2 Quiz	9	F	303 Chem.	
		Lab.	8, 9	MW	408 N. H.	
		B1 Quiz	8	S	229 N. H.	
		Lab.	8, 9	TT	405 N. H.	
		B2 Quiz	9	S	229 N. H.	
		Lab.	8, 9	TT	408 N. H.	
		C1 Quiz	10	F	229 N. H.	
		Lab.	10, 11	MW	405 N. H.	
		C2 Quiz	11	F	423 N. H.	
		Lab.	10, 11	MW	408 N. H.	
		D1 Quiz	10	S	423 N. H.	
		Lab.	10, 11	TT	405 N. H.	
		D2 Quiz	11	S	423 N. H.	
		Lab.	10, 11	TT	408 N. H.	
		E1 Quiz	1	F		
		Lab.	1, 2	MW	405 N. H.	
		E2 Quiz	2	F		
		Lab.	1, 2	MW	408 N. H.	
		(F1)[1] Quiz	3	F		
		Lab.	3, 4	MW	405 N. H.	
		(F2)[1] Quiz	4	F		
		Lab.	3, 4	MW	408 N. H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Will not be opened until other sections have been filled.

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UNIVERSITY OF ILLINOIS

TIME TABLE

SECOND SEMESTER
1930-1931

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REGISTRATION CALENDAR

SECOND SEMESTER, 1930-31

Feb. 6-7, Fri.-Sat.	Registration for Graduate School
Feb. 9-10, Mon.-Tues.	Registration Days
Feb. 11, Wed., 8 a.m.	**Instruction begun**
Feb. 14, Sat.	Time limit on special examinations expires
Feb. 16, Mon., 12 m.	Latest date for change of study-lists without fee
Feb. 21, Sat.	Latest date for rebates in full
Mar. 2, Mon.	Latest day for application for Graduate Scholarships a Fellowships, 1931-32
April 2, Thurs., 11 a. m.	**Easter recess begun**
April 7, Tues., 1 p. m.	**Instruction resumed**
April 11, Sat., 12 m.	Latest date for removal by seniors of first semes failures, and for substitutions in courses Latest date for rebates of one-half fees
April 24, Fri.	Preliminary examination in French
May 1, Fri.	Latest day for filing applications for master's degree t be conferred in June Preliminary examination in German
May 15, Fri.	Latest day for filing applications for master's degree be conferred in August
May 20, Wed.	Latest day for receipt by the Dean of the Grad School of certified copies of doctor's theses
May 21, Thurs.	Special examinations not allowed after this date
May 28, Thurs.	Military Day
May 30, Sat.	Latest day for acceptance of undergraduate theses
June 2, Tues.	**Final examinations begun**
June 3, Wed.	Latest day for receipt by the Dean of the Grad School of certified copies of master's theses
June 10, Wed.	**Final examinations ended**
June 14, Sun.	Baccalaureate address
June 15, Mon.	Class Day
June 16, Tues.	Alumni Day
June 17, Wed.	Sixtieth Annual Commencement

SUMMER SESSION, 1931

June 22, Mon.	Registration Day
June 23, Tues.	**Instruction begun**
Aug. 14-15, Fri.-Sat.	**Final examinations**

FIRST SEMESTER, 1931-32

Sept. 18-19, Fri.-Sat.	Registration Days for Freshmen
Sept. 18-19, Fri.-Sat.	Registration Days for the Graduate School
Sept. 21-22, Mon.-Tues.	Registration Days for Upperclassmen

DESCRIPTION OF COURSES AND TIME TABLE

EXPLANATION

The arrangement of subjects in the following Time Table is alphabetical. The connections of allied departments are indicated by cross references.

Following the description of each course of instruction will be found the requirements, if any, for admission to that particular course. The sequence indicated by these prerequisites must be followed. For instance, under Art and Design 14b, Applied Design, the prerequisites given are Art and Design 12 and 14a. These two courses must be completed before Course 14b may be taken.

If a course not required for graduation is selected by fewer than five students it may be withdrawn for the semester.

Graduate courses are numbered upwards from 100.

Credit is reckoned, *for undergraduate students*, in *semester hours*, or simply *hours*. An *hour* is one class period a week for one semester or the equivalent in laboratory, shop, or drawing room.

The number of hours for which the course counts is shown in the parentheses after each course, except where the course, credits, sections, etc., are tabulated, thus, (2).

Credit for first-year graduate students, candidates for the master's degree, is counted in units. A unit course is one which requires ten hours of time per week through one semester, irrespective of the distribution of that time in class work, laboratory work, and private study; four such courses or their equivalent constitute a full minimum program for one semester. The unit values of graduate courses (numbered 100 and upwards) are indicated in the following pages. Courses of the intermediate groups "for graduates and advanced undergraduates" are in general (unless otherwise specified by the department concerned) evaluated as follows for graduate credit: (a) courses open only to students having at least senior standing, 1 unit for a 4-hour or a 5-hour course, ½ unit for a 1-hour, 2-hour, or 3-hour course; (b) courses open to juniors, ½ unit for a 4-hour or 5-hour course, ¼ unit for a 1-hour, 2-hour, or 3-hour course.

For second-year graduate students, candidates for the doctor's degree, no record of units is kept.

The various University buildings are designated by the following abbreviations:

Administration	Adm.
Agricultural Building	Agr.
Animal Pathology Laboratory	An. Path. L.
Applied Mechanics Laboratory	L. A. M.
Architectural Building	Arch.
Armory	Arm.
Art and Design Annex	A. D. Annex
Astronomical Observatory	Obs.
Botany Annex	Bot. Annex
Ceramics Laboratory	Cer.
Chemistry Annex	Chem. Annex
Chemistry Building	Chem.
Civil Engineering Surveying Building	C. E. S. B.
Commerce Building	Com.
Dairy Manufactures Building	D. Mfrs.
Electrical Engineering Laboratory	E. E. L.
Engineering Hall	E. H.
Entomology Building	Entom.
Farm Mechanics Building	F. M.
Floricultural Greenhouses	F. G.
Genetics Building	Gen. Bldg.
Gymnasium Annex	Gym. Annex
Highway Laboratory	H. L.
Horticultural Building	H. B.
Horticultural Field Laboratory	H. F. Lab.
Law Building	Law
Library	Lib.
Lincoln Hall	L. H.
Materials Testing Laboratory	M. T. L.
Mathematics Building	Math.
Mechanical Engineering Laboratory	M. E. L.
Men's New Gymnasium	New Gym.
Men's Old Gymnasium	Old Gym.
Metal Shop	M. S.
Mining Engineering Laboratory	Min. L.
Morrow Hall	M. H.
Natural History Hall	N. H.
New Agricultural Building	New Agr.
Physics Laboratory	P. L.
Smith Memorial Hall	S. M. H.
Stock Judging Pavilion	S. P.
Transportation Building	T. B.
University Hall	U. H.
University High School	U. H. S.
Vegetable Greenhouse	V. G.
Vivarium Building	Viv.
Woman's Building	W. B.
Wood Shops	W. S.

ACCOUNTANCY

(See Business Organization and Operation.)

AGRICULTURAL COLLEGE EXTENSION

6. **Agricultural Extension.**—*Prerequisite:* 60 hours of university work. (2). 10 TT; 111 New Agr. Assistant Professor J. C. SPITLER.

AGRICULTURAL EDUCATION

(See Education.)

AGRONOMY

Courses for Undergraduates

8. **Forage Crops.**—*Prerequisite:* Agron. 25.

Subject	Credits	Section	Hours	Days	Room	Instructor
Agron. 8	3	Lect.	11	MW	205 Agr.	PIEPER
		Quiz	11	F	205 Agr.	

18b-k. **Investigation with Thesis.**—(Continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to thesis problem; approval of the head of the department. (5). Arrange.

(b) **Soil Fertility.**—Professor DETURK.

(d) **Soil Physics.**—Professor R. S. SMITH.

(f) **Soil Biology.**—Associate Professor SEARS.

(h) **Plant Breeding.**—Professor WOODWORTH.

(k) **Field Crops.**—Professor BURLISON, Associate Professor DUNGAN.

25. **Farm Crops.**—*Prerequisite:* Bot. 5.

Agron. 25	3	Lect.	3	MW	205 Agr.	PIEPER
		A Lab.	1, 2	T	600 Agr.	
		B Lab.	10, 11	Th	600 Agr.	
		Quiz	3	F	205 Agr.	

28. **Soils.**—*Prerequisite:* Chem. 5; Geol. 44. (Local field trip, cost not to exceed $1.)

Agron. 28	5	A Lect.[1]	8	MWF	205 Agr.	WIMER and CRANE
		A1 Quiz	8	TT	205 Agr.	
		A2 Quiz	8	TT	302 Agr.	
		B Lect.[1]	10	MWF	205 Agr.	
		B1 Quiz	10	TT	205 Agr.	
		B2 Quiz	10	TT	302 Agr.	
		A Lab.	1, 2, 3	Th	650 Agr.	
		B Lab.	1, 2, 3	F	650 Agr.	
		C Lab.	8, 9, 10	S	650 Agr.	

Courses for Advanced Undergraduates and Graduates

7. **Advanced Crop Production.**—*Prerequisite:* Agron. 25. (3). Lect., 2 MWF; 302 Agr. Professor BURLISON, Associate Professor DUNGAN.

10. **Special Work in Soil Physics.**—*Prerequisite:* Agron. 28. (3). Lect., 1 MWF; 205 Agr. Professor R. S. SMITH.

11. **Soil Biology.**—*Prerequisite:* Agron. 28; Bact. 5a and 5b, or 20.

Agron. 11	5	Lect.	8	MW	302 Agr.	SEARS
		Quiz	8	F	302 Agr.	
		Lab.	9, 10	MWF	322 Agr.	

29. **Field Plot Technic.**—*Prerequisite:* Math. 22, senior standing. (3). Lect., 3 MWF; 110 Agr. Professor WOODWORTH.

Courses for Graduates

104. **Seminar in Agronomy.**—(¼ unit). Once a week. Heads of divisions.

112. **Advanced Plant Breeding.**—(1 unit). Twice a week. Arrange. 110 Agr. Professor WOODWORTH.

114. **Crop Production.**—(1 unit). Once a week. Arrange. Professor BURLISON, Associate Professor DUNGAN.

118. **Research.**—(½ to 4 units).* Arrange.

(a) **Soil Fertility.**—Professor DETURK.

(b) **Soil Physics.**—Professor R. S. SMITH.

(c) **Soil Biology.**—Professor DETURK.

(d) **Plant Breeding.**—Professor WOODWORTH.

(e) **Field Crops.**—Professor BURLISON, Associate Professor DUNGAN.

119. **Experiment Station Problems.**—See Animal Husbandry 103. Professor MUMFORD.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

[1]Corresponding sections in lecture and quiz should be scheduled.

ANATOMY

(See Zoology.)

ANIMAL HUSBANDRY

Courses for Undergraduates

1. Introduction to Animal Husbandry.—Required of students not having had livestock judging in high school. (No credit in this course allowed to juniors and seniors.) (2). 3, 4 TT; S. P. Mr. CRAWFORD, Mr. YOUNG.

6. Livestock Management.—*Prerequisite:* An. Husb. 21. It is recommended that Farm Management 1 be taken previously or concurrently. (5). 10 MTWTF; S. P. Professor EDMONDS.

9b-v. Investigation with Thesis.—(Continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to thesis problem, and approval of the head of the department. (5). Arrange.

(b) **Beef Cattle.**—Professor RUSK, Associate Professor SNAPP.

(d) **Horses.**—Professor EDMONDS.

(f) **Sheep.**—Assistant Professor KAMMLADE.

(h) **Swine.**—Professor CARROLL.

(k) **Poultry.**—Professor CARD.

(m) **Animal Nutrition.**—Professor MITCHELL.

(p) **Animal Genetics.**—Associate Professor ROBERTS.

(r) **Animal Pathology.**—Professor GRAHAM.

(t) **Meats.**—Associate Professor BULL.

(v) **Marketing.**—Associate Professor ASHBY.

12. Special Problems.—*Prerequisite:* 90 hours of university work; approval of the head of the department. (5). Arrange. Members of the department.

21. Principles of Feeding.—*Prerequisite:* Chem. 5; An. Husb. 1.

Subject	Credits	Section	Hours	Days	Room	Instructor
An. Husb. 21	3	Lect.	2	W	553 Agr.	BULL and others
		A Quiz	2	MF	553 Agr.	
		B Quiz	2	MF	Meat Lab.	

35. Animal Hygiene, Sanitation, Contagious Diseases of Farm Animals.—*Prerequisite:* An. Husb. 34; Bact. 5a. (2). 3 TT; An. Path. L. Professor GRAHAM.

37. Poultry Management.—*Prerequisite:* An. Husb. 21. (3). 9 MWF; 316 New Agr. Professor CARD, Mr. SLOAN.

Courses for Advanced Undergraduates and Graduates

10. Meat.—*Prerequisite:* An. Husb. 21 and 36. The class will visit a Chicago packing house. The cost of the trip will be about $15. (3). 1, 2, 3 TT; 128 Agr. Associate Professor BULL, Mr. OLSON.

27. Sheep Husbandry.—*Prerequisite:* An. Husb. 3 and 6. (3). 11 TT; Lab. Arrange; 111 S. P. Assistant Professor KAMMLADE.

28. History of Breeds of Live Stock.—*Prerequisite:* An. Husb. 3. It is recommended that this course precede An. Husb. 22. (3). 3 MWF; 316 New Agr. Heads of divisions.

29. Systems of Live Stock Farming.—*Prerequisite:* Farm Man. 1; An. Husb. 6. The cost of farm inspection trips will be about $10. (2). 8 TT; 331 New Agr. Associate Professor WILCOX.

31. Advanced Course in Animal Nutrition.—*Prerequisite:* 90 hours of university work, including An. Husb. 7. (3). Time to be arranged. Professor MITCHELL.

32. Marketing Live Stock.—*Prerequisite:* 90 hours of university work; An. Husb. 3. *Prerequisite or concurrent:* An. Husb. 6. Inspection trip to a terminal market required; estimated cost of trip, $18. (2). 9 TT; 316 New Agr. Associate Professor ASHBY.

33. Horse Production.—*Prerequisite:* An. Husb. 3 and 6. (3). 1 MWF; S. P. Professor EDMONDS.

39. Poultry Production.—*Prerequisite:* An. Husb. 37. (3). Lect., 10 MW; Lab., 8, 9 S; 316 New Agr. Professor CARD.

41. Animal Genetics.—*Prerequisite:* Zool. 15. (3). 2 MWF; Gen. Bldg. Associate Professor ROBERTS.

Courses for Graduates

103. Experiment Station Problems.—Once a week. (½ unit). Time to be arranged. Professor MUMFORD.

112. Research.—Investigations along the following lines:

(a) **Economic Factors in Meat Production.**—Professor RUSK.

(b) **Systems of Live Stock Farming.**—Associate Professor CASE.

(d) **Animal Nutrition.**—Professor MITCHELL.

(e) **Animal Genetics.**—Associate Professor ROBERTS.

(f) **Poultry Husbandry.**—Professor CARD.

(a), one to three times a week; (b), twice a week; (d), (e), (f), three to five times a week. (½ to 2 units).* These courses may be taken during the summer by special permission.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

117. Animal Genetics.—Two to five times a week. (1 unit). Associate Professor ROBERTS.

118. Animal Nutrition Seminar.—Two hours a week. (½ unit). Professor MITCHELL.

119. Laboratory Methods in Animal Nutrition.—Two to five times a week. (½ to 1 unit).* Professor MITCHELL.

120. Laboratory Methods in the Diagnosis of Animal Diseases.—Two to five times a week. (½ to 1 unit).* Professor GRAHAM.

121. Laboratory Methods in Animal Genetics.—(½ to 1 unit).* Two to five times a week. Time to be arranged. Associate Professor ROBERTS.

ARCHITECTURE

12. History of Architecture.—*Prerequisite:* Arch. 11. Not open to students expecting a degree from the Department of Architecture. (3). 3 MWF; 120 Arch.

14. History of Architecture.—*Prerequisite:* Arch. 13. (2). 11 MW; 120 Arch.

16. History of Architecture.—*Prerequisite:* Arch. 15. (2). 11 TT; 120 Arch.

18. History of Architecture.—*Prerequisite:* Arch. 16. (2). 8 WF; 120 Arch.

22. Freehand Drawing.—*Prerequisite:* Arch. 21.

Subject	Credits	Section	Hours	Days	Room	Instructor
Arch. 22	2	A	8-10	TT	410-A Arch.	
		B	10-12	TT	410-A Arch.	
		C	10-12	MF	410-A Arch.	
		D	8-10	W	410-A Arch.	
			2-4	F	410-A Arch.	

24. Freehand Drawing.—*Prerequisite:* Arch. 23.

Arch. 24	2	A	1-4	TT	410-A Arch.
		B	1-4	MW	410-A Arch.

26. Freehand Drawing.—*Prerequisite:* Arch. 25.

Arch. 26	2	A	1-4	TT	410-B Arch.
		B	9-12	MW	410-B Arch.

28. Freehand Drawing.—*Prerequisite:* Arch. 27. (2). 8-11 TT; 410-B Arch.

32a. Architectural Design.—*Prerequisite:* Arch. 31a.

Arch. 32a	3	Lect.	2	W	120 Arch.
		A	1-4	TT	210 Arch.
		B	8-11	MF	210 Arch.
		C	1-4	MF	210 Arch.
		D	9-12	TT	210 Arch.

34. Architectural Design.—*Prerequisite:* Arch. 33.

Arch. 34	3	A	8-11	TTS	210 Arch.
		B	1-4	TTF	210 Arch.

36. Architectural Design.—*Prerequisite:* Arch. 35 and registration in Arch. 66.

Arch. 36	5	A	9-12	M	200 Arch.
			1-4	MWF	200 Arch.
		B	9-12	FS	200 Arch.
			1-4	TT	200 Arch.

38. Architectural Design.—*Prerequisite:* Arch. 37.

Arch. 38	7	A	8-11	S	200 Arch.
			1-4	MTWTF	200 Arch.

44. Technology of Materials.—*Prerequisite:* Arch. 43.

Arch. 44	3	A	1-4	MW	310 Arch.
			11	F	302 Arch.
		B	8-11	TT	310 Arch.
			11	F	302 Arch.

46. Graphic Statics.—*Prerequisite:* Arch. 45.

Arch. 46	3	A	9-12	WF	310 Arch.
			9	T	302 Arch.
		B	1-4	MW	310 Arch.
			9	T	302 Arch.

55. Building Sanitation.—*Prerequisite:* Phys. 8a-8b; Arch. 44. (1). 10 TT; 302 Arch.

60a. Reinforced Concrete.—*Prerequisite:* Senior standing in Architecture. (2). 11 TT; 302 Arch.

66. Theory of Architecture.—*Prerequisite:* Arch. 65 and registration in Arch. 36. (1). 9 Th; 120 Arch.

67. Theory of Form.—*Prerequisite:* Senior standing in Architecture. (2). 9-12 MW; 20 Arch.

72. Architectural Elements.—*Prerequisite:* Arch. 71. Not open to students expecting a degree from the Department of Architecture.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Arch. 72	4	A	1-4	TT	210 Arch.	
			8-10	MF	410-A Arch.	
			2	W	120 Arch.	

76. Masonry Construction Details.—*Prerequisite:* Arch. 75. Not open to students expecting a degree in Architecture.

Arch. 76	3	A	1	TT	301 Arch.
			2-5	TT	401 Arch.

ARCHITECTURAL ENGINEERING

34. Architectural Design.—*Prerequisite:* A. E. 33.

A. E. 34	3	C	1-4	MWF	210 Arch.
		D	9-12	TTS	210 Arch.

36. Architectural Design.—*Prerequisite:* A. E. 35.

A. E. 36	3	C	1-4	MWF	210 Arch.
			8-11	MWF	210 Arch.

44. Technology of Materials.—*Prerequisite:* A. E. 43.

A. E. 44	2	C	1-4	TT	310 Arch.
		D	8-11	MW	310 Arch.

46. Graphic Statics.—*Prerequisite:* A. E. 45.

A. E. 46	3	C	1-4	TT	310 Arch.
			11	M	302 Arch.
		D	8-11	TT	310 Arch.
			11	M	302 Arch.

48. Architectural Engineering.—*Prerequisite:* A. E. 47 and registration in A. E. 58.

A. E. 48	5	C	9-11	TT	300 Arch.
			1-4	MWF	300 Arch.

58. Fireproof Construction.—*Prerequisite:* A. E. 57. (2). 1-4 TT; 300 Arch.

67. Building Sanitation.—*Prerequisite:* Senior standing in Architectural Engineering. (2). 10 MW; 301 Arch.

68. Estimates and Specifications.—*Prerequisite:* Senior standing in Architectural Engineering. (4). 11 MTWT; 301 Arch.

Courses for Graduates

101. Architectural Construction.—(½ to 1 unit).* Two or three times a week. Time to be arranged. Professors PROVINE, PALMER.

103. Advanced Architectural Graphics.—(1 to 2 units).* Two or three times a week. Time to be arranged. Professors PROVINE, PALMER.

104. Architectural Design.—(1 to 4 units).* Time to be arranged. Professor DEAM.

105. Architectural Practice.—(¼ to ½ unit).* Time to be arranged. Professor PROVINE.

106. Architectural History.—(½ to 2 units).* Time to be arranged. Professor NEWCOMB.

ART AND DESIGN

1. Freeband Drawing.—*Note:* Seniors will receive two hours' credit only.

A. D. 1	3	A	9-12	TT	403 Arch.	DONOVAN
		B	1-3	MWF	403 Arch.	NEARPASS
		C	10-12	MWF	Hall of Sculpture	NEARPASS
		D	8-10	MWF	403 Arch.	DONOVAN
		E	10-12	MWF	403 Arch.	DONOVAN

2b. Pictorial Composition.—*Prerequisite:* A. D. 1. (3). 3, 4 MWF; 403 Arch. Assistant Professor NEARPASS.

3b. Life Drawing.—*Prerequisite:* A. D. 1. (3). 1, 2, 3 MW; 403 Arch. Associate Professor BRADBURY.

3d. Advanced Life Drawing.—*Prerequisite:* A. D. 3a. (3). 1, 2, 3 TT; 403 Arch. Associate Professor BRADBURY.

4b. Water Color Painting.—*Prerequisite:* A. D. 1. (3). 9, 10, 11 TT; 403 Arch. Assistant Professor NEARPASS.

4d. Advanced Water Color Painting.—*Prerequisite:* A. D. 4a. (3). 9, 10, 11 TT; 403 Arch. Assistant Professor NEARPASS.

6b. Painting from Life.—*Prerequisite:* A. D. 3a. (3). 9, 10, 11 MW; 403 Arch. Associate Professor BRADBURY.

6d. Advanced Painting from Life.—*Prerequisite:* A. D. 3a, 6a. (3). 9, 10, 11 MW; 403 Arch. Associate Professor BRADBURY.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

7b. Still-Life in Oil Colors.—*Prerequisite:* A. D. 1. (3). 1, 2, 3 TT; 403 Arch. Assistant Professor DONOVAN.

7d. Advanced Still-Life and Landscape in Oil Colors.—*Prerequisite:* A. D. 7a. (3). 1, 2, 3 TT; 403 Arch. Assistant Professor DONOVAN.

8b. Modeling.—*Prerequisite:* A. D. 1. (3). 1, 2, 3 TT; 20 Arch. Associate Professor LAKE.

8d. Advanced Modeling.—*Prerequisite:* A. D. 8a. (3). 1, 2, 3 TT; 20 Arch. Associate Professor LAKE.

9b. Course for Teachers.—*Prerequisite:* A. D. 12. (3). 9 MWF; 342 L. H. Miss ANDERSON.

10. Sketch.—*Prerequisite:* A. D. 3a. (1). 10, 11 F; 403 Arch. Associate Professor BRADBURY.

12. Design.—*Prerequisite:* A. D. 1.

Subject	Credits	Section	Hours	Days	Room	Instructor
A. D. 12	2	Lect.	2	M	302 Arch.	LAKE
		A Conf.	8, 9	S	302 Arch.	LAKE

13a. Design.—For Home Economics students only.

A. D. 13a	2	A	10, 11	MW	342 L. H.	ANDERSON
		B	1, 2	MW	342 L. H.	ANDERSON
		C	10, 11	TT	342 L. H.	ANDERSON
		D	3, 4	TT	342 L. H.	ANDERSON

13b. Design.—*Prerequisite:* A. D. 13a. (2). 1, 2 TT; 342 L. H. Miss ANDERSON.

14b. Applied Art.—*Prerequisite:* A. D. 3a.

A. D. 14b	3	Lect.	8	W	403 Arch.	BRADBURY
		A Conf.	8, 9	F	403 Arch.	BRADBURY

20. History of the Fine Arts.—*Prerequisite:* Sophomore standing. (3). 10 TTS; 120 Arch. Associate Professor LAKE.

ASTRONOMY

Course for Undergraduates

2. Descriptive Astronomy.—*Prerequisite:* Astron. 1 or 3. (3). 11 MWF; 229 N. H. 1 hour Wednesday evening; Obs. Professor BAKER.

Courses for Graduates

101. Seminar.—(1 unit). 1 MWF; Obs. Professor BAKER.

103. Celestial Mechanics.—(1 unit). 11 TTS; Obs. Professor BAKER.

ATHLETIC COACHING

(See Education.)

BACTERIOLOGY

For students entering prior to September, 1929

Major: 20 hours chosen from the courses offered by this department. Five hours may be chosen from the following courses offered by other departments: Dairy bacteriology (dairy husbandry).

Minors: 20 hours chosen from one or two of the following: Chemistry, botany, zoology, physiology.

For students entering after September 1, 1929

Major: 20 hours chosen from the courses offered by this department. Dairy Husbandry 10 (advanced dairy bacteriology) may be offered in partial satisfaction of this requirement. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects and taken after the freshman year: Chemistry and botany. At least eight hours must be offered in each subject if two are chosen.

5a. Introductory Bacteriology and Sanitary Science.—*Prerequisite:* Sophomore standing; one semester of chemistry or consent of the instructor.

Bact. 5a	3	Lect.	8	TT	100 Chem.	TANNER
		A1 Quiz	8	S	301 Chem.	WALLACE
		A2 Quiz	8	S	303 Chem.	WHEATON
		B Quiz	2	T	301 Chem.	REHM
		C Quiz	3	T	301 Chem.	WHEATON
		D Quiz	3	W	301 Chem.	WALLACE
		E Quiz	2	Th	301 Chem.	CLARK
		F Quiz	3	Th	301 Chem.	REHM

5b. Introductory Bacteriology, Laboratory.—*Prerequisite:* Chem. 5, 6, 10, or 4; Bact. 5a or concurrent registration in it.

Bact. 5b	2	Lab. A	8, 9	MWF	367 Chem.	WALLACE
		Lab. B	1, 2	MWF	367 Chem.	CLARK
		Lab. C	10, 11	MWF	367 Chem.	REHM
		Lab. D	10, 11	TTS	367 Chem.	WHEATON

7b. Research and Special Problems for Undergraduates.—*Prerequisite:* 10 hours of bacteriology or consent of the instructor. (3 to 5).* Time to be arranged. Professor TANNER, Dr. WALLACE.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

Courses for Advanced Undergraduates and Graduates

8. Food and Applied Bacteriology.—*Prerequisite:* Bact. 5a and 5b; junior standing; consent of the instructor.

Subject	Credits	Section	Hours	Days	Room	Instructor
Bact. 8	5	Lect.	8	MW	229 N. H.	TANNER
		Lab.	8, 9	TTS	367 Chem.	CLARK

20. General Bacteriology.—*Prerequisite:* Two years of college chemistry; senior standing; consent of the instructor. Students with credit in Bact. 5a and 5b will not be allowed credit for Bact. 20. (5). Lect., 8 TT; 100 Chem. Lab., 1, 2, 3 TT; 367 Chem. Professor TANNER, Dr. WALLACE.

Courses for Graduates

107. Research.—(½ to 4 units).* Time to be arranged. Professor TANNER.

118b. Journal Meeting.—(Required of all graduate students who major in general bacteriology.) *Prerequisite:* Graduate standing and consent of instructor; 10 hours of bacteriology. (¼ unit). 9 W; 366 Chem. Professor TANNER.

BANDS

(See Military Bands.)

BANKING

(See Economics.)

BIOLOGY

(See Bacteriology, Botany, Entomology, Physiology, and Zoology.)

BOTANY

For students entering prior to September, 1929

Major: 20 hours of botany exclusive of courses 1, 5, and 11.

Minors: 20 hours chosen in consultation with the head of the department from not more than three subjects in the following list: Agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least 8 hours must be offered in one subject.

Credit for seniors who take Botany 1 or 5 will be reduced one hour.

For students entering after September 1, 1929

Major: 20 hours of botany exclusive of courses 1 and 5 and all courses taken during the freshman year, and inclusive of courses 2a or 2b, 3, and at least 5 hours in courses listed for advanced undergraduates and graduates.

Minors: 20 hours, exclusive of courses taken during the freshman year, in one or two departments chosen in consultation with the head of the department from the following list: Agronomy, bacteriology. chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least eight hours must be offered in each department, if two are chosen.

Courses for Undergraduates

1. General Botany.—*Note:* Seniors will receive 4 hours' credit only.

Bot. 1	5	Lect.	9	TT	228 N. H.	HOTTES, BUCHHOLZ, PALM, and VESTAL
		A Lab.	8, 9	MWF	258 N. H.	MOINAT and assistants
		B Lab.	10, 11	MWF	258 N. H.	
		C Lab.	1, 2	MWF	258 N. H.	
		1 Disc.	8	T	258 N. H.	DOAK and MOINAT
		2 Disc.	8	Th	258 N. H.	
		3 Disc.	10	Th	258 N. H.	HAGUE and PLEASANTS
		4 Disc.	10	T	258 N. H.	MOINAT
		5 Disc.	11	T	258 N. H.	DOAK
		6 Disc.	11	Th	258 N. H.	PLEASANTS
		7 Disc.	1	T	258 N. H.	HAGUE
		8 Disc.	1	Th	258 N. H.	PLEASANTS
		9 Disc.	2	T	258 N. H.	HAGUE

2b. Morphology.—*Prerequisite:* Bot. 1 or 5. (3). 1, 2 MWF; 204 Entom. Dr. HAGUE.

5. General Botany.—(For students in agriculture.) *Note:* Seniors will receive two hours' credit only.

Bot. 5	3	Lect.	9	TT	228 N. H.	HOTTES, BUCHHOLZ, PALM, VESTAL, and MOINAT
		A Lab.	10, 11	Th	259 N. H.	
		B Lab.	1, 2	Th	259 N. H.	
		C Lab.	10, 11	T	259 N. H.	
		D Lab.	1, 2	T	259 N. H.	

6. Introductory Systematic Botany.—The structure, identification, and phylogeny of flowering plants with especial reference to the local flora. *Prerequisite:* Botany 1 or 5. (3).

Bot. 6	3	Lect.	1	F	350 N. H.	
		Lab.	1, 2	MW	350 N. H.	BURK

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

13. Plant Physiology.—*Prerequisite:* Botany 1 or 5.

Subject	Credits	Section	Hours	Days	Room	Instructor
Bot. 13	3	Lect.	10	W	229 N. H.	
		Lab.	10, 11	MF	153 N. H.	MOINAT

14. Botany for Teachers.—*Prerequisite:* 15 hours of botany. (3). 11 MWF; 216 N. H. Associate Professor VESTAL.

15. Diseases of Plants.—*Prerequisite:* Botany 7. (3). 8, 9 MWF; 304 N. H. Professor PALM.

Courses for Advanced Undergraduates and Graduates

Prerequisites unless otherwise stated: 15 hours of botany and junior standing. Time schedule is for 3 hours' credit. For more credit arrange.

34. Physiology.—*Prerequisite:* 15 hours of botany inclusive of Botany 3. (3 or 5).* 1, 2 MWF; 155 N. H. Professor HOTTES and assistant.

42. Fungi.—(3 or 5).* 1, 2 MWF; 304 N. H. Professor PALM.

44. Spermatophytes.—(3 or 5).* 10, 11 TTS; 201 Entom. Professor BUCHHOLZ.

77. Taxonomy of Pathogenic Fungi.—*Prerequisite:* 15 hours of botany inclusive of Botany 7 or 42. (3 or 5).* Arrange. 304 N. H. Professor PALM.

79. Methods in Pathology.—*Prerequisite:* Bot. 70 and 77. (3). Arrange. 304 N. H. Professor PALM.

80. Ecology.—Analysis of the environmental complex. (3 or 5).* 2-4 MWF; 216 N. H. Field study on 2 or 3 Saturdays. Associate Professor VESTAL.

90b. Thesis Course.—(2). Time to be arranged.

91b. Honors Course.—(2). Time to be arranged.

Courses for Graduates

110. Botanical Discussions.—No credit. Required of all graduate students in botany and members of the instructional staff. 4 T; 258 N. H.

112. Discussions in Plant Morphology.—(¼ unit). 4 W; 201 Entom. Professor BUCHHOLZ.

113. Discussions in Physiology.—(¼ unit). 4 Th; 155 N. H. Professor HOTTES.

117. Discussions in Pathology and Mycology.—(¼ unit). 4 W; 304 N. H. Professor PALM.

118. Discussions in Plant Ecology and Geography.—(¼ unit). 4 M; 204 N. H. Associate Professor VESTAL.

Research Courses

120. Embryology of Seed Plants.—(½ to 2 units).* (Botany 112 to be taken concurrently.) Arrange. 201 Entom. Professor BUCHHOLZ.

122. Experimental Morphology.—(½ to 2 units).* (Botany 112 to be taken concurrently.) Arrange. 201 Entom. Professor BUCHHOLZ.

130. Physiology.—(½ to 2 units).* (Botany 113 to be taken concurrently.) 1 hour on either MWF from 1-3, the rest arrange. Professor HOTTES.

155. Plant Geography.—(½ to 2 units).* (Botany 118 to be taken concurrently.) Arrange. 204 N. H. Associate Professor VESTAL.

170. Pathology.—(½ to 2 units).* (Botany 117 to be taken concurrently.) Arrange. 304 N. H. Professor PALM.

177. Mycology.—(½ to 2 units).* (Botany 117 to be taken concurrently.) Arrange. 304 N. H. Professor PALM.

180. Ecology.—(½ to 2 units).* (Botany 118 to be taken concurrently.) Arrange. 204 N. H. Associate Professor VESTAL.

BUSINESS LAW

(See Business Organization and Operation.)

BUSINESS ORGANIZATION AND OPERATION

(Including Accountancy and Business Law.)

A. ACCOUNTANCY

Courses for Undergraduates

1a. Principles of Accounting.—Beginners' course. Students who present one unit of bookkeeping for entrance will not be allowed credit and should register in Accountancy 1e.[1]

Accy. 1a	3	A	8	MWF	222 Com.	LARIMORE
		B	8	TTS	326 Com.	DIETERLE
		C	10	MWF	326 Com.	
		D	10	TTS	325 Com.	HUEGY
		E	11	TTS	325 Com.	HUEGY
		F	2	MWF	326 Com.	
		G	3	MWF	322 Com.	LARIMORE

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Students who have failed in Accountancy 1a are permitted to register in Accountancy 1e and will receive 3 hours' credit if their final grade is C or above.

1b. Accounting Procedure.—A continuation of 1a. Credit is given for 1a without 1b. *Prerequisite:* Accy. 1a.

Subject	Credits	Section	Hours	Days	Room	Instructor
Accy. 1b	3	A1	8	MWF	322 Com.	Frese
		A2	8	MWF	123 Com.	Hackett
		B1	8	TTS	125 Com.	Stout
		B2	8	TTS	322 Com.	Niswonger
		C	9	MWF	123 Com.	Hackett
		D1	9	TTS	322 Com.	Niswonger
		D2	9	TTS	125 Com.	Stout
		E1	10	MWF	122 Com.	Baily
		E2	10	MWF	123 Com.	Anderson
		F1	10	TTS	123 Com.	Karrenbrock
		F2	10	TTS	222 Com.	Lukas
		G1	11	MWF	122 Com.	Baily
		G2	11	MWF	123 Com.	Karrenbrock
		H1	11	TTS	123 Com.	Karrenbrock
		H2	11	TTS	122 Com.	Hackett
		J1	1	MWF	326 Com.	Lukas
		J2	1	MWF	328 Com.	Dieterle
		K1	2	MWF	119 Com.	Beights
		K2	2	MWF	322 Com.	Frese
		K3	2	MWF	328 Com.	Anderson
		L1	3	MWF	123 Com.	Hackett
		L2	3	MWF	325 Com.	Dieterle
		L3	3	MWF	328 Com.	Lukas

1e. Principles of Accounting.—Similar to Accy. 1a.[1] Those who have one unit credit in bookkeeping must take this course rather than 1a. *Prerequisite:* One unit of entrance credit in bookkeeping.

Accy. 1e	2	A	11	TT	125 Com.	Beights
		B	2	TT	328 Com.	Frese

2a. Elementary Cost Accounting.—*Prerequisite:* Accy. 1b; registration or credit in Econ. 1.

Accy. 2a	3	A	8	TTS	219 Com.	Schlatter
		B	9	MWF	119 Com.	Niswonger
		C	9	TTS	219 Com.	Schlatter
		D	11	MWF	322 Com.	Niswonger
		E	2	MWF	122 Com.	Green
		F	3	MWF	122 Com.	Green

2b. Intermediate Accounting.—*Prerequisite:* Accy. 2a.

Accy. 2b	3	A	8	MWF	122 Com.	Newcomer
		B	9	TTS	123 Com.	Karrenbrock
		C	9	MWF	122 Com.	Newcomer
		D	9	TTS	119 Com.	Beights
		E	9	TTS	122 Com.	Newcomer
		F	10	MWF	119 Com.	Karrenbrock
		G	10	MWF	328 Com.	Frese
		H	10	TTS	119 Com.	Beights
		J	10	TTS	122 Com.	Newcomer
		K	11	MWF	119 Com.	Theiss
		L	1	MWF	322 Com.	Frese
		M	1	MWF	119 Com.	Beights
		N	2	MWF	325 Com.	Niswonger
		O	3	MWF	306 Com.	Van Arsdell
		P	3	MWF	119 Com.	Theiss

11. Farm Accounting.—*Prerequisite:* Open only to students in the College of Agriculture who have credit in Econ. 1 or 2.

Accy. 11	4	A	11	MTWT	115 Com.	Anderson
		B	3	MTWT	317 Com.	Anderson

Courses for Advanced Undergraduates and Graduates

3a. Advanced Accounting.—*Prerequisite:* Accy. 2a-2b; Econ. 3; an average of "C" or better in Accy. 1 and 2.

Accy. 3a	3	A	11	MWF	222 Com.	Newcomer
		B	2	MWF	123 Com.	Hackett

3b. Auditing.—*Prerequisite:* Accy. 3a.

Accy. 3b	3	A	8	MWF	317 Com.	Filbey
		B	9	MWF	115 Com.	Theiss
		C	2	MWF	115 Com.	Littleton

4a. Cost Accounting.—*Prerequisite:* Accy. 2a-2b. (2). 11 TT; 222 Com. Associate Professor Schlatter.

4b. Accounting Systems.—*Prerequisite:* Accy. 2a-2b; Econ. 3. Credit is given for either 4a or 4b separately.

Accy. 4b	2	A	8	TT	115 Com.	Baily
		B	9	TT	115 Com.	Baily

[1]Students who have failed in Accountancy 1a are permitted to register in Accountancy 1e and will receive 3 hours' credit if their final grade is C or above.

5b. C. P. A. Problems.—*Prerequisite:* Accy. 5a.

Subject	Credits	Section	Hours	Days	Room	Instructor
Accy. 5b	3	A	10	MWF	317 Com.	Scovill
		B	11	MWF	317 Com.	Scovill

13. Governmental Accounting.—*Prerequisite:* Accy. 3a. (2). 2 TT; 122 Com. Assistant Professor Baily.

20. Income Tax Procedure.—*Prerequisite:* Senior standing; registration or credit in Accy. 3b.

Accy. 20	2	A	9	TT	317 Com.	Filbey
		B	10	TT	317 Com.	Filbey
		C	11	TT	317 Com.	Filbey

30. Budgets and Accounting Control.—*Prerequisite:* Accy. 2b. (3). 8 MWF; 115 Com. Assistant Professor Theiss.

90b. Thesis.—Primarily for candidates for honors. *Prerequisite:* Accy. 90a. (Credit is not given for Accy. 90a or 90b separately.) (2). Time to be arranged. Associate Professor Schlatter.

Courses for Graduates

103. Advanced Theory.—(1 unit). 3, 4 T; 209 Com. Associate Professor Littleton.

104. Accounting Systems.—(1 unit). 3, 4 Th; 209 Com. Professor Scovill.

113. Governmental Accounting.—(1 unit). Arrange. Professor Morey.

129. Thesis.—(1 unit). 4, 5 W; 212 Com. Associate Professor Littleton and members of the staff.

B. BUSINESS ORGANIZATION AND OPERATION

Courses for Undergraduates

1. Industrial Organization and Management.—*Prerequisite:* Econ. 1 or 2; 45 credit hours. Junior and senior engineering students admitted with consent of the instructor.

B. O. & O. 1	3	A	8	MWF	328 Com.	Mach
		B	8	TTS	328 Com.	Mach
		C	9	MWF	328 Com.	Mach
		D	9	TTS	326 Com.	Krick
		E	10	MWF	219 Com.	Krick
		F	10	MWF	223 Com.	Huegy
		G	10	TTS	326 Com.	Krick
		H	10	TTS	328 Com.	Mach
		J	11	MWF	328 Com.	Mach
		K	11	MWF	219 Com.	Krick
		L	1	MWF	325 Com.	Huegy
		M	2	MWF	312 Com.	Mandeville
		N	3	MWF	326 Com.	Krick

2. Marketing Organization and Operation.—*Prerequisite:* Econ. 1; junior standing.

B. O. & O. 2	3	Lect I	8	M	215 Com.	Converse
		Lect. II	9	M	215 Com.	Converse
		Quiz A1	8	WF	310 Com.	Converse
		Quiz A2	8	WF	326 Com.	Jones
		Quiz B1	9	WF	326 Com.	Jones
		Quiz B2	9	WF	306 Com.	Orland

11. Survey Course in Business Organization.—This course is offered exclusively for non-commerce students. *Prerequisite:* 45 credit hours.

B. O. & O. 11	3	A	10	MWF	101 Com.	Mandeville
		B	11	MWF	101 Com.	Mandeville

Courses for Advanced Undergraduates and Graduates

3. Retail and Wholesale Store Organization and Operation.—*Prerequisite:* B. O. & O. 2. (3). 2 MWF; 310 Com. Associate Professor Converse.

4. Management in Manufacturing.—*Prerequisite:* B. O. & O. 1. (3). 8 MWF; 306 Com. Mr. Mandeville.

7. Salesmanship.—*Prerequisite:* B. O. & O. 2.

B. O. & O. 7	2	A	9	TT	328 Com.	Jones
		B	10	TT	219 Com.	Kline
		C	2	TT	219 Com.	Kline

8. Advertising.—*Prerequisite:* B. O. & O. 2.

B. O. & O. 8	3	Lect.	11	W	215 Com.	Russell
		A	11	MF	307 Com.	Russell
		B	1	TT	325 Com.	Schenck
		C	2	TT	325 Com.	Schenck

9. Trade and Commercial Organizations.—*Prerequisite:* B. O. & O. 2; senior standing; consent of instructor. (2). 11 TT; 219 Com. Dean Thompson, Mr. Kline.

17. Sales Management.—*Prerequisite:* B. O. & O. 7. (2). 11 TT; 307 Com. Professor Russell.

18. Advertising Campaigns.—*Prerequisite:* B. O. & O. 8. (3). 9 MWF; 317 Com. Professor Russell.

22. Marketing Policies and Problems.—*Prerequisite:* B. O. & O. 2; senior standing. (2). 8 TT; 310 Com. Associate Professor CONVERSE.

70. Operation of Public Utilities.—*Prerequisite:* Econ. 81, or consent of instructor. (3). 8 MWF; 100 Com. Mr. ORLAND.

90b. Thesis.—Primarily for candidates for honors. *Prerequisite:* B. O. & O. 90a. (2). Time to be arranged. Members of the staff.

Courses for Graduates

102. Marketing Policies and Problems.—(1 unit). Time to be arranged. Associate Professor CONVERSE.

107. Sales Campaigns.—(1 unit). Time to be arranged. Professor RUSSELL.

129. Thesis.—(1 unit). Time to be arranged. Professor RUSSELL and members of staff.

C. BUSINESS LAW

Courses for Undergraduates

1a. General Principles of Business Law.—*Prerequisite:* 60 hours of university credit, including Econ. 1 and Accy. 1b.

Subject	Credits	Section	Hours	Days	Room	Instructor
Bus. Law 1a	3	A	8	MWF	223 Com.	ROBERTS
		B	9	MWF	223 Com.	ROBERTS
		C	9	TTS	223 Com.	ROBERTS
		D	10	TTS	223 Com.	ROBERTS

1b. General Principles of Business Law.—*Prerequisite:* Bus. Law 1a.

Bus. Law 1b	3	A	8	MWF	219 Com.	CURTIS
		B	8	TTS	222 Com.	RENO
		C	9	MWF	222 Com.	RENO
		D	9	MWF	219 Com.	CURTIS
		E	9	TTS	222 Com.	RENO
		F	10	MWF	222 Com.	RENO
		G	10	TTS	224 Com.	CURTIS
		H	11	MWF	223 Com.	ROBERTS
		J	1	MWF	219 Com.	CURTIS
		K	2	MWF	222 Com.	RENO

3. Law for Engineering Students.—*Prerequisite:* Open only to junior and senior students in the College of Engineering. (3). 2 MWF; 219 Com. Dr. CURTIS.

Courses for Advanced Undergraduates and Graduates

10. Law of Security Relations and Banking.—*Prerequisite:* Senior standing and registration or credit in Bus. Law 1b.

Bus. Law 10	3	A	8	MWF	224 Com.	DILLAVOU
		B	9	MWF	224 Com.	DILLAVOU
		C	2	MWF	224 Com.	DILLAVOU

CERAMIC ENGINEERING

4. Ceramic Materials.—*Prerequisite:* Cer. 1. (3). 1-4 MWF; 113 and 114 Cer.

8. Glass Technology.—*Prerequisite:* Chem. 40 and Cer. 14. (2). Arrange.

10. Cements.—*Prerequisite:* Chem. 40 and registration in Cer. 28. (3). 10 MWF; 214 Cer.

11. Drying Clay Products.—*Prerequisite:* Phys. 1a-1b, 3a-3b; Cer. 1. (3). 11 MWF; 218 Cer.

14. Glasses and Glazes.—*Prerequisite:* Cer. 5 and registration in Chem. 40. (3). 8 TT; 214 Cer. 9-12 TT; 113 and 114 Cer.

20. Refractory Materials.—*Prerequisite:* Chem. 40. (2). 4 TT; 214 Cer.

24. Ceramic Engineering Design.—*Prerequisite:* Cer. 23 and T. A. M. 25. (3). 1-4 MWF; 214 Cer.

28. Pyrochemical Problems.—*Prerequisite:* Cer. 14; Chem. 40. (2). 11 MW; 214 Cer.

98. Thesis.—(3 to 5).* Arrange.

Courses for Graduates

101. Chemistry of the Compounds of Silicon.—*Prerequisite:* Elementary courses in organic and physical chemistry. (¾ unit). Arrange.

102. General Technology of the Clay Industries.—*Prerequisite:* The elements of mineralogy and of physical chemistry. Lectures; seminar; laboratory. (1 or 2 units).* Arrange.

104. Technology of Glass.—Lectures and laboratory. (1 or 2 units).* Arrange.

CHEMISTRY

For students entering prior to September, 1929

Students in the curricula of chemistry and chemical engineering, majors in chemistry, and all others who desire a thorough training in the fundamentals of chemistry and their applications to modern

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

life, should select courses from the following, and usually in the sequence given: Chemistry 1 or 2, 6, 10, 24, 34a, 36b, 37b, 40, 41, 42b, 43b, 50a, and courses in the industrial, sanitary, and miscellaneous groups. Students in engineering should register for Chemistry 3 or 2, 4, 24. Students who are compelled to meet chemical requirements briefly may register for the following sequence: Chemistry 1 or 2, 5, 24, 32 or 33.

Students who find it impossible to take more than one semester's work are requested to register in Chemistry 1 or 2 in the second semester rather than in the first.

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, and 6 and inclusive of courses in quantitative, analytical, and organic chemistry.

Minors: 20 hours, chosen from not more than three of the following: bacteriology, botany, geology, mathematics, philosophy, physiology, physics, and zoology.

For students entering after September 1, 1929

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, 6, and all work taken during the freshman year, and inclusive of courses in quantitative, analytical, and organic chemistry. At least five hours must be offered from the advanced group.

Minors: 20 hours, exclusive of courses taken during the freshman year, chosen from not more than two of the following: Bacteriology, botany, geology, mathematics, philosophy, physiology, physics, entomology, and zoology. At least eight hours must be offered in each subject if two are chosen.

Courses for Undergraduates

1. Inorganic Chemistry.—*Prerequisite:* One unit of entrance credit in physics, or 2½ units of entrance credit in mathematics, or registration in Math. 1a, or 2, or 3.

Note: Students who have received entrance credit for high school chemistry are given only three hours' credit for Chem. 1. Seniors 3 hours only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Chem. 1	5	A Lect.	11	TT	100 Chem.	STILLWELL
		B Lect.	9	TT	100 Chem.	AUDRIETH
		1 Quiz	9	MW	201, 163 Chem.	
		Lab.	8-10	TTS	101 Chem. Annex	
		2 Quiz	8	TT	8 Chem. Annex, 301 Chem.	
		Lab.	8-10	MWF	101 Chem. Annex	
		3 Quiz	10	TT	301, 303, 162 Chem.	
		Lab.	10-12	MWF	1 Chem. Annex	
		4 Quiz	11	MW	8 Chem. Annex, 300 Chem.	
		Lab.	2-5	TT	101 Chem. Annex	
		5 Quiz	1	TT	8, 9 Chem. Annex	
		Lab.	1-3	MWF	101, 212 Chem. Annex	
		6 Quiz	2	TT	9 Chem. Annex	
		Lab.	10-12	MWF	212 Chem. Annex	
		7 Quiz	9	MW	8, 9 Chem. Annex	
		Lab.	3-5	MWF	212 Chem. Annex	

2. Inorganic Chemistry.—(For all students who have had one year of high school chemistry.) *Prerequisite:* One unit of entrance credit in chemistry.

Note: Students whose preparation in chemistry is inadequate are advised to register for Chemistry 1 or 3.

Chem. 2	3[1]	Lect.	11	W	100 Chem.	BAILAR
		20 Quiz	3	MW	9 Chem. Annex	
		Lab.	3-5	F	101 Chem. Annex	
		21 Quiz	8	TT	303 Chem.	
		Lab.	8-10	S	212 Chem. Annex	
		22 Quiz	1	TT	162 Chem.	
		Lab.	1-3	W	1 Chem. Annex	
		23 Quiz	11	TT	301 Chem.	
		Lab.	10-12	F	212 Chem. Annex	
		24 Quiz	1	WF	8, 9 Chem. Annex	
		Lab.	10-12	T	212 Chem. Annex	
		25 Quiz	2	TT	8 Chem. Annex	
		Lab.	3-5	T	212 Chem. Annex	
		26 Quiz	10	MW	8 Chem. Annex	
		Lab.	10-12	Th	212 Chem. Annex	
		27 Quiz	10	TT	111, 204 Chem.	
		Lab.	10-12	F	201 Chem. Annex	
		28 Quiz	11	MF	301 Chem.	
		Lab.	3-5	W	1 Chem. Annex	
		29 Quiz	11	TT	8 Chem. Annex	
		Lab.	10-12	M	212 Chem. Annex	
		30 Quiz	11	MF	303 Chem.	
		Lab.	1-3	W	1 Chem. Annex	
		31 Quiz	9	MW	300 Chem.	
		Lab.	8-10	F	212 Chem. Annex	

[1]Seniors are allowed 2 hours' credit in Chem. 2. Students below the rank of senior receive 5 hours' credit, provided their high school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.

3. Inorganic Chemistry.—(For engineering students who have had no chemistry.)

Note: Students who have credit for high school chemistry should register for Chemistry 2. Students vho have not used their high school chemistry for entrance credit are allowed 4 hours' credit for Chemstry 3. Seniors are allowed 3 hours' credit only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Chem. 3	4	A Lect.	11	TT	100 Chem.	STILLWELL
		B Lect.	9	TT	100 Chem.	AUDRIETH
		41 Quiz	11	MW	9 Chem. Annex	
		Lab.	1-3	MF	201 Chem. Annex	
		42 Quiz	10	TT	210 Chem. Annex	
		Lab.	3-5	MF	201 Chem. Annex	
		43 Quiz	9	TT	210 Chem. Annex	
		Lab.	1-3	TT	201 Chem. Annex	

4. Qualitative Analysis and Chemistry of the Metallic Elements.—(Limited to students in the ngineering curricula.) *Prerequisite:* Chem. 1, 2, or 3.

Chem. 4	4[1]	C Lect.	10	MF	100 Chem.	AUDRIETH
		D Lect.	11	MF	100 Chem.	COPLEY
		80 Quiz	8	MW	9 Chem. Annex	
		Lab.	1-3	MF	1 Chem. Annex	
		81 Quiz	9	MW	103 Chem.	
		Lab.	1-3	TT	1 Chem. Annex	
		82 Quiz	10	TT	103, 163 Chem.	
		Lab.	8-10	TT	1 Chem. Annex	
		83 Quiz	9	TT	9 Chem. Annex	
		Lab.	1-3	TT	1 Chem. Annex	
		84 Quiz	10	TT	300 Chem.	
		Lab.	1-3	MF	1 Chem. Annex	
		85 Quiz	11	TT	303 Chem.	
		Lab.	8-10	MW	1 Chem. Annex	
		86 Quiz	8	TT	201 Chem.	
		Lab.	10-12	TT	1 Chem. Annex	
		87 Quiz	1	TT	161 Chem.	
		Lab.	8-10	TT	1 Chem. Annex	
		88 Quiz	11	MW	201 Chem.	
		Lab.	1-3	TT	1 Chem. Annex	
		89 Quiz	2	TT	210 Chem. Annex	
		Lab.	8-10	MW	1 Chem. Annex	
		90 Quiz	11	MW	103, 204 Chem.	
		Lab.	1-3	MF	1 Chem. Annex	
		91 Quiz	9	WF	301 Chem.	
		Lab.	8-10	TT	1 Chem. Annex	
		92 Quiz	2	MW	210 Chem. Annex	
		Lab.	1-3	TT	1 Chem. Annex	
		93 Quiz	8	MW	300 Chem., 8 Chem. Annex	
		Lab.	3-5	MF	1 Chem. Annex	
		94 Quiz	10	TT	8, 9 Chem. Annex	
		Lab.	3-5	MF	1 Chem. Annex	

5. Inorganic Chemistry and Qualitative Analysis.—(Limited to students in the agricultural, home conomics, and pre-medical curricula.) *Prerequisite:* Chem. 1, 2, or 3.

Chem. 5	5[1]	E Lect.	9	TT	112 Chem. Annex	QUILL
		F Lect.	11	TT	112 Chem. Annex	HOPKINS
		51 Quiz	2	MW	300 Chem.	
		Lab.	3-5	TT	201 Chem. Annex	
			9-11	S		
		52 Quiz	3	TT	8, 210 Chem. Annex	
		Lab.	3-5	MWF	201 Chem. Annex	
		53 Quiz	2	MW	9 Chem. Annex	
		Lab.	3-5	MWF	201 Chem. Annex	
		55 Quiz	2	MW	201 Chem.	
		Lab.	10-12	MWF	201 Chem. Annex	
		56 Quiz	11	TT	116 Chem.	
		Lab.	1-3	MWF	201 Chem. Annex	
		58 Quiz	1	TT	201, 300 Chem.	
		Lab.	1-3	MWF	201 Chem. Annex	
		59 Quiz	8	TT	204, 300 Chem.	
		Lab.	8-10	MWF	201 Chem. Annex	
		61 Quiz	9	MW	162 Chem.	
		Lab.	10-12	MWF	201 Chem. Annex	
		62 Quiz	9	WF	210 Chem. Annex	
		Lab.	1-4	TT	201 Chem. Annex	
Vote: Sections 63 and 64 are for ome economics students only.		63 Quiz	8	TT	103 Chem., 9 Chem. Annex	
		Lab.	8-10	MWF	201 Chem. Annex	
		64 Quiz	1	TT	116 Chem.	
		Lab.	1-3	MWF	212 Chem. Annex	

[1]Seniors are allowed 3 hours' credit.

6. Inorganic Chemistry.—(General course for second semester students.) *Prerequisite:* Chem. 1, 2, or 3.

Subject	Credits	Section	Hours	Days	Room	Instructor
Chem. 6	5[1]	Lect.	10	TT	100 Chem.	BAILAR
		70 Quiz	3	TT	9 Chem. Annex	
		Lab.	3-5	MWF	101 Chem. Annex	
		71 Quiz	10	MW	9 Chem. Annex	
		Lab.	2-5	TT	101 Chem. Annex	
		72 Quiz	8	MW	210 Chem. Annex	
		Lab.	8-10	TTS	101 Chem. Annex	
		73 Quiz	1	TT	303, 301 Chem., 210 Chem. Annex	
		Lab.	1-3	MWF	101 Chem. Annex	
		74 Quiz	8	TT	210 Chem. Annex	
		Lab.	8-10	MWF	101 Chem. Annex	
		75 Quiz[2]	11	TT	300, 201 Chem., 210, 9 Chem. Annex	
		Lab.	10-12	MWF	101 Chem. Annex	

[2]For students in the curricula of chemistry and chemical engineering.

10. Qualitative Analysis.—(Required of students majoring in chemistry and of those registered in the curriculum of chemistry or of chemical engineering.) *Prerequisite:* Chem. 6.

Chem. 10	5	Lect.	8	F	112 Chem. Annex	REEDY
		1 Quiz	8	MW	111 Chem.	
		Lab.	1-4	TT	301 Chem. Annex	
			8-11	S		
		2 Quiz	8	MW	161 Chem., 308 Chem. Annex	
		Lab.	1-4	MWF	301 Chem. Annex	

24. Elementary Quantitative Analysis.—*Prerequisite:* Chem. 5 or 10 or 4.

Chem. 24	5	Lect.	9	W	100 Chem.	ENGLIS
		A Quiz	9	MF	303, 111 Chem.	
		Lab.	1-4	MWF	310 Chem. Annex	
		B Quiz	9	MF	116, 204 Chem.	
		Lab.	1-4	TT	310 Chem. Annex	
			8-11	S		
		C Quiz	9	MF	308 Chem. Annex	
		Lab.	8-11	TTS	310 Chem. Annex	

32. Elementary Organic Chemistry.—(Especially for students in agriculture.) *Prerequisite:* Chem. 5 or 10.

Chem. 32	3	Lect.	8	ThS	217 Chem.	FUSON and
		Quiz	8	T	111, 162 Chem. 163 Chem.	assistants
		Lab. A	9-12	W	216 Chem.	
		(Limited to 24 students.)				
		Lab. B	1-4	T	125 Chem.	

33. Elementary Organic Chemistry.—(For students in home economics and pre-medical courses.) *Prerequisite:* Chem. 10 or 5.

Chem. 33	5	Lect.	8	MW	100 Chem.	SHRINER
		Quiz	8	F	100, 111 Chem. 161, 162 Chem. 204, 300 Chem. 303, 301 Chem.	
Quiz section assignments will be made by the instructor after registration is complete.						
		A Conf.	8	T	217 Chem.	
		Lab.	9-11	T	250 Chem.	
			8-11	Th	250 Chem.	
		B Conf.	1	T	217 Chem.	
		Lab.	2-4	T	250 Chem.	
			1-4	Th	250 Chem.	
(Limited to 24 students.)		C Conf.	1	M	161 Chem.	
		Lab.	2-4	M	250 Chem.	
			1-4	W	250 Chem.	

90b. Thesis.—(Required of seniors in chemistry and chemical engineering.) *Prerequisite:* Chem. 24, 34a, 40, 41, 42b, and 43b or the consent of the head of the department. (3 to 5).* A minimum of five hours required for graduation. The subjects available include inorganic, analytical, organic, physical, electro, food, x-ray, sanitary, physiological, industrial, metallurgical, ceramic, phyto, photo, and animal chemistry. Professor ADAMS, in charge.

91b. Elements of Glass-blowing.—*Prerequisite:* Two years' work in chemistry. (1). Arrange. Mr. ANDERS.

Courses for Advanced Undergraduates and Graduates

12b. Teachers' Course.—*Prerequisite:* 13 hours of chemistry and senior or graduate standing. Open to students who expect to teach. (3). No graduate credit to chemistry students. 8 WF; 103 Chem.; practice teaching to be arranged. Dr. R. M. PARR.

27. Special Methods and Instruments in Quantitative Analysis.—*Prerequisite:* Chem. 24, 34a, and 40, 41 or registration in 40 and 41. (Limited to 20 students.)

Chem. 27	3	Lect.	11	T	103 Chem.	SMITH
		A Lab.	1-4	TT	208 Chem.	
		B Lab.	1-4	F	208 Chem.	
			8-11	S		

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[1]Seniors allowed 3 hours' credit.

28b. Analytical Chemistry.—(Second course). *Prerequisite:* Chem. 24.

Subject	Credits	Section	Hours	Days	Room	Instructor
Chem. 28b	5	Lect. and Disc.	8	MWF	116 Chem.	SMITH
		Lab.	1-4	TT	260 Chem.	
			8-11	S	260 Chem.	

36b. Organic Chemistry.—(Second course). *Prerequisite:* Chem. 34a. (3). 9 MWF; 217 Chem. Professor MARVEL.

37b. Organic Chemistry.—(Laboratory). (Second course). To accompany Chem. 36b. *Prerequisite:* Chem. 34a, and 36b or registration in 36b.

Chem. 37b	2	Conf.	1	M	217 Chem.	FUSON
		Lab.	2-4	M	250 Chem.	
			1-4	W	250 Chem.	

40. Elementary Physical Chemistry.—*Prerequisite:* Chem. 24; Physics 1a-1b or 7a-7b; Math. 7 or 8. (3). 10 MWF; 161 Chem. Professor RODEBUSH.

41. Elementary Physical Chemistry.—(Laboratory). To accompany Chem. 40.

Chem. 41	1	A Lab.	1-4	T	124 Chem.	SHAW
		B Lab.	1-4	Th	124 Chem.	and assistants
		C Lab.	1-4	F	124 Chem.	

42b. Elementary Physical Chemistry.—*Prerequisite:* Chem. 40. (3). 8 TTS; 161 Chem. Dr. COPLEY.

43b. Elementary Physical Chemistry.—(Laboratory). *Prerequisite:* Chem. 40, 41 and registration in 42b.

Chem. 43b	1	A Lab.	1-4	T	124 Chem.	SHAW
		B Lab.	1-4	Th	124 Chem.	and assistants
		C Lab.	1-4	F	124 Chem.	

44b. Advanced Physical Chemistry.—*Prerequisite:* Chem. 40, 41. (2). 10 TT; 161 Chem. Professor RODEBUSH.

49b. Chemistry of Colloids.—*Prerequisite:* Chem. 24 and 40 or consent of the instructor. (3). 10 MWF; 116 Chem. Professor BUSWELL and assistant.

51b. Problems of Metabolism.—*Prerequisite:* Chem. 50a.

Chem. 51b	3	Lect.	11	M	161 Chem.	DU VIGNEAUD
		Lab.	1-4	TT	450 Chem.	and assistants

61b. Principles of Chemical Engineering.—*Prerequisite:* Chem. 42b and 60a.

Chem. 61b	4	Lect.	9	MWF	161 Chem.	KRASE
		A Lab.	1-6	M	50 Chem.	HOWARD
		B Lab.	1-6	W	50 Chem.	HOWARD

62b. Principles of Research and Development.—*Prerequisite:* Senior standing. (2). Lect., 10 MW; 111 Chem. Professor KEYES.

74b. Metallurgy and Metallography.—*Prerequisite:* Chem. 24.

Chem. 74b	3	Lect.	11	TT	161 Chem.	HOWARD
		Lab.	1-5	W	52 Chem.	

92b. Chemical Literature and Reference Work.—(Required of juniors in chemistry and chemical engineering; expected also of juniors taking major work in chemistry.) *Prerequisite:* 18 hours of chemistry; one year of French or German; junior standing.

Chem. 92b	1	A	10	Th	201 Chem.	BARTOW
		B	8	F	201 Chem.	
		C	10	T	201 Chem.	

97b. Food Analysis.—*Prerequisite:* Chem. 24 and 33 or 34a.

Chem. 97b	5	Lect.	8	TT	116 Chem.	ENGLIS
		Quiz	1	M	116 Chem.	
		Lab.	2-4	M	216 Chem.	
			1-4	WF	216 Chem.	

Courses for Graduates

Graduate students whose major subject is in some department other than chemistry, must have had the equivalent of 15 university credits in chemistry, and the ground covered should include satisfactory work in general chemistry and in qualitative and quantitative analysis and elementary organic chemistry. Such students are advised to make selections from the following courses: Chemistry 40, 41, 42b, 43b, 27, 28b, 34a, 36b and 37b, 50a, 15a, and 97a. Courses of a more special nature will not as a rule be accepted for graduate work unless preceded by one of the courses above. Graduate students who are candidates for an advanced degree in chemistry must have had the equivalent of 25 university credits in chemistry, properly distributed.

Graduate students whose major subject is in some department other than chemistry and who intend to take a first minor in chemistry or any branch of chemistry toward the Ph.D. degree must include among the courses taken Chemistry 40 and 41, or must have had the equivalent.

Graduate students who are candidates for the A.M. or M.S. degree in chemistry must include in the courses taken Chemistry 40 and 41, or must have had the equivalent. Graduate students who are candidates for the Ph.D. degree in any branch of chemistry must include among their courses Chemistry 40, 41, 42b and 43b, or must have had the equivalent. Those courses (with the exception of Chemistry 42b) listed under the heading "Advanced Undergraduate and Graduate Courses" may all be counted toward advanced degrees in chemistry.

101b. Inorganic Chemistry.—The less familiar elements and their relationship in the periodic system. (½ unit). (For laboratory work see Chem. 102b.) Twice a week. 8 MW; 303 Chem. Professor HOPKINS.

102b. Inorganic Chemistry.—Inorganic preparations and qualitative analysis of the less familiar elements. (Laboratory work to accompany or follow Chem. 101b.) Arrange. (¼ to ¾ unit).* Professor HOPKINS.

105b. Inorganic Seminar and Special Topics.—(¼ to 1 unit).* Once, twice, or three times per week. Seminar, 11 S; 162 Chem. Special topic: Chemistry of non-aqueous solvents. (Dr. Audrieth). 9 MW; 105 Chem. Annex. Professor HOPKINS.

124b. Quantitative Analysis.—A modern survey of advanced principles, calculations, experimental methods and applications. Lectures with or without laboratory. Twice a week. (½ to 1¼ units).* 11 MF; 116 Chem. Associate Professor REEDY.

125b. Analytical Chemistry.—(Seminar). (Required of all students taking a major or minor in analytical chemistry.) Once a week. (¼ to 1 unit).* 4 T; 204 Chem. Additional meetings arrange. Professor CLARK.

127b. Modern Application of Radiation to Chemical and Industrial Problems.—(X-rays, radio activity, optical spectroscopy.) (½ to 1 unit).* Twice a week. 10 TT; 217 Chem. Laboratory, arrange; 266 Chem. Professor CLARK.

133b. Organic Chemistry.—(¾ unit). Twice a week. 11 TT; 217 Chem. Professor ADAMS.

134. Organic Chemistry.—Chiefly laboratory work. (½ to 1 unit).* Arrange. 219 Chem. Professor MARVEL.

135b. Organic Chemistry.—(Seminar). (¼ unit). Once a week. 10 W; 217 Chem. Professor ADAMS.

145b. Physical Chemistry.—(Seminar). (¾ unit). Twice a week. 10-12 S; 176 Chem. Professor RODEBUSH.

150b. Physiological Chemistry.—(¾ unit). Twice a week. 9 TT; 111 Chem. Professor ROSE.

152b. Physiological Chemistry.—(½ to 1 unit).* Chiefly laboratory. Arrange. 463 Chem. Professor ROSE, Assistant Professor DU VIGNEAUD.

155b. Physiological Chemistry.—(Seminar).[1] (¾ unit). Two hours a week. 9-11 F; 456 Chem. Professor ROSE.

160b. Chemical Engineering.—*Prerequisite:* Chem. 61a and 61b. (¾ unit). Lect., 1 MW; 162 Chem. Professor KEYES.

161b. Chemical Plant Design.—*Prerequisite:* Chem. 61a and 61b. (¾ unit). Twice a week. 9 TT; 162 Chem. Associate Professor KRASE.

186b. Sanitary Chemistry.—(½ to 1¼ units).* Arrange. One to five times a week. 60-B Chem. Professor BUSWELL.

190b. Research.—Work may be taken in the following subjects:

Physical and Electrochemistry.—Professors RODEBUSH, CLARK, Associate Professor REEDY.

Inorganic Chemistry.—Professor HOPKINS, Associate Professor REEDY, Dr. AUDRIETH, Dr. BAILAR, Dr. QUILL.

Analytical Chemistry.—Professor CLARK, Associate Professor REEDY, Assistant Professors SMITH, ENGLIS.

Food and Phyto-Chemistry.—Assistant Professor ENGLIS.

Applied X-rays.—Professor CLARK.

Organic Chemistry.—Professors NOYES, ADAMS, MARVEL, Associate Professors SHRINER, FUSON, Dr. BAILAR.

Sanitary Chemistry.—Professor BUSWELL.

Physiological Chemistry.—Professor ROSE, Assistant Professor DU VIGNEAUD.

Industrial Chemistry.—Professors PARR, KEYES, Associate Professor KRASE.

Ceramic Chemistry.—Professor PARMELEE.

Animal Chemistry (Nutrition).—Professor GRINDLEY.

CIVIL ENGINEERING

27. Plane Surveying.—*Prerequisite:* Math. 4; G. E. D. 1 or 4. (3). Sec. E, 8-10 MWF; C. E. S. B.

28. Topographic Surveying.—*Prerequisite:* C. E. 27.

Subject	Credits	Section	Hours	Days	Room	Instructor
C. E. 28	3	E	1-3	MF	C. E. S. B.	
			1-5	W		
		F	10-12	MF	C. E. S. B.	
			1-5	T		
		G	8-10	MF	C. E. S. B.	
			8-12	W		
		H	8-10	MF	C. E. S. B.	
			8-12	W		

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Required of all students majoring in physiological chemistry.

32. Surveying for Landscape Architects.—*Prerequisite:* C. E. 31. (3). Sec. E, 1-3 MWF; C. E. S. B.

34. General Surveying.—*Prerequisite:* Math. 4; G. E. D. 1 or 4.

Subject	Credits	Section	Hours	Days	Room	Instructor
C. E. 34	3	E	8-11	MF	C. E. S. B.	
		F	1-4	MF	C. E. S. B.	
		G	8-11	TT	C. E. S. B.	
		H	1-4	TT	C. E. S. B.	

36. Elementary Surveying.—*Prerequisite:* Math. 4; G. E. D. 1 or 4. (2). Sec. E, 1-3 TT; C. E. S. B.

37. Railway and Highway Surveying.—*Prerequisite:* C. E. 28, 32 or 34.

C. E. 37	4	E	11	MF	208 E. H.
			1-4	TT	419 E. H.
		F	10	TT	102 E. H.
			1-4	MW	407 E. H.
		G	10	WF	101 E. H.
			8-11	TT	419 E. H.
		H	9	MF	204 E. H.
			8-11	TT	419 E. H.

40. Highway Construction.—*Prerequisite:* C. E. 27, 31, 34, or 36.

C. E. 40	2	E	9	TT	101 E. H.
		F	9	TT	102 E. H.
		G	8	TT	101 E. H.
		H	8	TT	102 E. H.

51. Railroad Surveying.—(Open only to members of the class of 1931 requiring it for graduation.)

C. E. 51	5	E	11	MWF	208 E. H.
			1-4	Th	419 E. H.
			8-11	S	419 E. H.

52. Highway Construction.—*Prerequisite:* Junior standing in Engineering or landscape architecture.

C. E. 52	3	E	9	TTS	101 E. H.
		G	8	TTS	101 E. H.

53. Highway Materials Laboratory.—*Prerequisite:* Registration or credit in C. E. 40. (1). Sec. E, 1-4 Th; 201 M. T. L.

58. Mine Structures.—(For students in Mining Engineering.) *Prerequisite:* Credit or registration in T. A. M. 3, 25 or 29. (2). Sec. E; 8-10 WF; 400 and 419 E. H.

60. Structural Stresses.—*Prerequisite:* Credit or registration in T. A. M. 3, 25, or 29.

C. E. 60	4	E	10	MWF	204 E. H.
			1-4	T	407 E. H.

61. Elementary Structural Design.—*Prerequisite:* Credit or registration in C. E. 60.

C. E. 61	3	E	8-10	MWF	405 E. H.
					419 E. H.
		F	8-10	MWF	400 E. H.
					407 E. H.
		G	1-3	MWF	405 E. H.
					419 E. H.
		H	1-3	MWF	405 E. H.
					419 E. H.

64. Statically Indeterminate Structures.—*Prerequisite:* C. E. 63.

C. E. 64	3	E	10	MWF	205 E. H.
		F	11	MWF	205 E. H.

72. Sewerage.—*Prerequisite:* C. E. 71.

C. E. 72	3	E	9	TT	208 E. H.
			1-4	T	211 E. H.
		F	9	TT	204 E. H.
			1-4	T	309 E. H.
		G	10	TT	208 E. H.
			1-4	T	214 E. H.

75. Masonry Construction.—*Prerequisite:* C. E. 60.

C. E. 75	3	E	8	MWF	205 E. H.
		F	9	MWF	205 E. H.

78. Drainage and Flood Control.—*Prerequisite:* C. E. 57. (3). Sec. E, 8 MWF; 208 E. H.

79. Water Power.—*Prerequisite:* T. A. M. 4 and 64 or 10. (3). Sec. E, 11 MWF; 204 E. H.

80. Contracts and Specifications.—*Prerequisite:* Senior standing in Engineering.

C. E. 80	2	E	10	TT	101 E. H.
		F	9	MW	101 E. H.

81. Theory of Reinforced Concrete.—*Prerequisite:* T. A. M. 3.

C. E. 81	2	E	10	TT	204 E. H.
		F	9	TT	405 E. H.
		G	11	TT	204 E. H.
		H	11	TT	205 E. H.

84. Estimates and Costs.—*Prerequisite:* Senior standing in Engineering. (2). Sec. E, 10 TT; 405 E. H.

85. **Steel, Concrete, and Timber Design.**—*Prerequisite:* C. E. 82.

Subject	Credits	Section	Hours	Days	Room	Instructor
C. E. 85	5	E	8	TT	405 E. H.	
			1-4	MWF	211 E. H.	
		F	8	TT	205 E. H.	
			1-4	MWF	309 E. H.	
		G	8	TT	204 E. H.	
			1-4	MWF	214 E. H.	

89. **Sewage Treatment.**—*Prerequisite:* C. E. 87 and registration in 72. (3). Sec. E, 9-11 MWF; 208 E. H.

90. **Steel, Concrete, and Timber Design.**—For students in General Engineering. *Prerequisite:* C. E. 88.

C. E. 90	4	E	10	MW	405 E. H.
			8-10	MWF	408 E. H.

94. **Highway Administration.**—*Prerequisite:* C. E. 52 or 54. (3). Sec. E, 10 MWF; 102 E. H.

95. **Plain Concrete.**—*Prerequisite:* Sophomore standing in Engineering.

C. E. 95	2				
For architectural engineers		C	8	W	112 M. T. L.
			8-11	F	112 M. T. L.
For sophomores		E	9	F	101 E. H.
			1-4	T	112 M. T. L.
		F	8	T	112 M. T. L.
			1-4	Th	112 M. T. L.
		G	11	F	112 M. T. L.
			9-12	T	112 M. T. L.
		H	11	M	112 M. T. L.
			9-12	Th	112 M. T. L.
For juniors		EE	11	W	112 M. T. L.
			1-4	M	112 M. T. L.
		FF	11	W	112 M. T. L.
			1-4	F	112 M. T. L.
		GG	8	W	112 M. T. L.
			8-11	M	112 M. T. L.
		HH	11	F	112 M. T. L.
			9-12	W	112 M. T. L.

96. **Advanced Highway Materials.**—*Prerequisite:* C. E. 42 or 54 and 95.

C. E. 96	2	E	1-4	Th	207 M. T. L.
			9	F	102 E. H.

98. **Thesis.**—(2 or 3).* Arrange. *Prerequisite:* High standing and approval of head of department.

Courses for Graduates

102. **Sewerage.**—(1 unit). Twice a week. Time to be arranged. Professor BABBITT.

104. **Municipal Engineering.**—(1 unit). Twice a week. Time to be arranged. Professor CRANDELL.

108. **Advanced Bridge Design.**—(1 to 2 units).* Time to be arranged. Associate Professor SHEDD.

110. **Sewage and Wastes Disposal.**—(1 unit). Twice a week. Professor BABBITT.

112. **Masonry Construction and Foundations.**—(1 unit). Twice a week. Time to be arranged. Professor HUNTINGTON.

130. **Hydrology.**—(1 unit). Twice a week. Time to be arranged. Associate Professor PICKELS.

131. **Waterpower Engineering.**—(1 unit). Twice a week. Time to be arranged. Associate Professor DOLAND.

140. **Research.**—(½ to 2 units).* To be arranged.

THE CLASSICS

For students entering prior to September, 1929

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, 17, and 55.

Minors: 20 hours chosen from not more than two of the following: Foreign language (Latin being especially recommended), English literature, history, and philosophy.

Latin

Major: 20 hours, excluding Latin 11a-11b, 6, 1a-1b, 13, 20, 56 and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours, chosen from not more than two of the following: Foreign language (Greek being especially recommended), English literature, history, and philosophy.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17, 55, and Latin 11a-11b, 6, 1a-1b, 9, 13, 20, and 56. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours chosen from not more than two of the following: Foreign language, English literature, history, and philosophy.

For students entering after September 1, 1929

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, 17, and all courses taken during the freshman year.

Minors: 20 hours, exclusive of courses taken during the freshman year, chosen from not more than two of the following: Foreign language (Latin being especially recommended), English literature, history, and philosophy. At least eight hours must be taken in each subject, if two are chosen.

Latin

Major: 20 hours, excluding Latin 11a-11b, 6, 1a-1b, 13, 20, and all courses taken during the freshman year and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours, exclusive of courses taken during the freshman year, chosen from not more than two of the following: Foreign language (Greek being especially recommended), English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17 and Latin 11a-11b, 6, 1a-1b, 9, 13, 20 and all courses taken during the freshman year. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours, exclusive of courses taken during the freshman year, chosen from not more than two of the following: Foreign language, English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

GREEK

Courses for Undergraduates

1b. Elementary Greek (continuation of 1a).—(4). 8 TWTF; 120 L. H. Mr. VANDERPOOL.

4. Homer.—Selections from the *Iliad*. *Prerequisite:* Greek 3 or an equivalent. (3). 11 MWF; 114 L. H. Mr. DUNKIN.

Greek Life and Archaeology

Course 17 presupposes no knowledge of Greek and is open to all students except freshmen.

17. Greek Drama in English Translation.—(2). 2 TT; 120 L. H. Mr. VANDERPOOL.

Courses for Advanced Undergraduates and Graduates

7. Greek Drama: Tragedy and Comedy.—*Prerequisite:* Greek 4 and 5. (3). 9 TTS; 114 L. H. Mr. VANDERPOOL.

14. Greek Composition.—*Prerequisite:* Greek 4 and 5. (1). 2 T; 104 L. H. Mr. JOHNSON.

Courses for Graduates

Preparation for graduate work in Greek must include at least two years of preparatory Greek, two years of college Greek, and two years of college Latin.

105b. Plato.—(1 unit). Arrange. Professor OLDFATHER.

110b. See Latin 110b.

LATIN

Courses for Undergraduates

11b. Elementary Latin (continuation of 11a).—(4).[1] 8 TWTF; 114 L. H. Mr. RAPP.

1b. Vergil.—*Prerequisite:* Three entrance units in Latin or Latin 6. (4). 1 TWTF; 114 L. H. Mr. DUNKIN.

12b. Sallust and Cicero (De Senectute).—*Prerequisite:* Four entrance units in Latin or Latin 1a-1b. (4). 9 TWTF; 120 L. H. Mr. JOHNSON.

4. Horace and Vergil.—*Prerequisite:* Latin 12a-12b or an equivalent. (3). 10 MWF; 120 L. H. Mr. JOHNSON.

5b. Latin Composition.—*Prerequisite:* Three entrance units in Latin or Latin 6. Required to secure the department's recommendation to teach. (1). 4 Th; 120 L. H. Professor CANTER.

9. Teachers' Course.—*Prerequisite:* 14 hours of Latin acceptable for a major. Required to secure the department's recommendation to teach. (2). 11 TT; 114 L. H. Professor CANTER.

Roman Life and History

13. Roman Life.—*Prerequisite:* Sophomore standing. Knowledge of Latin not required. (1). 3 Th; 202 L. H. Mr. VANDERPOOL.

Roman History.—See History 56. Professor OLDFATHER. History 50b, 57b. Associate Professor SWAIN.

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[1]Three hours' credit for seniors.

Courses for Advanced Undergraduates and Graduates

24. Ovid (Elegy) and Seneca (Epistles and Tragedies).—*Prerequisite:* 12 hours of Latin acceptable for a major. (3). 2 MWF; 120 L. H. Mr. RAPP.

10. Latin Composition.—*Prerequisite:* 12 hours of Latin acceptable for a major, including Latin 5a-5b or an equivalent. Required to secure the department's recommendation to teach. (2). 10 TT; 120 L. H. Mr. JOHNSON.

30b. Honors Course.—Thesis or a special course of study approved by the department. *Prerequisite:* Senior standing; 14 hours of Latin acceptable for a major. (2). Time to be arranged. Professor CANTER.

Courses for Graduates

Students desiring to take graduate work in Latin should have had at least three years of college Latin in addition to the Latin prescribed to meet entrance requirements.

110b. Bibliography and Criticism.—The same as Greek 110b. (1 unit). 11 T; 104 L. H. Professor OLDFATHER.

104. Latin Palaeography.—(1 unit). Arrange. Professor OLDFATHER.

107. Latin Epigraphy.—(1 unit). 4-6 T; 114 L. H. Professor CANTER.

116. Latin Satire.—(1 unit). 4-6 F; 114 L. H. Professor CANTER.

COMMERCIAL LAW

(See Business Organization and Operation.)

COMPARATIVE LITERATURE

(See English 54.)

DAIRY HUSBANDRY

Courses for Undergraduates

2. Dairy Cattle.—*Prerequisite:* D. H. 24a; An. Husb. 21.

Subject	Credits	Section	Hours	Days	Room	Instructor
D. H. 2	5		8	MWF	127 New Agr.	YAPP
			8, 9	TT	S. P.	

6b. Dairy Plant Operations.—*Prerequisite:* D. H. 1, 11, 12, or registration therein. (3). Arrange. D. Mfrs. Assistant Professor TRACY, Mr. TUCKEY.

8. City Milk Supply.—*Prerequisite:* D. H. 1, 11, and 12. (3). 9 M, 8-9 WF; D. Mfrs. Accompanied by an inspection trip costing $15 to $20. Assistant Professor TRACY, Mr. RAMSEY.

11. General Dairy Bacteriology.—*Prerequisite:* 30 hours of university work. (2). 11 TT; 553 Agr. Professor PRUCHA.

12. General Dairy Bacteriology.—*Prerequisite:* D. H. 11 or registration therein. (2). 3, 4 TT; 455 Agr. Professor PRUCHA, Assistant Professor BRANNON.

23b-k. Investigation with Thesis.—(Continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to thesis problem and approval of the head of the department. (5). Arrange.

b. Dairy Bacteriology.—Professor PRUCHA, Assistant Professor BRANNON.

d. Dairy Chemistry.—Assistant Professor OVERMAN.

f. Dairy Farming and Economic Milk Production.—Professor FRASER.

h. Dairy Manufactures.—Professor RUEHE, Assistant Professor TRACY.

k. Dairy Production.—Professors GAINES, YAPP, Associate Professor NEVENS.

24a. Elementary Dairy Production.—*Note:* Juniors and seniors allowed only 2 hours' credit.

D. H. 24a	3	Lect.	9	M	127 New Agr.	NEVENS
		Lab.	8, 9	W	S. P.	
		Quiz	9	F	127 New Agr.	KUHLMAN
					206 Agr.	SHAW

24b. Elementary Testing and Manufacture of Dairy Products.—*Prerequisite:* Credit or registration in Chemistry 1 or 2. *Note:* Juniors and seniors allowed only 2 hours' credit. (3). 3, 4 MW (Lect., Quiz, Lab.); D. Mfrs. Mr. TUCKEY.

Courses for Advanced Undergraduates and Graduates

5. Composition of Dairy Products.—*Prerequisite:* Chem. 32. (3). 10, 11 MWF; 502 Agr. Assistant Professor OVERMAN.

7. Creamery Buttermaking and Factory Management.—*Prerequisite:* D. H. 1, 11, 12; 60 hours of university work. (5). Lect., 1 MF; Lab., 1, 2 TT, 2, 3, 4, 5, F; D. Mfrs. Accompanied by an inspection trip costing about $30. Professor RUEHE, Mr. TUCKEY.

14. Milk Condensing.—*Prerequisite:* D. H. 1, 11, and 12; 60 hours of university work. (3). Lect. 9 TT; Lab. 1, 2, 3, 4 W; D. Mfrs. Accompanied by an inspection trip costing about $30. Assistant Professor TRACY, Mr. RAMSEY.

21. Systems of Dairy Farming.—*Prerequisite:* 60 hours of university work. (3). 11 MWF; 302 Agr. Accompanied by a three-day inspection trip costing about $20. Professor FRASER.

26. Marketing Dairy Products.—*Prerequisite:* 60 hours of university work. (2). 8 MS; D. Mfrs. Accompanied by an inspection trip costing about $15. Mr. C. A. Brown.

Courses for Graduates

101. Economic Milk Production.—(½ to 2 units).* Twice a week. Arrange. Professor Fraser.

104. Dairy Bacteriology.—(½ to 1 unit).* Arrange. Professor Prucha.

105. Dairy Manufactures.—(½ to 2 units).* Arrange. Professor Ruehe.

106. Dairy Bacteriology.—(½ to 2 units).* Arrange. Professor Prucha.

107. Dairy Chemistry.—(½ to 2 units).* Arrange. Assistant Professor Overman.

108. Physiology of Lactation.—(½ to 2 units).* Once a week. Arrange. Professor Gaines.

112a-f. Research.—(1 to 4 units).* Arrange.

Note: Graduate students writing a thesis should so indicate when registering in Dairy Husbandry 112.

a. **Dairy Bacteriology.**—Professor Prucha.
b. **Dairy Chemistry.**—Assistant Professor Overman.
c. **Dairy Cattle Breeding.**—Professor Yapp.
d. **Dairy Cattle Feeding.**—Associate Professor Nevens.
e. **Milk Production.**—Professor Gaines.
f. **Dairy Manufactures.**—Professor Ruehe.

DRAWING, GENERAL ENGINEERING

1. Elements of Drawing.—*Prerequisite:* Plane geometry.

Subject	Credits	Section	Hours	Days	Room	Instructor
G. E. D. 1	4	A	8-11	MF	316 T. B.	Department staff
			8-10	W	316 T. B.	
		B	1-4	MF	316 T. B.	
			1-3	W	316 T. B.	
		C	8-11	TT	316 T. B.	
			8-10	S		

2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry.

G. E. D. 2	4	A	8-11	MF	To be assigned at registration time.	Department staff
			8-10	W		
		B	1-4	MF		
			1-3	W		
		C	8-11	TT		
			8-10	S		
		D	1-4	TT		
			10-12	S		

4. Advanced Drawing.—*Prerequisite:* To be determined by the department at registration time. Three years of work in the better high schools or equivalent in commercial practice necessary basis for consideration.

G. E. D. 4	4	C	8-11	TT	201 T. B.	Fitch
			8-10	S		

6. Elements of Drawing.—*Prerequisite:* Plane geometry. (For students in chemical engineering.) (3). Sec. D, 1-4 TT; 316 T. B. Mr. Jorgensen.

8. Architectural Projections.—Continuation of G. E. D. 7. *Prerequisite:* G. E. D. 7. (Student completing G. E. D. 7 and 8 may substitute them for G. E. D. 2.)

G. E. D. 8	2	A	8-11	MF	103 T. B.	Porter and Lendrum
		B	2-5	MF	103 T. B.	
		C	9-12	TT	103 T. B.	
		D	2-5	TT	103 T. B.	

ECONOMICS

(See also Business Organization and Operation, and Transportation.)

Major: For students in the College of Liberal Arts and Sciences, 20 hours made up of Economics 1 and other courses in economics for which it is a prerequisite.

Minors: 20 hours in any one or two of the following subjects excluding courses taken during the freshman year: Geography, history, philosophy, political science, and sociology.

Economics 22 and 27 are open only to freshmen without previous requirements.

Economics 1 is the fundamental course in economics. It is a prerequisite for most of the advanced courses, and students expecting to do advanced work in economics should take it in their sophomore year.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

Courses for Undergraduates

1. Principles of Economics.—*Prerequisite:* 30 hours of university work.

Subject	Credits	Section	Hours	Days	Room	Instructor
Econ. 1	5	A Lect.	9	T	114 Com.	Brown
		A1 Quiz	9	MWFS	111 Com.	Hoover
		A2 Quiz	9	MWFS	113 Com.	Smith
		A3 Quiz	9	MWTF	310 Com.	Borth
		A4 Quiz	8	MWFS	329 Com.	Lewis
		A5 Quiz	8	MWFS	113 Com.	Wasserman
		A6 Quiz	10	MWFS	108 Com.	Lockling
		A7 Quiz	11	MWTF	126 Com.	Alyea
		B Lect.	9	Th	114 Com.	Brown
		B1 Quiz	9	MWFS	325 Com.	Alyea
		B2 Quiz	9	MWFS	329 Com.	Lewis
		B3 Quiz	9	MWFS	108 Com.	
		B4 Quiz	8	MWFS	111 Com.	Hoover
		B5 Quiz	10	MWFS	310 Com.	Borth
		B6 Quiz	11	MTWF	108 Com.	Lockling

2. Elements of Economics.—*Prerequisite:* 30 hours of university work.

Econ. 2	3	A Quiz	10	MWF	106 Com.	Lounsbury
		B Quiz	10	MWF	307 Com.	Helbing
		C Quiz	10	MWF	115 Com.	Sublette
		D Quiz	10	TTS	106 Com.	Lounsbury
		E Quiz	1	MWF	310 Com.	Sublette
		F Quiz	1	MWF	312 Com.	Berman

3. Money, Credit, and Banking.—*Prerequisite:* Econ. 1 or 2.

Econ. 3	3	A Lect.	8	W	114 Com.	Lee
		A1 Quiz	8	MF	312 Com.	Norton
Note: Those who elect the A lecture must elect an A quiz; those who elect a B lecture must elect a B quiz.		A2 Quiz	8	MF	307 Com.	Lounsbury
		A3 Quiz	8	MF	101 Com.	
		A4 Quiz	8	MF	119 Com.	Fitzgerald
		A5 Quiz	8	MF	108 Com.	Zimmerman
		A6 Quiz	8	MF	106 Com.	
		A7 Quiz	9	TT	329 Com.	Fitzgerald
		A8 Quiz	2	TT	307 Com.	Zimmerman
		A9 Quiz	2	TT	101 Com.	
		B Lect.	8	Th	114 Com.	Lee
		B1 Quiz	8	TS	101 Com.	Lounsbury
		B2 Quiz	8	TS	329 Com.	Fitzgerald
		B3 Quiz	8	TS	307 Com.	
		B4 Quiz	9	TS	312 Com.	Zimmerman
		B5 Quiz	10	TS	312 Com.	
		B6 Quiz	9	WF	106 Com.	Lee
		B7 Quiz	11	WF	106 Com.	Lounsbury
		B8 Quiz	3	MW	305 Com.	

27. Modern Industry.—Open to freshmen only.

Econ. 27	3	A Lect.	1	M	114 Com.	Hunter
		A1 Quiz	1	WF	106 Com.	Sanford
Note: Those who elect the A lecture must elect an A quiz; those who elect a B lecture must elect a B quiz, etc.		A2 Quiz	1	WF	306 Com.	Orland
		A3 Quiz	1	WF	223 Com.	Lockling
		A4 Quiz	1	WF	101 Com.	Lewis
		A5 Quiz	1	WF	111 Com.	Hoover
		A6 Quiz	1	WF	108 Com.	Zimmerman
		A7 Quiz	1	TT	113 Com.	Luney
		A8 Quiz	1	TT	101 Com.	Sublette
		A9 Quiz	1	TT	307 Com.	Zimmerman
		A10 Quiz	2	TT	312 Com.	
		B Lect.	2	M	114 Com.	Hunter
		B1 Quiz	2	WF	111 Com.	Lewis
		B2 Quiz	2	WF	125 Com.	Alyea
		B3 Quiz	2	WF	223 Com.	Lockling
		B4 Quiz	2	WF	106 Com.	Sanford
		B5 Quiz	2	WF	101 Com.	
		B6 Quiz	2	WF	108 Com.	Zimmerman
		B7 Quiz	2	WF	306 Com.	Orland
		B8 Quiz	2	WF	329 Com.	Sublette
		B9 Quiz	2	TT	306 Com.	Sanford
		C Lect.	8	S	114 Com.	Hunter
		C1 Quiz	8	TT	108 Com.	Sublette
		C2 Quiz	8	TT	224 Com.	Lockling
		C3 Quiz	8	TT	111 Com.	Hoover
		C4 Quiz	8	TT	113 Com.	Alyea
		C5 Quiz	8	TT	305 Com.	
		C6 Quiz	8	TT	106 Com.	Lewis
		C7 Quiz	2	TT	113 Com.	Luney
		D Lect.	9	S	114 Com.	Hunter
		D1 Quiz	9	TT	306 Com.	Orland
		D2 Quiz	9	TT	106 Com.	Sanford
		D3 Quiz	9	TT	108 Com.	Sublette
		D4 Quiz	9	TT	111 Com.	Hoover
		D5 Quiz	9	TT	113 Com.	Alyea
		D6 Quiz	9	TT	224 Com.	Lockling
		D7 Quiz	1	TT	306 Com.	Sanford

Courses for Advanced Undergraduates and Graduates

8. Foreign Exchange and the Money Market.—*Prerequisite:* Econ. 1 and 3; senior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Econ. 8	3	Lect.	8	W	215 Com.	Wright
		A Quiz	8	MF	325 Com.	Wright
		B Quiz	8	TT	325 Com.	Wright
		C Quiz	9	TT	325 Com.	Wright

10. Corporation Finance and Management.—*Prerequisite:* Econ. 1 and 3; Accy. 1a and 1b.

Econ. 10	3	A Lect.	11	W	114 Com.	Robinson
		A1 Quiz	11	MF	111 Com.	Bartlett
Note: Those who elect the A lecture must elect an A quiz; those who elect the B lecture must elect a B quiz.		A2 Quiz	11	MF	306 Com.	Van Arsdell
		A3 Quiz	11	MF	305 Com.	Green
		A4 Quiz	11	MF	310 Com.	Borth
		A5 Quiz	11	MF	125 Com.	Gray
		A6 Quiz	10	TT	111 Com.	Bartlett
		A7 Quiz	1	TT	310 Com.	Van Arsdell
		A8 Quiz	2	TT	310 Com.	Van Arsdell
		B Lect.	11	Th	114 Com.	Robinson
		B1 Quiz	11	TS	310 Com.	Green
		B2 Quiz	11	TS	306 Com.	Van Arsdell
		B3 Quiz	11	TS	305 Com.	Borth
		B4 Quiz	11	TS	111 Com.	Bartlett
		B5 Quiz	9	TS	310 Com.	Green
		B6 Quiz	10	WF	306 Com.	Van Arsdell
		B7 Quiz	1	WF	222 Com.	Winakor

14. Cooperation in Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing. (2). 9 TT; 211 New Agr. Dr. Bartlett.

15. Financing Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 11 MWF; 211 New Agr. Assistant Professor Norton.

18. Land Economics.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 9 MWF; 211 New Agr. Associate Professor Stewart.

23. Economic Problems.—*Prerequisite:* Econ. 1 or 2; junior standing. Not open to commerce students or L.A.S. students majoring in economics. (3). 11 MWF; 326 Com. Professor Lee.

24. Economic Development of Modern Europe.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 10 MWF; 224 Com. Professor Bogart.

29. Foreign Commerce and Commercial Policies.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 9 MWF; 322 Com. Professor Litman.

30. World Markets.—*Prerequisite:* Econ. 1 or 2; junior standing.

Econ. 30	3	Lect.	10	W	215 Com.	Litman
		A Quiz	10	MF	322 Com.	Litman
		B Quiz	10	TT	322 Com.	Litman

36. Investments.—*Prerequisite:* Econ. 1 or 2; junior standing.

Econ. 36	3	Lect.	10	W	114 Com.	Robinson
		A Quiz	10	MF	325 Com.	Robinson
		B Quiz	10	MF	305 Com.	Brown
		C Quiz	9	MF	305 Com.	Brown
		D Quiz	10	TT	310 Com.	Brown
		E Quiz	11	MF	325 Com.	Robinson

42. The Labor Movement.—*Prerequisite:* Econ. 1 or 2; junior standing.

Econ. 42	3	Lect.	2	M	215 Com.	Berman
		A Quiz	1	TT	322 Com.	Berman
		B Quiz	2	TT	322 Com.	Berman

43. Personnel Administration.—*Prerequisite:* Econ. 1 or 2; junior standing.

Econ. 43	3	A Quiz	1	MWF	307 Com.	Helbing
		B Quiz	1	MWF	113 Com.	Luney
		C Quiz	2	MWF	113 Com.	Luney
		D Quiz	2	MWF	307 Com.	Helbing
		E Quiz	9	TTS	307 Com.	Helbing
		F Quiz	10	MWF	111 Com.	Luney

52. Modern Problems in Taxation.—*Prerequisite:* Econ. 51. (3). 9 MWF; 312 Com. Professor Hunter.

56. Property Insurance.—*Prerequisite:* Econ. 1 or 2; junior standing.

Econ. 56	3	Lect.	8	M	114 Com.	Dickinson
		A Quiz	8	WF	305 Com.	Dickinson
		B Quiz	8	TT	306 Com.	Dickinson

61. Economic Theory.—*Prerequisite:* Econ. 1 or 2; junior standing.

Econ. 61	3	A Quiz	10	MWF	113 Com.	Wasserman
		B Quiz	11	MWF	113 Com.	Wasserman

72. Economic Statistics.—*Prerequisite:* Econ. 71 or permission of the instructor. (3). 10 TT; 305 Com. Practice 3-5 M; 115 Com. Assistant Professor Dickinson.

82. **Regulation of Public Utilities.**—*Prerequisite:* Econ. 1 or 2, and 81. (3). 11 MWF; 224 Com. Associate Professor DILLAVOU.

83. **Public Utility Rates.**—*Prerequisite:* Econ. 81. (3). 9 MWF; 125 Com. Assistant Professor GRAY.

90. **Thesis.**—Primarily for candidates for honors. *Prerequisite:* Major in economics; senior standing. (2 to 4).* Time to be arranged. Professor BOGART and members of the staff.

Courses for Graduates

101. **Economic Theory.**—(1 unit). 3 MW; 3 TT; 125 Com. Professor WESTON.

102. **Theory and History of Money, Credit, and Prices.**—(1 unit). 11 TT; 212 Com. Assistant Professor WASSERMAN.

104b. **Organization of International Trade.**—(1 unit). 3 TT; 212 Com. Professor LITMAN.

105. **Public Finance.**—(1 unit). 4-6 T; 212 Com. Professor HUNTER.

106. **International Exchange and the Money Markets.**—(1 unit). Time to be arranged. Associate Professor WRIGHT.

110a. **Finance and Investments.**—(1 unit). 4-6 F; 212 Com. Professor ROBINSON.

112b. **Labor Problems: Social Aspects.**—(1 unit). Time to be arranged. Assistant Professor BERMAN.

120. **History of Economic Thought.**—(1 unit). 9 TT; 212 Com. Professor WESTON.

122. **Economic History of the United States.**—(1 unit). 4-6 F; 209 Com. Professor BOGART.

124. **International Finance.**—(1 unit). 4-6 M; 209 Com. Professor LEE.

130. **Theory of Agricultural Economics.**—(1 unit). Time to be arranged. Associate Professor STEWART.

131. **Agricultural Resources and Prices.**—(1 unit). Time to be arranged. Assistant Professor NORTON.

144. **Statistical Theory and Analysis.**—(1 unit). Time to be arranged. Assistant Professor DICKINSON.

180. **Management of Public Utilities.**—(1 unit). 4-6 W; 209 Com. Assistant Professor GRAY.

118. **Seminar. Thesis Course.**—(All graduate students writing theses in economics must register in Economics 118; registration for other students is optional.) 4-6 Th (alternate weeks); 212 Com.

(a) **Third Year Seminar.**—Professor WESTON.

(b) **First Year: General Economics.**—Assistant Professor BROWN.

(c) **First Year: Agricultural Economics.**—Associate Professor STEWART.

(d) **First Year: Public Utilities.**—Assistant Professor GRAY.

EDUCATION

Major: For students in the College of Liberal Arts and Sciences, 20 hours including: Educational psychology, history of education, technic of teaching, and principles of secondary education.

Minors: 20 hours made up from either (a) courses in any University subject represented in the high-school program, or (b) courses in any one or two of the following departments: Psychology, sociology, philosophy, and political science.

A. GENERAL EDUCATION

Introductory Courses

2. **History of Education.**—*Prerequisite:* Junior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Ed. 2	3	A	9	MWF	303 Adm. (E)	SEYBOLT
		B	10	MWF	303 Adm. (E)	SEYBOLT

5. **Comparative Education.**—*Prerequisite:* Junior standing.

Ed. 5	3	A	1	MWF	204 Adm. (E)	JOHNSTON
		B	2	MWF	204 Adm. (E)	JOHNSTON

6. **Principles of Secondary Education.**—*Prerequisite:* Ed. 10 and 25.

Ed. 6	3	A	8	TTS	206 Adm. (E)	WEBER
		B	9	TTS	206 Adm. (E)	WEBER
		C	10	TTS	206 Adm. (E)	JOHNSTON
		D	11	TTS	206 Adm. (E)	JOHNSTON
		E	11	MWF	206 Adm. (E)	SMITH
		F	1	MWF	207 Adm. (E)	PUNKE
		G	1	MWF	206 Adm. (E)	BROWNE
		H	2	MWF	206 Adm. (E)	BROWNE
		I	2	MWF	207 Adm. (E)	PUNKE
		J	3	MWF	207 Adm. (E)	BROWNE

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

10. Technic of Teaching.—*Prerequisite:* Ed. 25.

Subject	Credits	Section	Hours	Days	Room	Instructor
Ed. 10	3	A	8	MWF	307 Adm. (E)	PETERS
		B[1]	8	MWF	117 W. B.	ROBINSON
		C	9	MWF	307 Adm. (E)	PETERS
		D	9	MWF	308 Adm. (E)	REAGAN
		E	10	MWF	308 Adm. (E)	REAGAN
		F	10	MWF	307 Adm. (E)	BROWNE
		G	11	MWF	307 Adm. (E)	POTTHOFF
		H	1	MWF	308 Adm. (E)	REAGAN
		I	2	MWF	308 Adm. (E)	REAGAN
		J	3	MWF	308 Adm. (E)	LAWSON

25. Educational Psychology.—*Prerequisite:* Psych. 1 (or Ed. 28 in case of A. C. students).

Ed. 25	3	A	8	TTS	312 Adm. (E)	POTTHOFF
		B	8	TTS	207 Adm. (E)	PUNKE
		C	9	TTS	312 Adm. (E)	POTTHOFF
		D	9	TTS	207 Adm. (E)	PUNKE
		E	10	TTS	312 Adm. (E)	DOLCH
		F	11	TTS	312 Adm. (E)	DOLCH
		G	1	MWF	312 Adm. (E)	DOLCH
		H	1	MWF	307 Adm. (E)	PETERS
		I	2	MWF	312 Adm. (E)	DOLCH
		J	2	MWF	307 Adm. (E)	PETERS
		K	3	MWF	206 Adm. (E)	PETERSON
		L	4	MWF	308 Adm. (E)	LAWSON

28. Psychology of Athletics.[2]—*Prerequisite:* Psych. 1, or consent of instructor. Open only to men in athletic coaching. (3). 11 MWF; 209 New Gym. Associate Professor GRIFFITH.

91. Special Problems of Education in Rural Communities.—*Prerequisite:* Senior standing and at least 6 hours in education. (Same as Agr. Ed. 91.) (2). 2 TT; 122 Agr. Mr. LAWSON.

Courses for Advanced Undergraduates and Graduates

7. School Program of Physical Education.—*Prerequisite:* Senior standing or consent of instructor. (3). 1 MWF; 209 New Gym. Professor STALEY.

8. History, Systems, and Theories of Physical Education.—*Prerequisite:* Senior standing or consent of instructor. (2). 1 TT; 209 New Gym. Professor STALEY.

18. Educational Measurements.—*Prerequisite:* Ed. 25. (3). 9 MWF; 206 Adm. (E). Associate Professor ODELL.

27. High School Curricula.—*Prerequisite:* Ed. 6. (2). 2 TT; 312 Adm. (E). Professor CLEMENT.

30. History of American Education.—*Prerequisite:* Senior standing; or Ed. 2 or 11. (2). 9 TT; 303 Adm. (E). Professor SEYBOLT.

43. Mental Tests.—*Prerequisite:* Ed. 25.

Ed. 43	3	Lect.	2	MW	202 Adm. (E)	CAMERON
		Lab.	1, 2	F	202 Adm. (E)	CAMERON

45. Psychology of Learning.—*Prerequisite:* Ed. 25, 10, and senior standing. (2). 11 TT; 207 Adm. (E). Dr. POTTHOFF.

48. Experimental Methods in Athletics.—*Prerequisite:* Ed. 28 and 25. (3). Time to be arranged with the instructor. 213 New Gym. Associate Professor GRIFFITH.

49. Principles of Intellectual Development.—*Prerequisite:* Senior standing, Psych. 1, Ed. 25, or the consent of the instructor. (3). 9 MWF; 207 Adm. (E). Associate Professor GRIFFITH.

53. Problems of Industrial Education.—*Prerequisite:* Junior standing or consent of instructor. (Same as Ind. Ed. 50.) (3). 8 MWF; 204 Adm. (E). Professor MAYS.

54a. Curriculum and Administration of Part-Time Schools.—*Prerequisite:* Senior standing. (2). 9 TT; 204 Adm. (E). Professor MAYS.

55. Problems of Vocational Guidance.—*Prerequisite:* Senior standing. (3). 9 MWF; 204 Adm. (E). Professor MAYS.

99b. Thesis.—*Prerequisite:* Senior standing. (2). Time to be arranged. Professor MONROE and others.

Courses for Graduates[3]

For a Master's degree in Education, courses 123, 124, and 125 are required. For students who have not taken a course in history of education as undergraduates, Education 11 or Education 30 is required.

101. Educational Theory.—(1 unit). 4 W, 4 F; 204 Adm. (E). Professor CAMERON.

102. Research in History of American Education.—(1 unit). Arrange. 311 Adm. (E). Professor SEYBOLT.

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[1]For Home Economics students.
[2]Education 28, open only to men in Athletic Coaching, may be substituted for Psychology 1 as a prerequisite for Education 25.
[3]Education 6, 10, and 25, or their equivalents, are prerequisites for all courses for graduates.

119. Curriculum Construction.—*Prerequisite:* Ed. 125. (1 unit). 4, 5 Th; 206 Adm. (E). Professor MONROE.

120a. Seminar in the Supervision of Secondary Education.—*Prerequisite:* Ed. 106. (1 unit). 10, 11 S. 308 Adm. (E). Professor CLEMENT.

121. Educational Measurements.—Seminar. *Prerequisite:* Ed. 18 and consent of instructor. (1 unit). 4, 5 M; 206 Adm. (E). Associate Professor ODELL.

129. The Junior College.—*Prerequisite:* 3 units of graduate work in education. (1 unit). 4, 5 T; 312 Adm. (E). Professor CLEMENT.

131. Analysis and Evaluation of High School Texts.—*Prerequisite:* Ed. 127. (1 unit). 4, 5 W; 312 Adm. (E). Professor CLEMENT.

141. Problems in the Teaching of English in Secondary Schools.—(1 unit). 4, 5 T; 322 L. H. Professor PAUL.

150. Thesis.—(1 to 2 units).* Professor MONROE and others.

170. Public School Business Administration.—*Prerequisite:* Ed. 104 or consent of the instructor. (1 unit). 10, 11 S; 307 Adm. (E). Assistant Professor WEBER.

184. Seminar in School Administration.—*Prerequisite:* 3 units of graduate work in education including Ed. 104 or 106 and consent of instructor. (1 unit). Arrange. 302 Adm. (E). Assistant Professor WEBER.

185. Seminar in Educational Psychology.—*Prerequisite:* Ed. 125 and consent of instructor. (1 unit). Arrange. 203 Adm. (E). Professor CAMERON.

Departmental Conference.—All students majoring in education are expected to meet with the departmental staff the first and third Mondays of each month from 7 to 9 p.m. (No credit). 204 Adm. (E).

B. EDUCATIONAL PRACTICE

Open to seniors in the College of Education and in certain cases with consent of the instructor to juniors.

1. Athletic Coaching.—(2 to 4).* Hours to be arranged. Gym.

2. Athletic Coaching.—(2 to 4).* Hours to be arranged. Gym.

3. Athletic Coaching.—(2 to 4).* Hours to be arranged. Gym.

4. Athletic Coaching.—(2 to 4).* Hours to be arranged. Gym.

5. Agricultural Education.—(3 to 5).* Hours to be arranged. Tolono H. S., St. Joseph H. S. See Agr. Ed. 50.

6. Biology.—(5). Hours to be arranged. U. H. S.

7. Chemistry.—(5). Hours to be arranged. U. H. S.

8. Civics.—(5). Hours to be arranged. U. H. S.

9. Drawing, Art and Design.—(3 to 5).* Hours to be arranged. U. H. S.

10. Drawing, Mechanical.—(3 to 5).* Hours to be arranged. U. H. S.

11. English.—(5). Hours to be arranged. U. H. S.

11a. Public Speaking.—(5). Hours to be arranged. U. H. S.

12. French.—(5). Hours to be arranged. U. H. S.

13. General Science.—(5). Hours to be arranged. U. H. S.

14. Home Economics Education.—*Prerequisite:* Home Econ. 11, or concurrent registration in it. (5). Hours to be arranged. U. H. S., Urbana H. S.

15. History.—(5). Hours to be arranged. U. H. S.

16. Industrial Education.—(3 to 5).* Hours to be arranged. U. H. S.

17. Latin.—(5). Hours to be arranged. U. H. S.

19. Mathematics.—(5). Hours to be arranged. U. H. S.

20. Music.—(3 to 5).* Hours to be arranged. U. H. S. and Urbana Schools.

21. Physics.—(5). Hours to be arranged. U. H. S.

24. Stenography and Typewriting.—(3 to 5).* Hours to be arranged. U. H. S.

25. Elementary Education.—(5). Hours to be arranged. Champaign Public Schools.

26. Bookkeeping.—(5). Hours to be arranged. U. H. S.

27. Economics.—(5). Hours to be arranged. U. H. S.

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C. AGRICULTURAL EDUCATION

1. Introduction to Agricultural Education.—*Prerequisite:* Sophomore standing and 10 hours of technical agriculture. (2). 11 MW; 122 Agr. Associate Professor NOLAN.

10. Technic of Teaching.—*Prerequisite:* Ed. 25. (Same as Ed. 10.) (3). 3 MWF; 308 Adm. (E). Mr. LAWSON.

25. Educational Psychology.—*Prerequisite:* Psych. 1. (Same as Ed. 25.) (3). 4 MWF; 308 Adm. (E). Mr. LAWSON.

50. Teaching.—*Prerequisite:* Ed. 10 and senior standing. See Educational Practice 5.

Subject	Credits	Section	Hours	Days	Room	Instructor
Ed. 50	2 to 5*	A	8:30- 9:52 10:44-12:06	Daily	Tolono H. S.	HENDERSON
		B	9:40-11:10 1:30- 2:30	Daily	St. Joseph H. S.	RUCKER NOLAN
		C	Apprentice teaching in State			

One conference hour per week with staff teacher for all student teachers.

51. Teachers' Course in Agriculture.—*Prerequisite:* Ed. 10, 25, and senior standing. (3). 4 MWF; 122 Agr. Associate Professor NOLAN.

91. Special Problems of Education in Rural Communities.—*Prerequisite:* Senior standing and at least 6 hours in Education. (Same as Ed. 91.) (2). 2 TT; 122 Agr. Mr. LAWSON.

92. Adult Education in Vocational Agriculture.—*Prerequisite:* 25 hours of technical agriculture, Ed. 25, Ed. 10, and senior standing. (Subject-matter and methods in part-time and evening classes, and other extension service in vocational agriculture.) (2). 11 TT; 122 Agr. Associate Professor NOLAN.

D. ATHLETIC COACHING

First Year

2. Calisthenics.—Single line marching and gymnastic dancing.

A. C. 2	4	A	8-10	MTWTF	New Gym.	PRICE
		B	8-10	MTWTF	New Gym.	MCCRISTAL

30. Football.—(2nd half semester.)

A. C. 30	2	A	10-12 10	MWFS T	New Gym.	Department Staff
		B	10-12 10	MWFS T	New Gym.	
		C	2-4	MTWTF	New Gym.	
		D	2-4	MTWTF	New Gym.	

40. Basketball.—(1st half semester.)

A. C. 40	2	A	10-12 10	MWFS T	New Gym.	Department Staff
		B	10-12 10	MWFS T	New Gym.	
		C	2-4	MTWTF	New Gym.	
		D	2-4	MTWTF	New Gym.	

Second Year

Note: Education 28 is open only to men in Athletic Coaching who may substitute it for Psychology 1 as a prerequisite for Education 25.

7. Boxing and Wrestling.—(1st half semester.) *Prerequisite:* Sophomore standing.

A. C. 7	2	A	8-10	MTWTF	Wrestling Room	VOYLES and assistants
		B	8-10	MTWTF	Wrestling Room	
		C	8-10	MTWTF	Wrestling Room	

31. Football.—(2nd half semester.) *Prerequisite:* A. C. 30.

A. C. 31	2	A	8-10	MTWTF	Armory Field	Department Staff
		B	8-10	MTWTF	Armory Field	
		C	8-10	MTWTF	Armory Field	

50. Baseball.—*Prerequisite:* Sophomore standing.

A. C. 50	4	A	10-12	MTWTF	221 E. H.	LUNDGREN and JORDAN
		B	10-12	MTWTF	221 E. H.	
		C	1-3	MTWTF	221 E. H.	

Third Year

15. Recreational Activities.—(1st half semester.) *Prerequisite:* Junior standing. (2). 1-3 MTWTF; New Gym. Mr. JACKSON.

20. Track and Field Athletics.—*Prerequisite:* Junior standing.

A. C. 20	4	A	10-12	MTWTF	Field and Armory	WERNER
		B	1-3	MTWTF	Field and Armory	

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32. Football Theory.—*Prerequisite:* A. C. 30 and 31.

Subject	Credits	Section	Hours	Days	Room	Instructor
A. C. 32	2	Lect.	9	MW	209 New Gym.	ZUPPKE and
		Quiz A	3	TT	204 New Gym.	Department
		B	10	MW	204 New Gym.	Staff
		C	11	TT	204 New Gym.	
		D	10	TT	204 New Gym.	

41. Basketball.—(2nd half semester.) *Prerequisite:* A. C. 40 and junior standing. (2). 1-3 MTWTF; 204 New Gym. Mr. RUBY and Mr. SABO.

70. Health Education and Corrective Gymnastics.—*Prerequisite:* Anat. 1 and 2; Physiol. 1 and 2. (4). 8 MTWTF; 209 New Gym. Associate Professor STAFFORD.

Fourth Year

4. Gymnastic Stunts.—*Prerequisite:* A. C. 2 and senior standing. (4). 1-3 MTWTF; Old Gym. Mr. PRICE.

16. Training and First Aid.—*Prerequisite:* Senior standing or consent of instructor.

A. C. 16	2	A	9	TT	119-22 New Gym.	BROWN
		B	10	TT	119-22 New Gym.	BULLOCK

17. Organization and Administration.—*Prerequisite:* Senior standing. (3). 10 MWF; 204 New Gym. Professor HUFF and Assistant Professor OLANDER.

60. Swimming.—*Prerequisite:* Senior standing or consent of instructor. (2). 8 MTWTF; Pool, Old Gym. Mr. MANLEY.

Note: The following courses have been changed from A. C. courses to Education courses:

A. C. 11—History, Systems, and Theories of Physical Education, is now Education 8.

A. C. 12—School Programs of Physical Education, is now Education 7.

A. C. 26—Experimental Methods in Athletics, is now Education 48.

E. INDUSTRIAL EDUCATION

1. Manual Arts.—First Course.

Ind. Ed. 1	4	Lect.	10	TT	U. H. S.	BRAUCHER and
		Shop A	8-10	MWF	U. H. S.	assistant
		Shop B[1]	8-10	TTS	U. H. S.	

2. Advanced Manual Arts.

Ind. Ed. 2	4	Lect.	9	TT	U. H. S.	BRAUCHER and
		Shop A	10-12	MWF	U. H. S.	assistant
		Shop B[1]	10-12	TTS	U. H. S.	

2a. Problems of House Construction.

Ind. Ed. 2a	4	Lect.	2	TT	U. H. S.	BRAUCHER and
		Shop A	2-4	MWF	U. H. S.	assistant
		Shop B[1]	2-4	TTS	U. H. S.	

3. Mechanical Drawing.—Same as G. E. D. 1.

4. Pattern and Foundry Work.—Same as M. E. 85 and 86.

7. Machine and Forge Work.—Same as M. E. 87 and 88.

8. Printing and Publishing.—Same as Journalism 9b.

Courses for Advanced Undergraduates and Graduates

50. Problems of Industrial Education.—Same as Ed. 53. *Prerequisite:* Junior standing or consent of instructor. (3). 8 MWF; 204 Adm. (E). Professor MAYS.

54a. Curriculum and Administration of Part-Time Schools.—Same as Ed. 54a and Ed. E. 54. *Prerequisite:* Junior standing. (2). 9 TT; 204 Adm. (E). Professor MAYS.

55. Problems of Vocational Guidance.—Same as Ed. 55 and Ed. E. 55. *Prerequisite:* Senior standing. (3). 9 MWF; 204 Adm. (E). Professor MAYS.

57. Methods of Trade Teaching.—(3). Arrange. 310 Adm. (E). Professor MAYS.

62. History and Organization of Manual Arts.—(3). 11 MWF; 310 Adm. (E). Professor MAYS.

E. 41. Survey of Vocational Education.—Same as Ed. 41 and Ind. Ed. 41. Extra-mural.

E. 50. Survey of Industrial Education.—Same as Ed. 53 and Ind. Ed. 50. Extra-mural.

E. 52. Teaching Related Trade Subjects.—(1 to 3).* Extra-mural.

E. 54. Principles and Methods of Part-Time Teaching.—Same as Ed. 54 and Ind. Ed. 54. Extra-mural.

E. 54a. Continuation of Ind. Ed. E. 54. Extra-mural.

E. 55. Problems of Vocational Guidance.—Same as Ed. 55 and Ind. Ed. 55. Extra-mural.

E. 55a. Continuation of E. 55.

E. 56. Teaching Shopwork.—*Prerequisite:* (a) Two years of trade or industrial experience beyond apprenticeship; (b) completion of elementary school curriculum. (1 to 3).* Extra-mural.

E. 56a. Continuation of E. 56.

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[1]Will not be opened until Shop A is filled.

ELECTRICAL ENGINEERING

2. Elementary Electrical Engineering.—*Prerequisite:* One year of college Physics; junior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
E. E. 2	3		9	TT	109 E. H.	
		Lab.	8-11	S	200 E. E. L.	

12. Alternating Current Apparatus.—*Prerequisite:* E. E. 11, 61.

E. E. 12	3	Ch	8	MWF	305 E. H.	
		J	11	MWF	305 E. H.	
		P1	1	MWF	305 E. H.	
		P2	1	MWF	109 E. H.	
		Q1	10	MWF	109 E. H.	
		Q2	10	MWF	305 E. H.	
		X	8	MWF	101 E. H.	

26. Alternating Currents.—*Prerequisite:* E. E. 25; Phys. 44a; registration in E. E. 76.

E. E. 26	4	K	8	MTWTF	108 E. H.	
		L	11	MTWTF	108 E. H.	
		M	11	MTWTF	111 E. H.	
		N	8	MTWTF	111 E. H.	
		Y	10	MWF	111 E. H.	
			9	TT	111 E. H.	

36. Alternating Current Apparatus.—*Prerequisite:* E. E. 35, 85.

E. E. 36	4	K	8	MTWTF	219 E. H.	
		L	8	MTWTF	109 E. H.	
		M	11	MTWTF	219 E. H.	
		N	11	MTWTF	109 E. H.	

52. Radio Communication.—*Prerequisite:* E. E. 51.

E. E. 52	3		10	TT	111 E. H.	
			2-5	T	311 E. E. L.	

56. Electrical Design.—*Prerequisite:* E. E. 35; M. E. 2 or 3.

E. E. 56	4	Lect. KLMNY	9	Th	119 P. L.	
		Quiz K1	8	MWF	314 E. H.	
		Quiz K2	8	TTS	314 E. H.	
		Quiz L	9	MWF	314 E. H.	
		Quiz M	10	MWF	314 E. H.	
		Quiz N	11	MWF	314 E. H.	
		Quiz Y	1	MWF	314 E. H.	

58. Power and Communication Networks.—*Prerequisite:* E. E. 26.

E. E. 58	3		9	MF	111 E. H.	
		Lab.	2-5	Th	311-A E. E. L.	

62. Alternating Current Laboratory.—*Prerequisite:* E. E. 11, 61; registration in E. E. 12.

E. E. 62	1	Ch1	1-4	W	214 E. E. L.	
		Ch2	1-4	F	214 E. E. L.	
		J1	9-12	T	200 E. E. L.	
		J2	9-12	T	214 E. E. L.	
		Q1	1-4	T	200 E. E. L.	
		Q2	1-4	T	214 E. E. L.	
		R1	1-4	Th	200 E. E. L.	
		R2	1-4	Th	214 E. E. L.	
		X1	9-12	Th	200 E. E. L.	
		X2	9-12	Th	214 E. E. L.	

72. Electrical Engineering Laboratory.—(Elective for juniors and seniors.) *Prerequisite:* E. E. 25. (1 to 3).* Arrange.

76. Electrical Engineering Laboratory.—*Prerequisite:* E. E. 25, 75; registration in E. E. 26.

E. E. 76	2	KMY	9	W	215 E. E. L.	
		LN	1	W	119 P. L.	
		K1	9-12	M	214 E. E. L.	
		K2	9-12	F	214 E. E. L.	
		L	1-4	M	200 E. E. L.	
		M	2-5	W	214 E. E. L.	
		N1	1-4	T	214 E. E. L.	
		N2	1-4	Th	200 E. E. L.	
		Y1	1-4	F	200 E. E. L.	
		Y2	1-4	F	214 E. E. L.	

86. Electrical Engineering Laboratory.—*Prerequisite:* E. E. 85; registration in E. E. 36.

E. E. 86	2	KLMNY	9	T	119 P. L.	
		K1	8-11	M	200 E. E. L.	
		K2	9-12	W	200 E. E. L.	
		L	1-4	M	200 E. E. L.	
		M	1-4	W	200 E. E. L.	
		N1	2-5	T	200 E. E. L.	
		N2	2-5	Th	200 E. E. L.	
		Y	1-4	F	200 E. E. L.	

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96. Seminar.—*Prerequisite:* Senior standing in E. E.

Subject	Credits	Section	Hours	Days	Room	Instructor
E. E. 96	1	K	10	T	305 E. H.	
		L	10	Th	305 E. H.	
		M	1	T	305 E. H.	
		N	1	Th	305 E. H.	

98. Thesis.—(3). Arrange.

ENGLISH

(Including English Language and Literature, Rhetoric, Public Speaking, and Scandinavian Languages.)

For students entering prior to September, 1929

Major: 20 hours in English excluding Rhetoric 1, 2, 10, 12, English 10, 20, 41, 42, and including at least 10 hours in English literature, at least 3 hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours in either (a) Latin or Greek or French or German; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history.

Major in Public Speaking

Major: 10 hours in public speaking, inclusive of courses 7 and 8 and either 4 or 6, and 10 hours of English exclusive of English 10, 11, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, and 22, and inclusive of one course in English literature from the advanced group.

Minors: 20 hours in any one or two of the following subjects: Psychology, philosophy, Greek, Latin, French, German, history, political science, economics, sociology.

Credit for seniors who take English 10, 11, Rhetoric 1, 2, 12 will be reduced one hour.

For students entering after September 1, 1929

Major: 20 hours in English *excluding* Rhetoric 1, 2, 10, 12, 21, 22, English 10a, 10b, 20a, 20b, 41, 42, and all courses taken during the freshman year, and *including* at least 10 hours in English literature, at least 3 hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours, excluding courses taken during the freshman year, in (a) Latin or Greek or French or German or Spanish; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history. No language courses may be regarded as satisfying the minor requirement if they are excluded from the major of that department (excepting elementary courses in Greek, Latin, French 2a and Spanish 2a). At least eight hours must be offered in each subject.

Major in Public Speaking

Major: 10 hours in public speaking, exclusive of courses taken during the freshman year, inclusive of courses 7 and 8 and either 4 or 6, and 10 hours of English exclusive of English 10a, 10b, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, 22, and inclusive of one course in English literature from the advanced group.

Minors: 20 hours, excluding courses taken during the freshman year, in any one or two of the following subjects: psychology, philosophy, Greek, Latin, French, German, history, political science, law, economics, or sociology. At least eight hours must be offered in each subject if two are chosen.

A. ENGLISH LANGUAGE AND LITERATURE

Elementary Courses

2. Survey of English Literature.—(A course primarily for English majors.) *Prerequisite:* English 1 and 10a-10b or English 1 and 20a-20b.

Engl. 2	3	B	9	MWF	123 L. H.	Fletcher
		D	11	MWF	206 L. H.	Finney
		F	2	MWF	123 L. H.	Parry

7. Ideas and Forms in English Literature.—(For students in Athletic Coaching only.) *Prerequisite:* Rhet. 1 and registration in Rhet. 2.

Engl. 7	2	C1	10	TT	213 U. H.	Lang
		C2	10	TT	312 U. H.	Simpson
		G1	3	TT	407 U. H.	Fisher
		G2	3	TT	207 U. H.	Simpson

10a. An Introduction to Literature.—Forms of poetry, mainly narrative. *Prerequisite:* The minimum entrance requirement in English. (Credit is not given for English 10a in addition to 20a and 20b.) *Note:* Seniors will receive two hours' credit only.

Engl. 10a	3	A	8	MWF	212 U. H.	Ida Baker
		B	9	MWF	212 U. H.	Templeman
		C	10	MWF	203 U. H.	Rinaker

10b. An Introduction to Literature.—Forms of poetry, mainly lyrical. (Credit is not given for English 10b in addition to 20a and 20b.) *Prerequisite:* The minimum entrance requirements in English. *Note:* Seniors will receive two hours' credit only.

Engl. 10b	3	A1	8	MWF	315 U. H.	Glenn
		A2	8	MWF	206 Adm. (E)	Miller
		B1	9	MWF	211 U. H.	French
		B2	9	MWF	204-A L. H.	Tupper
		B3	9	MWF	312 Adm. (E)	Rinaker
		C1	10	MWF	232 L. H.	Kelso
		C2	10	MWF	106 Entom.	Rapp
		C3	10	MWF	203 L. H.	Weirick
		D1	11	MWF	233 L. H.	Tupper
		D2	11	MWF	204-A L. H.	Landis
		E1	1	MWF	204 U. H.	Kelley

Subject	Credits	Section	Hours	Days	Room	Instructor
Engl. 10b	3	E2	1	MWF	302 L. H.	Bloom
		F1	2	MWF	104 L. H.	Kyle
		F2	2	MWF	412 U. H.	Busey
		F3	2	MWF	315 U. H.	Goldman
		G1	3	MWF	219 L. H.	Parry
		G2	3	MWF	202 U. H.	Goldman
		H1	4	MWF	411 U. H.	Van Gundy
		K1	8	TTS	413 U. H.	Summers
		K2	8	TTS	219 L. H.	Secord
		L1	9	TTS	204 U. H.	Haswell
		M1	10	TTS	207 U. H.	Dean
		N1	11	TTS	211 U. H.	

13. **American Literature.**—*Prerequisite:* English 1-2, or 10a-10b, or junior standing. (2). 1 TT; 103 New Agr. Professor Paul, Mrs. Sweney, Mrs. Trelease.

20a. **Chief English Writers of the Nineteenth Century.**—*Prerequisite:* One year of college work. (Credit is not given for the course in addition to English 10a and 10b.)

Engl. 20a	4	A1	8	MTWT	406 U. H.	Belsley
		A2	8	MTWT	408 U. H.	Coleman
		B1	9	MTWT	406 U. H.	Harris
		C1	10	MTWT	406 U. H.	
		C2	10	MTWT	408 U. H.	
		D1	11	MTWT	204 U. H.	Sandin
		E1	1	MTWT	207 U. H.	Lemke
		F1	2	MTWT	213 U. H.	E. H. Peterson
		G1	3	MTWT	406 U. H.	

20b. **Chief English Writers Before 1800.**—*Prerequisite:* English 20a. (Credit is not given for the course in addition to English 10a and 10b.)

Engl. 20b	4	A	8	MTWT	207 U. H.	Templeman
		B	9	MTWT	207 U. H.	Jefferson
		C	10	MTWT	310 U. H.	Trelease
		D	11	MTWT	406 U. H.	Glenn
		E	1	MTWT	203 U. H.	French

22. **Literary Study of the Bible.**—*Prerequisite:* Six hours of English literature, or English 20a or 20b with a grade of B. (3). 11 MWF; 103 New Agr. Professor E. C. Baldwin.

23. **Introduction to Shakespeare.**—*Prerequisite:* English 10a and 10b; or 20a or 20b with a grade of B; or junior standing.

Engl. 23	3	A	1	MWF	203 L. H.	Fletcher
		B	2	MWF	109 L. H.	Finney

24. **English Literature of the Victorian Period.**—*Prerequisite:* Six hours of English literature. (3). 11 MWF; 123 L. H. Assistant Professor Kyle.

33. **English Literature from 1789-1837.**—*Prerequisite:* Six hours of English literature or junior standing. (3). 3 MWF; 105 L. H. Professor Eaton.

34. **Dr. Johnson and His Circle.**—*Prerequisite:* Six hours of English literature, and junior standing. (3). 11 MWF; 227 L. H. Assistant Professor Rinaker.

41. **The Teaching of English Literature.**—*Prerequisite:* Ten hours of English literature and junior standing. (2). 3 TT; 306 L. H. Professor Paul, Mrs. Sweney.

42. **The Teaching of English Composition.**—*Prerequisite:* Nine hours of composition. (2). 2 TT; 202 L. H. Professor Paul, Mrs. Sweney.

44. **Contemporary Poetry.**—*Prerequisite:* Ten hours of English literature, or junior standing. (3). 1 MWF; 103 New Agr. Assistant Professor Weirick.

Courses for Advanced Undergraduates and Graduates

Prerequisite: Junior or senior standing, and either ten hours of English literature or consent of the instructor.

3. **The Poetry of Milton.**—(3). 9 MWF; 304 L. H. Professor E. C. Baldwin.

5. **Shakespeare.**—(3). 11 MWF; 109 L. H. Professor T. W. Baldwin.

9. **Old English (Anglo-Saxon).**—Beowulf. (3). 11 MWF; 305 L. H. Professor Jones.

17. **History of the English Language.**—(Consent of instructor must be obtained.) (3). 9 MWF; 305 L. H. Professor Flom.

26. **Spenser.**—(3). 9 MWF; 114 L. H. Professor Jones.

30. **Tendencies in American Fiction Since 1870.**—(Consent of the instructor must be obtained.) (3). 10 MWF; 204-A L. H. Dr. Tupper.

36. **The English Drama (exclusive of Shakespeare) from 1600 to 1700.**—(3). 3 MWF; 308 L. H. Associate Professor Hillebrand.

38. **The Development of the Arthurian Tradition.**—(3). 1 MWF; 117 L. H. Assistant Professor Parry.

54b. Introduction to Comparative Literature.—*Prerequisite:* English 54a. Survey of the greatest French, German, and English authors.

Subject	Credits	Section	Hours	Days	Room	Instructor
Engl. 54b	3	Lect.	10	WF	218 U. H.	Oliver Aron Landis
		A Disc.	10	M	133 L. H.	Landis
		B Disc.	10	M	136 L. H.	Parry
		C Disc.	10	M	207 U. H.	Busey

56. Tennyson.—Intensive reading of the principal poems. (3). 10 MWF; 206 L. H. Professor Graham.

60b. Thesis.—(Primarily for candidates for honors.) (2). Time to be arranged. Assistant Professor Rinaker and others.

Courses for Graduates

101. Research in Special Topics.—(1 to 2 units).* Professors Graham, Flom, Jones, Paul, T. W. Baldwin, E. C. Baldwin; Associate Professors Hillebrand, Jefferson; Assistant Professors Parry, Secord, Fletcher, Finney.

128. Literature of the Sixteenth Century.—(1 unit). 10 TT; 117 L. H. Professor Jones.

130. Tragedy.—(1 unit). 1 TT; 113 L. H. Associate Professor Hillebrand.

135. Problems in American Literature.—Whitman and Lowell. (1 unit). 8 TT; 113 L. H. Professor Paul.

138. The Romantic Movement.—(1 unit). 2 TT; 204-A L. H. Professor Eaton.

140. Investigations in Modern English Literature.—(1 to 3 units).* Three hours once a week. Arrange. 324 U. H. Professor Graham.

141. Literature of the Seventeenth Century.—(1 unit). 3 TT; 114 L. H. Professor E. C. Baldwin.

145. Studies in the Eighteenth Century Literature.—(1 unit). 2 MW; 113 L. H. Professor Eaton.

147. Shakespeare and Elizabethan Drama.—Critical study of the chief plays. (1 unit). 10 MW; 219 L. H. Professor T. W. Baldwin.

148. Seminar in Elizabethan Drama.—(1 unit). Arrange. Professor T. W. Baldwin.

151. The Literature of Travel and Biography in Relation to Prose Fiction.—(1 unit). 11 TT; 133 L. H. Assistant Professor Secord.

B. RHETORIC

0. Review Rhetoric.—(No credit.)

Rhet. 0		H1	4	MWF	311 U. H.	Griswold
		H2	4	MWF	208 U. H.	Scheerer

1. Rhetoric and Composition.—*Prerequisite:* The minimum entrance requirements in English (Two hours' credit for seniors.)

Rhet. 1	3	A1	8	MWF	202 U. H.	Moeller
		A2	8	MWF	412 U. H.	Charles
		B1	9	MWF	411 U. H.	Blair
		B2	9	MWF	318 U. H.	Davidson
		C1	10	MWF	206 Adm. (E)	Noble
		C2	10	MWF	208 Adm. (E)	Slow
		D1	11	MWF	302 U. H.	Charles Baker
		D2	11	MWF	407 U. H.	
		E1	1	MWF	403 U. H.	Stutzman
		E2	1	MWF	411 U. H.	Dolk
		F1	2	MWF	203 U. H.	Hurley
		F2	2	MWF	302 U. H.	
		G1	3	MWF	311 L. H.	Giddings
		G2	3	MWF	204 U. H.	Owen
		H	4	MWF	204 U. H.	Washburn
		K	8	TTS	411 U. H.	Hamilton
		L	9	TTS	412 U. H.	Orlovich
		M	10	TTS	204 U. H.	Fielder
		N	11	TTS	219 L. H.	Gress

2. Rhetoric and Composition.—*Prerequisite:* Rhet. 1. (Two hours' credit for seniors.)

Rhet. 2	3	A1[1]	8	MWF	411 U. H.	Blair
		A2[1]	8	MWF	203 U. H.	Hamilton
		A3[1]	8	MWF	213 U. H.	Harris
		A4	8	MWF	413 U. H.	Noble
		A5	8	MWF	302 U. H.	
		A6	8	MWF	203-A L. H.	Kelso
		A7	8	MWF	204 U. H.	Slow

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Sections for engineering students only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Rhet. 2	3	A8	8	MWF	207 Adm. (E)	Lemke
		A9	8	MWF	208 Adm. (E)	Charles Baker
		A10	8	MWF	123 L. H.	Davidson
		B1[1]	9	MWF	203 U. H.	Belsley
		B2[1]	9	MWF	407 U. H.	Haswell
		B3	9	MWF	413 U. H.	Kelley
		B4	9	MWF	208 Adm. (E)	Slow
		B5	9	MWF	302 U. H.	Trelease
		B6	9	MWF	412 U. H.	Miller
		B7	9	MWF	408 U. H.	Glenn
		B8	9	MWF	404 U. H.	Ida Baker
		C1	10	MWF	302 L. H.	Hamilton
		C2	10	MWF	212 U. H.	French
		C3	10	MWF	204 U. H.	Lemke
		C4	10	MWF	413 U. H.	Charles
		C5	10	MWF	204 Adm. (E)	Moeller
		C6	10	MWF	312 Adm. (E)	Kelley
		C7	10	MWF	113 U. H.	Charles Baker
		C8	10	MWF	411 U. H.	Jefferson
		C9[2]	10	MWF	213 U. H.	Lang
		C10[2]	10	MWF	312 U. H.	Simpson
		D1[1]	11	MWF	312 Adm. (E)	Templeman
		D2	11	MWF	207 U. H.	Busey
		D3	11	MWF	411 U. H.	Davidson
		D4	11	MWF	315 U. H.	Rapp
		D5	11	MWF	318 U. H.	Noble
		D6	11	MWF	308 Adm. (E)	Miller
		D7	11	MWF	404 U. H.	Belsley
		D8	11	MWF	207 Adm. (E)	Moeller
		E1[1]	1	MWF	208 Adm. (E)	Hurley
		E2	1	MWF	407 U. H.	Giddings
		E3	1	MWF	413 U. H.	
		E4	1	MWF	408 U. H.	Washburn
		E5	1	MWF	304 Adm. (E)	
		E6	1	MWF	202 L. H.	Van Gundy
		E7	1	MWF	204-A L. H.	Griswold
		E8	1	MWF	219 L. H.	Goldman
		E9	1	MWF	202 U. H.	Fain
		F1[1]	2	MWF	408 U. H.	Sandin
		F2[1]	2	MWF	204 U. H.	Giddings
		F3	2	MWF	219 L. H.	Stutzman
		F4	2	MWF	413 U. H.	Fisher
		F5	2	MWF	207 U. H.	Dolk
		F6	2	MWF	114 L. H.	Scheerer
		F7	2	MWF	105 L. H.	Fain
		F8	2	MWF	212 U. H.	Griswold
		F9	2	MWF	300 L. H.	Bloom
		G1[1]	3	MWF	105 Entom.	Scheerer
		G2	3	MWF	312 Adm. (E)	Hurley
		G3	3	MWF	203-A L. H.	Dolk
		G4	3	MWF	213 U. H.	E. H. Peterson
		G5	3	MWF	411 U. H.	Van Gundy
		G6	3	MWF	123 L. H.	Washburn
		G7	3	MWF	413 U. H.	Sandin
		G8[2]	3	MWF	407 U. H.	Fisher
		G9[2]	3	MWF	207 U. H.	Simpson
		H1[1]	4	MWF	413 U. H.	E. H. Peterson
		H2	4	MWF	202 U. H.	Fain
		H3	4	MWF	211 L. H.	Owen
		H4	4	MWF	203-A L. H.	
		H5	4	MWF	203 U. H.	Stutzman
		K1[1]	8	TTS	203 U. H.	Brawner
		K2	8	TTS	412 U. H.	Dean
		K3	8	TTS	203-A L. H.	Fielder
		K4	8	TTS	204 U. H.	
		K5	8	TTS	212 U. H.	J. D. Petersen
		K6	8	TTS	213 U. H.	Gress
		L1[1]	9	TTS	408 U. H.	Roberts
		L2	9	TTS	123 L. H.	Secord
		L3	9	TTS	413 U. H.	Dean
		L4	9	TTS	203 U. H.	
		M1[1]	10	TTS	211 U. H.	Orlovich
		M2	10	TTS	407 U. H.	Summers
		M3	10	TTS	411 U. H.	
		M4	10	TTS	412 U. H.	
		M5	10	TTS	212 U. H.	Roberts
		N1[1]	11	TTS	411 U. H.	J. D. Petersen

[1]Sections for engineering students only.
[2]Sections for students in athletic coaching only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Rhet. 2	3	N2	11	TTS	412 U. H.	
		N3	11	TTS	203-A L. H.	SUMMERS
		N4	11	TTS	413 U. H.	FIELDER
		N5	11	TTS	315 U. H.	BRAWNER

3. Exposition.—*Prerequisite:* Rhet. 1 and 2.[1]

Rhet. 3	3	B	9	MWF	133 L. H.	KYLE
		D	11	MWF	208 Adm. (E)	HASWELL
		F	2	MWF	204-A L. H.	LANDIS
		G	3	MWF	114 L. H.	FLETCHER

4. Narration and Description.—*Prerequisite:* Rhet. 1 and 2.[1]

Rhet. 4	3	B	9	MWF	213 U. H.	RAPP
		C	10	MWF	240 L. H.	FINNEY
		D	11	MWF	306 L. H.	KELSO
		F	2	MWF	411 U. H.	

7. Advanced Narrative Composition.—*Prerequisite:* Rhet. 6. (3). 3 MWF; 204-A L. H. Assistant Professor WEIRICK.

10. Business Letter Writing.—*Prerequisite:* Rhet. 1 and 2.

Rhet. 10	2	A1 Eng.	8	MW	404 U. H.	LANG
		A2 Com.	8	TT	223 Com.	MOOD
		B1 Com.	9	MW	126 Com.	ANDERSON
		B2 LAS, Agr., Ed.	9	MW	102 Entom.	TARPLEY
		B3 Eng.	9	TT	213 U. H.	LANG
		C1 Com.	10	MW	125 Com.	TARPLEY
		C2 Com.	10	MW	126 Com.	ANDERSON
		C3 Com.	10	TT	108 Com.	TARPLEY
		C4 Com.	10	MW	329 Com.	SCHENCK
		C5 LAS, Agr., Ed.	10	TT	413 U. H.	MOOD
		C6 Com.	10	TT	125 Com.	SCHENCK
		D1 LAS, Agr., Ed.	11	MW	413 U. H.	MOOD
		D2 Eng.	11	TT	212 U. H.	TARPLEY
		D3 Com.	11	TT	329 Com.	ANDERSON
		E1 Com.	1	MW	305 Com.	SAUNDERS
		E2 Com.	1	MW	224 Com.	COLEMAN
		E3 LAS, Agr., Ed.	1	TT	204 Adm. (E)	COLEMAN
		F1 Com.	2	MW	305 Com.	SAUNDERS
		F2 Com.	2	TT	305 Com.	SAUNDERS
		F3 Eng.	2	TT	203 U. H.	COLEMAN

21. Advanced Business Writing.—Sales letter campaigns and advertising copy. *Prerequisite:* Grade A or B in Rhet. 10. (2). 1 TT; 305 Com. Associate Professor SAUNDERS.

22. Special Types of Business Writing.—Business reports and articles for business magazines. *Prerequisite:* Rhet. 10. (2). 10 TT; 329 Com. Mr. ANDERSON.

Course for Advanced Undergraduates and Graduates

46. Dramatic Composition.—(3). 2 MWF; 302 L. H. Associate Professor HILLEBRAND.

C. PUBLIC SPEAKING

1. Principles of Effective Speaking.—*Prerequisite:* Rhet. 1 and 2.

Pub. Spk. 1	3	A	8	MWF	202 Entom.	HENDERSON
		B	8	MWF	148 L. H.	MCCARTY
		C	9	TTS	202 Entom.	TURNELL
		D	9	MWF	202 Entom.	HENDERSON
		E	9	MWF	148 L. H.	WHITEFORD
		F	10	MWF	202 Entom.	SWANSON
		G	10	MWF	148 L. H.	WHITEFORD
		H	11	MWF	148 L. H.	MCCARTY
		I	11	MWF	202 Entom.	TURNELL
		J	1	MWF	148 L. H.	SWANSON
		K	2	MWF	148 L. H.	NELSON
		L	3	MWF	202 Entom.	HENDERSON

2. Business and Professional Speaking.—*Prerequisite:* Pub. Spk. 1.

Pub. Spk. 2	2	A	8	TT	142 L. H.	HUSTON
		B	9	TT	142 L. H.	HUSTON
		C	10	TT	142 L. H.	MCCARTY
		D	11	TT	142 L. H.	WHITEFORD
		E	1	TT	202 Entom.	HUSTON
		F	2	TT	142 L. H.	SANDFORD

3. Elements of Debating.—*Prerequisite:* Pub. Spk. 1.

Pub. Spk. 3	3	A	9	MWF	142 L. H.	MCCARTY
		B	2	MWF	142 L. H.	WHITEFORD

[1]Freshmen exempted from Rhetoric 1 and 2 not admitted until the sophomore year.

10. Oral Interpretation of Literature.—*Prerequisite:* Pub. Spk. 1.

Subject	Credits	Section	Hours	Days	Room	Instructor
Pub. Spk. 10	2	A	9	TT	148 L. H.	Nelson
		B	10	TT	148 L. H.	Nelson
		C	11	TT	148 L. H.	Henderson
		D	1	TT	148 L. H.	Nelson

Courses for Advanced Undergraduates and Graduates

4. Advanced Debating.—*Prerequisite:* Pub. Spk. 3; junior standing. (3). 10 MWF; 142 L. H. Associate Professor Sandford.

7. Masters of Public Address.—*Prerequisite:* Pub. Spk. 2 or 3; junior standing. (3). 11 MWF; 142 L. H. Associate Professor Sandford.

11. Play Production.—*Prerequisite:* Pub. Spk. 8, junior standing.

Pub. Spk. 11	3	A	1	MWF	L. H. Aud.	Nelson
		B	2	MWF	L. H. Aud.	Swanson

12. The Teaching of Public Speaking.—*Prerequisite:* Ten hours of public speaking; junior standing. (2). 1 TT; 142 L. H. Associate Professor Sandford.

D. SCANDINAVIAN LANGUAGES AND LITERATURE

Undergraduate Course Not Open to Freshmen

6. Ibsen.—Lectures; study of three of the social dramas; parallel reading of three early and three of the later dramas. *Prerequisite:* Junior standing. (2). 9 TT; 202 L. H. Professor Flom.

Courses for Graduates

101. Old Norse.—Introductory course. (1 unit). Arrange. 209 L. H. Professor Flom.

150. Research.—(½ to 2 units).* Arrange. 209 L. H. Professor Flom.

ENTOMOLOGY

For students entering prior to September, 1929

Major: 20 hours from courses offered in the department, except Entom. 1, 2, and 31.

Minors: 20 hours in not more than three of the following: Zoology, botany, physiology, chemistry, horticulture, and agronomy.

Entomology 1 is open to freshmen, without prerequisite. Course 1 or 2 may be followed by any of the other courses for undergraduates or by 20 or 21 in the senior year. Agricultural students and others desiring strictly practical work may take 1, 8, and 20 in sequence. Arts and other students may begin with either 1 or 2. Students preparing for service as economic entomologists should take as many of the courses offered as possible and should consult the head of the department.

For students entering after September 1, 1929

Major: 20 hours exclusive of Entomology 1, 2, 31, and all courses taken during the freshman year. At least five hours must be offered from the advanced group.

Minors: 20 hours, excluding courses taken during the freshman year, in not more than two of the following, with not less than eight hours in either department, if two subjects are chosen: Zoology, botany, chemistry, physiology, horticulture, and agronomy.

Entomology 1 is open to freshmen, without prerequisite. Course 1 or 2 may be followed by any of the other courses for undergraduates or by 20 or 21 in the senior year. Agricultural students and others desiring strictly practical work may take 1, 8, and 20 in sequence. Arts and other students may begin with either 1 or 2. Students preparing for service as economic entomologists should take as many of the courses offered as possible and should consult the head of the department.

1. Destructive and Useful Insects.—(Two hours' credit for seniors.)

Entom. 1	3	A Lect.	10	MF	309 Entom.	Metcalf
		A Lab.	11	MF and		Balduf, Evans,
			10, 11	W	309 Entom.	and Townsend
		B Lect.	1	MF	309 Entom.	Metcalf
		B Lab.	2	MF and		Balduf, Milum,
			1, 2	W	309 Entom.	and Townsend

7b. Internal Morphology and Physiology.—*Prerequisite:* Entom. 1 or 2 and 30 hours of university work. (3). 1, 2 MWF; 312 Entom. Associate Professor Hayes.

8b. Insect Pests of Field Crops.—*Prerequisite:* Entom. 1 or 2 and 30 hours of university work. (3 or 5).* 1, 2, 3 TT; 312 Entom. Associate Professor Hayes.

31. Essentials of Beekeeping.—*Prerequisite:* 30 hours of university work. (2). 10, 11 TT; 104 Viv. Assistant Professor Milum.

32b. Advanced Beekeeping.—*Prerequisite:* Entom. 31 or consent of instructor and 30 hours of university work. (2). 3, 4 TT; 104 Viv. Assistant Professor Milum.

Courses for Advanced Undergraduates and Graduates

6. Special Problems.—*Prerequisite:* Any of the following: Entom. 3, 7, 8, 10, 20, 21, 22, or 31; senior standing. (2 to 5).* Saturday morning; additional hours to be arranged. Various instructors.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

21. **Insect Bionomics.**—*Prerequisite:* Entom. 1 or 2 and senior standing. (3). 3 MWF; 310 Entom. Professor METCALF.

Courses for Graduates

The prerequisite for graduate work in entomology is two years of undergraduate biology, including zoology and entomology.

102. **Research in the Morphology and Embryology of Insects.**—(½ to 2 units).* Time to be arranged. Associate Professor HAYES.

108. **Research in Economic Entomology.**—(½ to 2 units).* Time to be arranged. Professor METCALF.

109. **Research in Systematic Entomology.**—(½ to 2 units).* Time to be arranged. Professor METCALF and Assistant Professor BALDUF.

110. **Research in the Biology and Ecology of Insects.**—(½ to 2 units).* Time to be arranged. Professor METCALF.

FARM MECHANICS

Courses for Undergraduates

1. **Elementary Farm Mechanics.**—*Prerequisite:* 30 hours of university work.

Subject	Credits	Section	Hours	Days	Room	Instructor
Farm Mech. 1	3	Lect.	8	WF	201 F. M.	ALBRECHT
		A Quiz	9	WF		REED
		B Quiz	8, 9	T		
		C Quiz	1, 2	T		
		D Lab.	8, 9	M		
		E Lab.	8, 9	Th		
		F Lab.	1, 2	Th		

3. **Gas Engines and Tractors.**—*Prerequisite:* Farm Mech. 1. An inspection trip estimated to cost $15 to $20 is required.

Farm Mech. 3	3	Lect.	11	TT	201 F. M.	SHAWL
		A Quiz	9	T		
		B Quiz	2	Th		
		C Lab.	2, 3	T		
		D Lab.	9, 10	S		

4. **Farm Buildings.**—*Prerequisite:* Farm Mech. 1. (3). 1 MW; 202 F. M. Laboratory time to be arranged. Assistant Professor FOSTER.

12. **Farm Home Equipment.**—*Prerequisite:* Farm Mech. 1 or 60 hours of university work. (2). Lect. 1 T, Lab. 1, 2 Th; 204 F. M. Professor LEHMANN.

18b. **Investigation with Thesis.**—*Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. Continues throughout the year; credit is not given for either semester separately. (5). Time to be arranged. Professor LEHMANN, Assistant Professor SHAWL.

21. **Farm Shop Work.**—*Prerequisite:* Farm Mech. 1. (2). 3, 4 MW; 201 F. M. Mr. ALBRECHT.

Courses for Advanced Undergraduates and Graduates

17. **Harvesting Machinery.**—*Prerequisite:* Farm Mech. 2. (3). Lect. 11 MW, Lab. 2, 3, 4 T; 201 F. M. Assistant Professor SHAWL.

51. **Special Power and Field Machinery.**—*Prerequisite:* Farm Mech. 17 or 28. Consult instructor before registering. (3). Time to be arranged. Professor LEHMANN, Assistant Professor SHAWL.

FARM ORGANIZATION AND MANAGEMENT

Courses for Undergraduates

1. **Elementary Farm Management.**—*Prerequisite:* Econ. 1 or 2; 60 hours of university work. Local field trips will be arranged. Estimated cost $5.

Farm Mgt. 1	3	Lect. and Disc.	10	TT	316 New Agr.	WILCOX and others
		A Lab.	1, 2	Th	331 New Agr.	
		B Lab.	1, 2	F	331 New Agr.	

10b. **Investigation with Thesis.**—*Prerequisite:* 90 hours of university work including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. This course is continuous throughout the year; credit is not given for either semester separately. (5). Time to be arranged. Associate Professor CASE and others.

Course for Advanced Undergraduates and Graduates

5. **Farm Organization.**—*Prerequisite:* Farm Mgt. 1. Local field trips will be arranged; estimated cost not to exceed $10. (3). 8 MWF; 331 New Agr. Associate Professor CASE, Assistant Professor JOHNSTON.

(See also Animal Husbandry 29, Systems of Live Stock Farming.)

Courses for Graduates

101. **Farm Management Principles and Investigation Methods.**—(1 unit). Twice a week. Time to be arranged. Associate Professor CASE.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

110. Farm Organization and Management Research.—Only those who write acceptable theses will receive credit. (All graduate students majoring in Farm Organization and Management should register in this course.) Once a week; both semesters. (1 to 2 units).* Time to be arranged. Associate Professor CASE.

FINE ARTS

(See Art and Design, Landscape Architecture, and Music.)

FLORICULTURE

(See Horticulture.)

FRENCH

(See Romance Languages and Literature.)

GENERAL ENGINEERING DRAWING

(See Drawing, General Engineering.)

GEOLOGY

(Including Mineralogy, Paleontology, and Geography.)

A. GEOLOGY

For students entering prior to September, 1929

Major: 20 hours in Geology exclusive of Geology 1, 43, and 44, and including Geology 2b and 4, the field course.

Minors: 20 hours selected from any one or two of the following departments: Astronomy, botany, chemistry, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology.

For students entering after September 1, 1929

Major: 20 hours in Geology exclusive of Geology 1, 43, and 44 and all courses taken during the freshman year; inclusive of Geology 3 and 4 (the field trip), and at least 5 hours of courses not open to freshmen or sophomores.

Minors: 20 hours of courses in one or two of the following named departments, exclusive of those taken in the freshman year: Astronomy, botany, chemistry, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology. At least eight hours must be offered in each subject if two are chosen.

1. General Geology.—Discussions; quiz; 4 hours' laboratory; one or two field trips. *Note:* Seniors receive only 4 credits; students who have credit for Geography 1 receive only 3 credits for Geology 1.

Subject	Credits	Section	Hours	Days	Room	Instructor
Geol. 1	5	A Lect. and Quiz	8	TWTF	247 N. H.	SHEPARD
		B Lect. and Quiz	9	TWTF	247 N. H.	SAVAGE
		C Lect. and Quiz	10	TWTF	247 N. H.	CRICKMAY
		D Lect. and Quiz	11	TWTF	247 N. H.	HOWARD
		E Lect. and Quiz	2	MTWT	247 N. H.	QUIRKE
		1 Lab.	1-3	MF	251 N. H.	CRICKMAY
		2 Lab.	1-3	TT	251 N. H.	WANLESS
		3 Lab.	3-5	TT	251 N. H.	WANLESS
		4 Lab.	8-10	TT	251 N. H.	QUIRKE
		5 Lab.	10-12	TT	251 N. H.	SHEPARD
		6 Lab.	3-5	MF	251 N. H.	CRICKMAY

2a. Historical Geology.—*Prerequisite:* Geol. 1. *Note:* Seniors receive only four hours' credit.

Geol. 2	5	A Lect.	9	MTWTF	134 N. H.	SUTTON
		B Lect.	11	MTWTF	134 N. H.	SAVAGE
		C Lect.	2	MTWTF	134 N. H.	SUTTON

4. Field Work.—*Prerequisite:* Geol. 2b or 3. Lecture and quiz 1 hour weekly, 3 field trips on Saturdays, and mapping of an area in northern Illinois during the week following the Easter recess. Credit will be given only upon the completion of a satisfactory written report. Estimated traveling expense about $40.00. Required of majors in Geology. (3). 8 S; 150 N. H. Assistant Professor WANLESS.

43. Engineering Geology.—*Prerequisite:* Sophomore standing in the College of Engineering. (3). 1 TT; 247 N. H. Lab., 9-12 S; 251 N. H. Professor QUIRKE.

44. Agricultural Geology.—*Prerequisite:* Sophomore standing in the College of Agriculture.

Geol. 44	3	Lect. and Quiz	1	MWF	247 N. H.	WANLESS
		Lab.	10-12	F	147 N. H.	WANLESS

Courses for Advanced Undergraduates and Graduates

16. Stratigraphy.—*Prerequisite:* Geol. 9. (3). 8 MWF; 236 N. H. Lab. hours to be arranged. Assistant Professor SUTTON.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

17. Geomorphology.—*Prerequisite:* Geol. 2a. (3). 3 MWF; 247 N. H. Assistant Professor SHEPARD.

22. Mountain and Continental Structures.—*Prerequisite:* Geol. 15. (3). 9 TTS; 241 N. H. Assistant Professor SHEPARD.

48. Silicate Minerals.—*Prerequisite:* Geol. 47. (5). 10-12 MTWTF; 150 N. H. Professor BAYLEY, Mr. GRIFFIN.

49. Microscopic Mineralogy.—*Prerequisite:* Geol. 47 or 20. Designed for students of Ceramics or of Chemistry. (5). 8-10 MWF, 1-3 TT; 254 N. H. Assistant Professor HOWARD.

96. Economic Geology.—*Prerequisite:* Geol. 2a or 43, and 20 or 48. (3). 9 MWF; 150 N. H. Professor QUIRKE.

60b. Introduction to Research.—Limited to seniors majoring in geology. (2). Members of the department.

Courses for Graduates

101. Advanced Crystallography.—(1 unit). Twice a week. Hours to be arranged. 253 N. H. Professor BAYLEY.

102. Igneous Petrography.—(1 unit). Twice a week. Hours to be arranged. 253 N. H. Professor BAYLEY.

135. Research.—(½ to 4 units).* Once a week. Hours to be arranged. Members of the department.

142. Stratigraphic Paleontology: Paleozoic.—(1 unit). 1 MWF; 236 N. H. Professor SAVAGE.

143. Stratigraphic Paleontology: Mesozoic and Cenozoic.—(1 unit). Hours to be arranged. 236 N. H. Assistant Professor SUTTON.

152. Advanced Historical Geology.—(1 unit). 11 MWF; 241 N. H. Assistant Professor CRICKMAY.

160. Petroleum Geology.—(1 unit). Twice a week. Hours to be arranged. Assistant Professor HOWARD.

B. GEOGRAPHY

For students entering prior to September, 1929

Major: 20 hours of courses that have prerequisites in geography, exclusive of Geography 1.

Minors: 20 hours selected from not more than two of the following: Economics, education, history, geology, zoology, and botany.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, and 12 or 8 or 53.

For students entering after September 1, 1929

Major: 20 hours of courses that have prerequisites in geography, exclusive of Geography 1, and all courses taken during the freshman year and including at least 5 hours of courses not open to freshmen.

Minors: 20 hours selected from not more than two of the following named departments, exclusive of those taken in the freshman year: Economics, education, history, zoology, botany, and geology. At least eight hours must be offered in each subject, if two are chosen.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, and 10 or 11, or 12 or 8 or 53.

Courses for Undergraduates

1. Elements of Geography.—Lectures and discussions; two or three field trips. *Note:* Seniors receive only 4 hours' credit and those who have credit for Geol. 1 receive only 3 hours' credit for Geog. 1.

Subject	Credits	Section	Hours	Days	Room	Instructor
Geog. 1	5	A Lect. and Disc.	8	MTWF	435 N. H.	PAGE
		A Lab.	8-10	Th	422 N. H.	
		B Lect. and Disc.	9	MWTF	435 N. H.	BURGY
		B Lab.	8-10	T	422 N. H.	
		C Lect. and Disc.	10	MWTF	435 N. H.	BURGY
		C Lab.	10-12	T	422 N. H.	
		D Lect. and Disc.	10	MTWF	434 N. H.	BLOCK
		D Lab.	10-12	Th	422 N. H.	
		E Lect. and Disc.	11	MTWF	435 N. H.	BLOCK
		E Lab.	3-5	Th	422 N. H.	
		F Lect. and Disc.	1	MWTF	435 N. H.	DAMEIER
		F Lab.	1-3	T	422 N. H.	
		G Lect. and Disc.	2	MTWF	435 N. H.	BLOCK
		G Lab.	1-3	Th	422 N. H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1 ½, or 2.

2. Industrial and Commercial Geography.—*Prerequisite:* Geog. 1. Lectures and discussion. *Note:* Seniors receive 4 hours' credit.

Subject	Credits	Section	Hours	Days	Room	Instructor
Geog. 2	5	A	8	MTWTF	434 N. H.	Blanchard
		B	11	MTWTF	434 N. H.	Poggi

6. Cartography.—*Prerequisite:* Geography, 2; permission of instructor. (1). 11 M; 422 N. H. Dr. Page.

7. Field Geography.—*Prerequisite:* Geog. 1. The field selected for study in 1931 is in southern Illinois. Estimated expense about $40.00. (2). Week after Easter vacation. Dr. Page.

9. The Teaching of Geography.—*Prerequisite:* At least one regional course. (2). 2 TT; 434 N. H. Miss Poggi.

14a. Climate of the Continents.—*Prerequisite:* Geog. 14. Lectures, discussions. (2). 10 T, 435 N. H.; 10 Th, 434 N. H. Dr. Page.

Courses for Advanced Undergraduates and Graduates

5. Geography of South America.—*Prerequisite:* Geog. 2 and senior standing. (3). 2 MWF; 434 N. H. Dr. Burgy.

8. Geography of Europe.—*Prerequisite:* Geog. 2 and senior standing. (3). MWF; 422 N. H. Professor Blanchard.

53b. Advanced Industrial and Commercial Geography.—*Prerequisite:* Geog. 2; senior standing; at least one regional course. (3). 10 MWF; 422 N. H. Professor Blanchard.

60a. *See* Geol. 60a.

Courses for Graduates

135. *See* Geol. 135.

GERMAN

For students entering prior to September, 1929

Major: 20 hours in German, excluding courses 1 and 2, and including 6 hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list: Languages (not less than 8 hours in any one), education, history, philosophy, and psychology.

Seniors taking German 1-2 will receive but three hours' credit.

For students entering after September 1, 1929

Major: 20 hours in German, excluding courses 1 and 2 and all courses taken during the freshman year, and including 6 hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours, exclusive of courses taken during the freshman year, in not more than two subjects chosen from the following list, with not less than eight hours in each subject: Education, English (excluding Rhetoric 1, 2, and 12), French (excluding 1a), Greek, history, Italian, Latin, philosophy, Spanish (excluding 1a).

Seniors taking German 1-2 will receive but three hours' credit.

Elementary and Intermediate Courses

1. Elementary Course.—*Note:* Seniors will receive three hours' credit only.

German 1	4	A1	8	MTWT	310 U. H.	Moore
		A2	8	MTWT	238 L. H.	Munro
		B	9	MTWT	312 U. H.	Kurtz
		C	11	MTWT	310 U. H.	Schreiber
		D	1	MTWT	205 L. H.	Robinson
		E	3	MTWT	206 L. H.	Moore
		F	4	MTWT	206 L. H.	Wagner

2. Elementary Course (continued).—*Prerequisite:* German 1, German S1, or 1 year of high-school German. *Note:* Seniors will receive three hours' credit only.

German 2	4	A1	8	MTWT	202 L. H.	Robinson
		A2	8	MTWT	312 U. H.	Kurtz
		A3	8	MTWT	205 L. H.	Jehle
		A4	8	MTWT	233 L. H.	Kettelkamp
		B1	9	MTWT	205 L. H.	Brooks
		B2	9	MTWT	302 L. H.	Mueller
		B3	9	MTWT	238 L. H.	Voigt
		C	10	MTWT	233 L. H.	Munro
		D1	11	MTWT	312 U. H.	Blaisdell
		D2	11	MTWT	311 U. H.	Kurtz
		E1	1	MTWT	224 L. H.	Voigt
		E2	1	MTWT	310 U. H.	Kettelkamp
		F	2	MTWT	310 U. H.	Schreiber
		G1	3	MTWT	205 L. H.	Mueller
		G2	3	MTWT	312 U. H.	Wagner
		H	4	MTWT	205 L. H.	Moore

4. Intermediate Course.—*Prerequisite:* German 2, German S2, or 2 years of high-school German, or equivalent.

German 4	4	A	8	MTWT	204-A L. H.	Blaisdell
		B	9	MTWT	310 U. H.	Koller
		C	2	MTWT	205 L. H.	Jehle

5. **Intermediate Course (continued).**—Literary reading. *Prerequisite:* German 4, German S4, or 3 years of high-school German, or equivalent.

Subject	Credits	Section	Hours	Days	Room	Instructor
German 5	4	A	8	MTWT	206 L. H.	GEISSENDOERFER
		B	9	MTWT	219 L. H.	BLAISDELL
		C	1	MTWT	233 L. H.	GEISSENDOERFER
		D	3	MTWT	233 L. H.	KOLLER

6. **Scientific Reading.**—(Students may not take both 5 and 6 for more than a total of four hours' credit without permission of department.) *Prerequisite:* Same as for Course 5.

German 6	4	A	11	MTWT	205 L. H.	WILLIAMS
		B	1	MTWT	311 U. H.	KURTZ

Courses for Advanced Undergraduates

7. **Modern Fiction.**—*Prerequisite:* German 5 or equivalent. (3). 2 MWF; 311 U. H. Assistant Professor KOLLER.

10. **Introductory Goethe Course.**—*Prerequisite:* German 5 or equivalent. (3). 11 MWF; 211 L. H. Professor ARON.

16b. **Conversation and Writing.**—*Prerequisite:* German 16a or equivalent. (2). 2 TT; 206 L. H. Assistant Professor KOLLER.

24b. **Nineteenth Century Drama.**—*Prerequisite:* German 24a or equivalent. (2). 3 TT; 204-A L. H. Assistant Professor GEISSENDOERFER.

28b. **Lyrics and Ballads.**—*Prerequisite:* German 28a or equivalent. (2). 9 TT; 204-A L. H. Associate Professor WILLIAMS.

29b. **Advanced Conversation and Writing.**—*Prerequisite:* German 29a or equivalent. (2). 2 TT; 211 L. H. Assistant Professor GEISSENDOERFER.

30b. **Senior Thesis and Honors Course.**—*Prerequisite:* Senior standing; three years of college German, or equivalent. (2). Arrange. Professor ARON and others.

Courses for Advanced Undergraduates and Graduates

19b. **Goethe's Faust II.**—*Prerequisite:* Ge man 19a or equivalent. (2). 11 TT; 206 L. H. Professor Brooks.

26b. **German Literature in the Nineteenth Century.**—*Prerequisite:* German 26a or equivalent. (3). 9 MWF; 233 L. H. Professor ARON.

32. **History of German Civilization.**—*Prerequisite:* Three years of college German, or equivalent. (3). Arrange. Professor BROOKS.

54. **Introduction to Comparative Literature.**—*See* English 54.

Courses for Graduates

101. **Seminar in the Modern German Drama.**—(1 unit). Twice a week. Arrange. Professor ARON.

102. **Thesis.**—(½ to 2 units).* Arrange. Professors ARON, BROOKS; Associate Professor WILLIAMS.

105. **Old High German.**—(1 unit). Twice a week. Arrange. Associate Professor WILLIAMS.

117. **German Literature of the Seventeenth and Eighteenth Centuries.**—(1 unit). Twice a week. Arrange. Professor ARON.

121a. **The Nibelungenlied.**—(1 unit). Twice a week. Arrange. Associate Professor WILLIAMS.

GREEK

(See Classics.)

HISTORY

For students entering prior to September, 1929

Major: 20 hours, excluding History 1a and 2a, and including (a) either History 1b or 2b; (b) six hours selected from courses for advanced undergraduates and graduates; and (c) any other courses offered in the department.

Minors: 20 hours, selected from two of the following subjects: Economics, political science, law, sociology, English and American literature, and philosophy. Courses in any foreign language may be accepted in satisfaction of this requirement if the student can show his ability to read ordinary historical prose in that language.

For students entering after September 1, 1929

Major: 20 hours, including (a) ten hours in courses having junior standing as a prerequisite, and (b) any other courses offered by the department (except courses taken in the freshman year).

Minors: 20 hours selected from one or two of the following subjects: Economics, political science, geography, philosophy, law, sociology, and English and American literature (except such courses as are taken in the freshman year). Courses in one modern language (except such as are primarily designed for freshmen) will be accepted as one of two minor subjects.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

Courses for Undergraduates

1b. Continental European History.

Subject	Credits	Section	Hours	Days	Room	Instructor
Hist. 1b	4 or 3[1]	Lect. 1[2]	10	TT	M. H.	Jones
		Lect. 2[2]	2	TT	218 U. H.	Jones
		A Disc.	8	WF	211 U. H.	Tolo
		B Disc.	8	WF	335 L. H.	Major
		C Disc.	9	WF	303-A L. H.	Major
		D Disc.	10	WF	211 L. H.	Jones
		E Disc.	10	WF	303-A L. H.	Clausen
		F Disc.	10	WF	211 U. H.	Davenport
		G Disc.	10	WF	335 L. H.	Shay
		H Disc.	1	WF	303-A L. H.	Davenport
		I Disc.	1	WF	211 U. H.	Erickson
		J Disc.	2	WF	211 U. H.	Tolo
		K Disc.	2	WF	303-A L. H.	Erickson
		L Disc.	3	WF	335 L. H.	Erickson
		M Disc.	3	WF	305 L. H.	Rodkey
		N Disc.	4	WF	335 L. H.	Rodkey
		O Disc.	1	TT	305 L. H.	King
		P Disc.	1	TT	321 L. H.	LaFuze
		Q Disc.	2	TT	321 L. H.	King
		R Disc.	4	TT	311 L. H.	
		S Disc.	9	ThS	335 L. H.	
		Lect. 3[3]	2	MW	228 N. H.	Ronalds
		T Disc.	10	TT	329 L. H.	Ronalds
		U Disc.	11	TT	321 L. H.	Ronalds
		V Disc.	2	TT	335 L. H.	Shay
		W Disc.	2	TT	211 U. H.	LaFuze
		X Disc.	2	TT	311 L. H.	Werner
		Y Disc.	2	TT	329 L. H.	
		Z Disc.	11	ThS	303-A L. H.	Ronalds

[1]Three credits for seniors; four credits for students other than seniors.

[2]Students in lectures 1 and 2 must elect a discussion in the A-S group.

[3]Students in lecture 3 must elect a discussion in the T-Z group.

2b. English History.

Hist. 2b	3 or 2[1]	Lect. 1	11	M	228 N. H.	Dietz
		Lect. 2	2	M	M. H.	Dietz
		A Disc.	10	WF	321 L. H.	Erickson
		B Disc.	11	WF	321 L. H.	Dietz
		C Disc.	11	WF	212 U. H.	Sage
		D Disc.	11	WF	329 L. H.	Clausen
		E Disc.	11	WF	224 L. H.	Erickson
		F Disc.	11	WF	335 L. H.	Shay
		G Disc.	11	WF	213 U. H.	Yount
		H Disc.	11	WF	240 L. H.	Sutherland
		I Disc.	1	WF	305 L. H.	Shay
		J Disc.	2	WF	240 L. H.	Sage
		K Disc.	2	WF	311 L. H.	Shay
		L Disc.	2	WF	329 L. H.	Clausen
		M Disc.	2	TT	203 L. H.	Sutherland
		N Disc.	3	TT	305 L. H.	Shay
		O Disc.	4	TT	305 L. H.	Tolo
		P Disc.	9	ThS	305 L. H.	

[1]Two credits for seniors; three credits for students other than seniors.

3b. History of the United States since 1828.—*Prerequisite:* One year of college work.

Hist. 3b	3	Lect. 1[1]	8	MF	218 U. H.	Werner
		A Disc.	8	T	305 L. H.	Werner
		B Disc.	8	T	311 L. H.	LaFuze
		C Disc.	8	T	303-A L. H.	Davenport
		D Disc.	8	W	305 L. H.	Werner
		E Disc.	8	W	303-A L. H.	LaFuze
		F Disc.	8	W	311 L. H.	Davenport
		G Disc.	8	Th	305 L. H.	Werner
		H Disc.	9	Th	303-A L. H.	Werner
		Lect. 2[1]	11	MF	M. H.	Dunbar
		I Disc.	10	T	311 L. H.	Dunbar
		J Disc.	11	T	305 L. H.	Dunbar
		K Disc.	11	W	204 Adm. (E)	Dunbar
		L Disc.	11	W	300 L. H.	King
		M Disc.	11	W	311 L. H.	Major
		N Disc.	10	Th	311 L. H.	Dunbar
		O Disc.	11	Th	311 L. H.	Dunbar
		P Disc.	1	T	311 L. H.	Major
		Lect. 3[1]	2	MF	218 U. H.	Hansen
		Q Disc.	1	W	335 L. H.	Sage
		R Disc.	1	Th	311 L. H.	Hansen
		S Disc.	2	T	117 L. H.	Hansen
		T Disc.	2	W	335 L. H.	Hansen
		U Disc.	2	W	308 L. H.	King
		V Disc.	2	W	321 L. H.	Sutherland
		W Disc.	3	W	303-A L. H.	Sutherland
		X Disc.	4	Th	303-A L. H.	Sage

[1]Students in Lecture 1 must elect a discussion in the A-H group. Students in Lecture 2 must elect a discussion in the I-P group. Students in Lecture 3 must elect a discussion in the Q-X group.

5b. The Ancient World.—*Prerequisite:* Sophomore standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Hist. 5b	3	Lect.	2	MW	303 L. H.	SWAIN
		A Disc.	2	Th	326 L. H.	YOUNT
		B Disc.	1	F	311 L. H.	YOUNT
		C Disc.	2	F	321 L. H.	YOUNT
		D Disc.	2	F	335 L. H.	SWAIN
		E Disc.	9	S	303-A L. H.	

18. The Teaching of History.—*Prerequisite:* One year of college history and senior standing. (2). 3 TT; 303 L. H. Dr. WERNER.

22b. History of the West, 1815-1860.—*Prerequisite:* History 3a and junior standing. (2). 10 TT; 410 U. H. Professor PEASE.

23b. The Puritan Revolution in England and America.—*Prerequisite:* Sophomore standing and one year of college history. (2). 11 TT; 410 U. H. Professor PEASE.

30b. The Mohammedan World: The Ottoman Empire and the Question of the Near East.—*Prerequisite:* One year of college history. (3). 10 MWF; 202 L. H. Professor LYBYER.

33b. Russia and Her Slavic Neighbors in the Nineteenth and Twentieth Centuries.—*Prerequisite:* Junior standing and one year of college history. (3). 8 MWF; 303 L. H. Associate Professor RODKEY.

42. Medieval Civilization.—*Prerequisite:* One year of college history. (3). 3 TT; 109 L. H. Professor LARSON.

43. The British People in the Victorian Age.—*Prerequisite:* One year of college history. (2). 1 TT; 303 L. H. Dr. ERICKSON.

45b. History of England in the Eighteenth and Early Nineteenth Centuries (1763-1837).—*Prerequisite:* Junior standing and one year of college history. (2). 2 TT; 303 L. H. Assistant Professor RONALDS.

51b. Hebrew History.—*Prerequisite:* Junior standing. (2). 2 TT; 305 L. H. Associate Professor SWAIN.

90b. Thesis.—*Prerequisite:* Senior standing. (2). Time to be arranged. Professor ROBERTSON.

91b. Honors Course.—*Prerequisite:* Senior standing. (2). Time to be arranged. Professor LYBYER.

Courses for Advanced Undergraduates and Graduates

(Open to seniors and to juniors of high standing.)

16b. The Foundations of American Society: National Beginnings.—*Prerequisite:* History 3a. (3). 10 MWF; 311 L. H. Assistant Professor DUNBAR.

17b. Social and Economic Forces in the Nineteenth Century (after 1850).—*Prerequisite:* History 3b. (3). 9 MWF; 303 L. H. Professor HANSEN.

19b. The History of American Immigration.—*Prerequisite:* History 3. (2). 9 TT; 203 L. H. Professor HANSEN.

20b. History of the South (since 1850).—*Prerequisite:* History 3a-3b. (2). 8 TT; 335 L. H. Professor RANDALL.

27. History of Latin America from the Wars of Independence to the Present Time.—*Prerequisite:* One year of college history. (3). 2 MWF; 305 L. H. Professor ROBERTSON.

29. America and Europe, Select Topics, 1776-1850.—*Prerequisite:* One year of college history. (3). 8 MWF; 321 L. H. Professor ROBERTSON.

32b. The History of Europe, 1914-1931.—*Prerequisite:* One year of college history, economics, or political science. (3). 8 MWF; 103 New Agr. Professor LYBYER.

34b. Development of Modern Europe, 1789-1848.—*Prerequisite:* One year of college history. (3). 11 MWF; 303 L. H. Associate Professor SWAIN.

36b. The Development of Modern Germany.—*Prerequisite:* One year of college history. (3). 9 MWF; 211 L. H. Associate Professor RODKEY.

38b. Development of the French Monarchy in Early Modern Times, 1285-1648.—*Prerequisite:* History 1a-1b. (3). 9 MWF; 329 L. H. Professor JONES.

44b. The Constitutional History of England.—*Prerequisite:* One year of college history. (3). 3 MWF; 303 L. H. Professor LARSON.

46b. The Industrial Revolution and English Social Politics, 1832-1930.—*Prerequisite:* One year of college history. (3). 9 MWF; 335 L. H. Professor DIETZ.

48. Social and Economic History of the Middle Ages.—*Prerequisite:* One year of college history. (2). 2 TT; 304 L. H. Professor LARSON.

56. History of the Roman Republic.—*Prerequisite:* One year of college history. (3). 1 MWF; 120 L. H. Professor OLDFATHER.

60. The United States in the World War.—*Prerequisite:* One year of college history. (3). 11 MWF; 304 L. H. Professor RANDALL.

62b. Political and Constitutional Development of the United States.—*Prerequisite:* History 3a, or 3b, or consent of the instructor. (3). 10 MWF; 329 L. H. Professor RANDALL.

Courses for Graduates

101b. Seminar in American History: Investigation of Selected Topics.—(1 unit). 4, 5 T. Professor RANDALL.

102b. Seminar in English History.—(1 unit). 4, 5 T. Professor DIETZ.

104b. Seminar in European History.—(1 unit). 4, 5 W. Professor LYBYER.

105. Research in Special Topics (Thesis Course).—(1 to 2 units).* Professors LARSON, LYBYER, ROBERTSON, PEASE, JONES, RANDALL, DIETZ, HANSEN; Associate Professors SWAIN, RODKEY; Assistant Professors DUNBAR, RONALDS; Dr. WERNER.

106b. Seminar in the History of the Later Middle Ages.—(1 unit). 4, 5 Th. Professor LARSON.

122b. The Westward Movement, 1774-1782.—(1 unit). Two hours. 4 MTh. Professor PEASE.

127. Seminar in Spanish-American Relations.—(1 unit). Time to be arranged. Professor ROBERTSON.

138b. History of France during the Religious Civil Wars.—(1 unit). Time to be arranged. Professor JONES.

150b. Seminar in Ancient History.—(1 unit). 9, 10 S. Associate Professor SWAIN.

HOME ECONOMICS

Courses for Undergraduates

1. Foods.—*Prerequisite:* Chemistry 1, 5.

Subject	Credits	Section	Hours	Days	Room	Instructor
Home Econ. 1	4	Lect.	11	Th	121 W. B.	WOODRUFF
		Quiz	11	T	121 W. B.	PICKENS
		A Lab.	1, 2	MW	229 W. B.	PICKENS
		B Lab.	1, 2	TT	229 W. B.	SCHREIBER

2. Home Architecture.—*Prerequisite:* Art and Design 13a; sophomore standing. *Prerequisite or concurrent:* Art and Design 13b.

Home Econ. 2	3	Lect.	9	TT	113 W. B.	FOSTER, WEAVER
		Lab.	9, 10	S	300 Arch.	

3. Home Decoration.—*Prerequisite:* Home Economics 2.

Home Econ. 3	3	Lect.	11	S	113 W. B.	WEAVER
		A Lab.	10, 11	TT	309 W. B.	
		B Lab.	1, 2	TT	309 W. B.	

5. Dietetics.—*Prerequisite:* Chemistry 33; Home Economics 6 or 44; Physiology 4.

Home Econ. 5	4	Lect.	9	M	113 W. B.	BARTO
		A Quiz	9	W	117 W. B.	BARTO
		B Quiz	9	F	117 W. B.	BARTO
		A Lab.	10, 11	MW	229 W. B.	JOHNSON
		B Lab.	10, 11	TT	229 W. B.	JOHNSON

6. Foods.—*Prerequisite:* Home Economics 1.

Home Econ. 6	4	Lect.	9	W	113 W. B.	WOODRUFF
		A Quiz	9	M	117 W. B.	SCHREIBER
		B Quiz	9	F	121 W. B.	PICKENS
		C Quiz	11	F	121 W. B.	WOODRUFF
		A Lab.	10, 11	MW	235 W. B.	PICKENS
		B Lab.	8, 9	TT	235 W. B.	WOODRUFF
		C Lab.	10, 11	TT	235 W. B.	SCHREIBER
		D Lab.	1, 2	TT	235 W. B.	PICKENS

7. Textiles.

Home Econ. 7	3 or 2[1]	Lect.	10	M	113 W. B.	JACOBSEN
		A Quiz	9	T	117 W. B.	
		B Quiz	10	W	117 W. B.	
		C Quiz	10	F	117 W. B.	
		A Lab.	1, 2	T	304 W. B.	
		B Lab.	1, 2	W	304 W. B.	
		C Lab.[2]	10, 11	Th	304 W. B.	
		D Lab.[2]	3, 4	Th	304 W. B.	

9. Home Economics Extension.—*Prerequisite:* Senior standing in Home Economics; consent of the instructor.

Home Econ. 9	3	Lect.	3, 4	M	304 W. B.	BURNS
		Lect.	3	W	304 W. B.	

10. Organization and Management of the Household.—*Prerequisite:* Economics 1 or 2; Home Economics 7, 6 or 44. *Prerequisite or concurrent:* Home Economics 2.

Home Econ. 10	3	Lect.	1	F	121 W. B.	MUNGER
		A Quiz	8	MW	117 W. B.	
		B Quiz	1	MW	117 W. B.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Two credits for seniors; three credits for other students.

[2]Sections C and D in Laboratory are open only to home economics students.

11. Teacher's Course.—*Prerequisite:* Home Economics 6, 29. *Prerequisite or concurrent:* Education 10; Home Economics 5, 10, 19. *Recommended:* Home Economics 34. One inspection trip (approximate cost, $3). Required of all who wish to be recommended to teach home economics. (Same as Home Economics Education 1.) (3). Lecture and discussion, 2 TT; 121 W. B. Miss ROBINSON.

11a.[1] **Supervised Teaching.**—*Prerequisite or concurrent:* Home Economics 11. (2). Time to be arranged, daily for twenty lessons. University High School, Urbana High School. Miss ROBINSON, Miss TODD, Miss KING.

13. Home Economics in Education.—*Prerequisite or concurrent:* Home Economics 10, 29. Recommended for all seniors in Home Economics. (Same as Home Economics Education 2.) (3). 3 TT; 117 W. B. Miss TODD.

14. Practice House.—Lecture, conference, and laboratory work in practice apartment. The students reside in the apartment four weeks during the semester. *Prerequisite:* Home Economics 5, 10; consent of instructor. (3). Conference, 4 Th, 117 W. B.; laboratory to be arranged with instructor, 317-19 W. B. Miss MUNGER.

19. Costume Design.—*Prerequisite:* Art and Design 13a, 13b; Home Economics 29.

Subject	Credits	Section	Hours	Days	Room	Instructor
Home Econ. 19	3	Lect.	10	F	121 W. B.	BARNES
		A Lab. and Disc.	10, 11	MW	309 W. B.	
		B Lab. and Disc.	1, 2	MF	309 W. B.	

29. Clothing.—*Prerequisite:* Home Economics 7; Art and Design 13a or 13b.

Home Econ. 29	4	Lect.	9	F	113 W. B.	JACOBSEN
		A Quiz	9	W	327 W. B.	BEAM
		B Quiz	11	W	117 W. B.	BEAM
		A Lab.	1, 2	MW	327 W. B.	BEAM
		B Lab.	10, 11	TT	327 W. B.	BEAM
		C Lab.	1, 2	TT	327 W. B.	BEAM

30. Clothing.—*Prerequisite or concurrent:* Home Economics 19.

Home Econ. 30	3	Lect.	2	F	121 W. B.	WHITLOCK
		A Lab.	1, 2	MW	203-5 W. B.	WHITLOCK
		B Lab.	1, 2	TT	203-5 W. B.	WHITLOCK

38. Elements of Food and Nutrition.—*Prerequisite:* Senior standing. (Open only to students not majoring in home economics.) (2). Lect., 2 MW; 121 W. B. Assistant Professor BARTO.

40. Home Care of the Sick.—*Prerequisite:* Senior standing in Home Economics. (1). Lect., 2 M, 113 W. B. Assistant Professor BROOKS.

46. Quantity Cookery.—*Prerequisite:* Home Economics 6 or 44.

Home Econ. 46	3	Quiz	4	W	117 W. B.	SMITH
		Lab.	8, 9, 10	Two mornings a week, to be arranged with instructor; students cannot have eleven o'clock classes as they are required to serve at noon on laboratory days.		SMITH, BENNETT

47. Institution Management.—*Prerequisite:* Economics 1 or 2. *Prerequisite or concurrent:* Home Economics 46.

Home Econ. 47	3	Lect. and Disc.	2	MWF	117 W. B.	SMITH

56a. Child Development.—(Intended for students not majoring in Home Economics.) *Prerequisite:* Senior standing or consent of the instructor.

Home Econ. 56a	2	Lect.	9	MW	121 W. B.	WALLS

Courses for Advanced Undergraduates and Graduates

28. Organization and Management of the Household.—*Prerequisite:* Home Economics 10.

Home Econ. 28	2	Disc.	8	TT	117 W. B.	MUNGER

31. Clothing.—*Prerequisite:* Home Economics 30.

Home Econ. 31	3	Quiz	11	F	117 W. B.	WHITLOCK
		Lab.	10, 11	MW	205 W. B.	

33. Diet in Disease.—*Prerequisite:* Home Economics 5.

Home Econ. 33	3	Lect.	3	F	121 W. B.	BARTO
		Quiz	3	W	121 W. B.	
		Lab.	3, 4	M	229 W. B.	

35. Experimental Food Study.—*Prerequisite:* Home Economics 5; consent of instructor.

Home Econ. 35	3	Lab.	1, 2, 3	WF	235 W. B.	WOODRUFF
		Conf.	To be arranged.			

39b. Readings in Foods and Nutrition.—*Prerequisite:* Home Economics 5; senior standing. *Prerequisite or concurrent:* Chemistry 50a, or Home Economics 20, 33, 41, or 55. (1). Seminar, 4 Th; 203 W. B. Assistant Professors BARTO and WOODRUFF, Mrs. MEYER.

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[1]Students wishing a five-hour course in supervised teaching in home economics should take Educational Practice 14 (see page 28). Credit is not allowed for supervised teaching in the College of Liberal Arts and Sciences.

41. Problems in Nutrition.—*Prerequisite:* Chemistry 50a; Zoology 1; senior standing. (3 to 5).* Lab. and Conference, 9-12 MWFS; 215 W. B. Additional laboratory and conference to be arranged. Miss PLANT, Mrs. MEYER.

43b. Problems in Textiles and Clothing.—*Prerequisite:* Economics 1 or 2; Home Economics 30 or 51. Each student will undertake an individual problem which in some cases may involve prerequisites of chemistry and physics.

Subject	Credits	Section	Hours	Days	Room	Instructor
Home Econ. 43b	3	Quiz	11	F	327 W. B.	JACOBSEN
		Lab.	To be arranged.			WEAVER WHITLOCK BARNES

45. Nutrition Classes.—*Prerequisite:* Home Economics 5; senior standing and consent of the instructor.

Home Econ. 45	2	Disc.	4	W	231 W. B.	BARTO, JOHNSON
		Observation and practice teaching	1:30 or 2:30	Th		

48. Institution Dietaries and Administration.—*Prerequisite:* Home Economics 5, 47. Three and one-half day field trip to Chicago (approximate cost $25).

Home Econ. 48	4	Lect.	9	TT	121 W. B.	SMITH
		Lab.	8-12	S	207 W. B.	

50. Costume Design.—*Prerequisite:* Home Economics 30, 42. (3). 1, 2, 3 W and 9, 10, 11 S. 309 W. B. Miss BARNES.

56. Child Development.—*Prerequisite:* Home Economics 10; Psychology 1. (2). Lect., 8 MW; 121 W. B. Assistant Professor WALLS.

57b. Problems in Household Management.—*Prerequisite:* Home Economics 10. (3). Time to be arranged. Miss MUNGER.

Courses for Graduates

101. Home Economics.—(1 unit). Professor WARDALL.

102. Research in Food and Nutrition.—(½ to 3 units).* Assistant Professor WOODRUFF.

103. Nutrition Seminar.—(½ unit). To be arranged; 231 W. B. Assistant Professor WOODRUFF.

HORTICULTURE

Courses for Undergraduates

1b. Elements of Horticulture.—(No credit in this course allowed to juniors and seniors.) A student is required to register in the same section for both laboratory and quiz.

Hort. 1b	2	A Quiz	1	MF	211 New Agr.	WEAVER
		Lab.	1, 2	W	211 New Agr.	
		B Quiz	3	MF	203 V. G.	
		Lab.	3, 4	W	203 V. G.	
		C Quiz	8	MF	203 V. G.	
		Lab.	8, 9	W	203 V. G.	
		D Quiz	10	MF	203 V. G.	
		Lab.	10, 11	W	203 V. G.	
		E Quiz	3	WF	127 New Agr.	
		Lab.	3, 4	M	127 New Agr.	

2. Small Fruit Culture.—*Prerequisite:* Hort. 1a and 1b. (2). 1, 2 TT; 106 H. F. Lab. Professor COLBY.

3. Commercial Vegetable Gardening.—*Prerequisite:* Hort. 1b. (3). 1, 2 MWF; 203 V. G. Professor LLOYD, Mr. WEAVER.

4. Plant Houses.—(3). 3 MWF; F. G. Mr. DECKER.

6b. Nursery Methods.—*Prerequisite:* Hort. 6a. (3). Lect., 10 TT; 201 F. G. Lab., 10-12 S; F. G. Mr. DECKER.

7. Spraying.—*Prerequisite:* Hort. 1a and 1b; Chem. 1. (3). Lect. and quiz, 3, 4 W; 211 New Agr. Lab. 3, 4 MF; 503 Agr. Professor RUTH.

8b. Orcharding.—*Prerequisite:* Hort. 8a. (3). 1, 2 MW; 1 F; H. F. Lab. Inspection trip required; expenses not to exceed $15. Mr. MCMUNN.

10a. Rural Improvement.—(2). 11 TT; 103 New Agr. (Credit not allowed for both 10a and 42.) Assistant Professor PETERSON.

15a. Greenhouse Management.—*Prerequisite:* Hort. 5, Bot. 5. (3). 10, 11 MWF; F. G. Professor DORNER, Associate Professor HALL.

15c. Commercial Floricultural Crops.—*Prerequisite:* Hort. 15b. (3). 8, 9 TTS; F. G. Associate Professor HALL.

21b. Landscape Design.—*Prerequisite:* Hort. 21a. (4). Lect., 8 T; 214 New Agr. Lab. 9-12 T, 8-12 ThS; 200 New Agr. Mr. MITCHELL.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

22b-k. Investigation with Thesis.—*Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to the thesis problem, and the approval of the head of the department. Continuous throughout the year. Credit is not given for either semester separately. (5). Arrange.

b. Pomology.—*Prerequisite:* Hort. 22a. Professors DORSEY, RUTH, COLBY; Associate Professor ANDERSON.

d. Olericulture.—*Prerequisite:* Hort. 22c. Professor LLOYD.

f. Floriculture.—*Prerequisite:* Hort. 22e. Professor DORNER, Associate Professor WEINARD.

h. Landscape Architecture.—*Prerequisite:* Hort. 22g. Professor SCHAFFER.

k. Plant Breeding.—*Prerequisite:* Hort. 22j. Professor DORSEY.

23b. Landscape Design.—*Prerequisite:* Hort. 23a. (4). Lect., 1 T; 214 New Agr. Lab., 2-5 T, 1-5 Th, 8-12 S; 200 New Agr. Professor WHITE.

24b. Trees and Shrubs.—*Prerequisite:* Hort. 24a. Open only to landscape architecture and floriculture students. Inspection trip required of all landscape students and optional for others; expenses about $16. (3). Lect., 3 W; 214 New Agr. Lab., landscape students, 10-12 TT; floriculture students, 3-5 MF; 211 New Agr. Assistant Professor ROBINSON.

25b. Advanced Landscape Design.—*Prerequisite:* Hort. 25a. (5). Lect., 9 M; 214 New Agr. Lab., 10-12 M, 9-12 WF, 8-12 S; 203 New Agr. Professor LOHMANN.

26b. Planting Design.—*Prerequisite:* Hort. 26a. (3). Lect., 1 M; 214 New Agr. Lab., 2 M, 1-3 WF; 203 New Agr. Assistant Professor ROBINSON.

27b. Landscape Construction.—*Prerequisite:* Hort. 27a. (3). Lect., 10 M, 9 F; 214 New Agr. Lab., 11 M, 10-12 WF; 200 New Agr. Professor SCHAFFER.

30. Tender Bedding Plants.—*Prerequisite:* Hort. 15a. (3). 8, 9 MWF; F. G. Associate Professor HALL.

31. Garden Flowers.—*Prerequisite:* Bot. 5. (3). Lect., 1 MWF; Lab., arrange; F. G. Professor DORNER, Mr. DECKER.

32b. Floral Decoration.—*Prerequisite:* Hort. 32a. (3). Lect., 1 TT; F. G. Lab., 4 hours, arrange; F. G. Professor DORNER.

37b. City Planning.—*Prerequisite:* 90 hours of university work. Inspection trip required of all landscape and city planning students and optional for others; expenses about $30. (2). 10 TT; other hours arrange; 214 New Agr. Professors BARTHOLOMEW and LOHMANN.

38. Office Practice in Landscape Architecture.—*Prerequisite:* Hort. 25a. (1). 9 T; 214 New Agr. Professor SCHAFFER.

42. Landscape Architecture.—(For students outside the professional course.) *Prerequisite:* 30 hours of university work. (3). Lect., 11 MWF; 214 New Agr. (Credit not allowed for both 10a and 42.) Professor WHITE and others.

50. Vegetable Seed Production.—*Prerequisite:* Hort. 3 and Hort. 49; Zool. 15. (3). 8 MWF; 206 V. G. Associate Professor HUELSEN.

52. Special Vegetable Crops.—*Prerequisite:* Hort. 3 and Hort. 49. (3). 10, 11 TTS; 203 V. G. Professor LLOYD.

Courses for Advanced Undergraduates and Graduates

44. Pomology Seminar.—*Prerequisite:* 90 hours ot university work. (1). 4 T; 211 New Agr. Professor RUTH.

45. Plant Nutrition.—*Prerequisite:* Bot. 3; Agron. 9 or 28; Hort. 3 or 15a. (3). 2 MWF; F. G. Associate Professor WEINARD.

51. Fruit Diseases.—*Prerequisite:* 90 hours of university work including Botany 7a. (3). Lect., 3 T; 302 Agr. Lab., 10, 11 TT; H. F. Lab. Associate Professor ANDERSON.

Courses for Graduates

103. Olericulture.—(1 to 2 units).* Time to be arranged. Professor LLOYD.

108. Pomology.—(1 to 2 units).* Time to be arranged. Professors BLAIR, LLOYD, DORSEY, RUTH; Associate Professor ANDERSON.

115. Floriculture.—(1 to 2 units).* Time to be arranged. Professor DORNER, Associate Professor WEINARD.

HYGIENE

3. Elementary Hygiene and Sanitation.—Required of all undergraduate men during their first year of residence.

Subject	Credits	Section	Hours	Days	Room	Instructor
Hyg. 3	½	A1	8	M	128 New Agr.	BEARD
		A2	8	T	128 New Agr.	CAIN
		A3	8	W	128 New Agr.	ROSS
		A4	8	Th	128 New Agr.	BLACKSTONE
		A5	8	F	128 New Agr.	LEWIS

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Hyg. 3	½	A6	8	S	128 New Agr.	JUDAH BROWN
		B1	9	M	128 New Agr.	
		B2	9	T	128 New Agr.	
		B3	9	W	128 New Agr.	
		B4	9	Th	128 New Agr.	
		B5	9	F	128 New Agr.	
		B6	9	S	128 New Agr.	
		B7	9	M	313 New Agr.	
		B8	9	T	313 New Agr.	
		B9	9	W	313 New Agr.	
		B10	9	Th	313 New Agr.	
		B11	9	F	313 New Agr.	
		B12	9	S	313 New Agr.	
		C1	10	M	128 New Agr.	
		C2	10	T	128 New Agr.	
		C3	10	W	128 New Agr.	
		C4	10	Th	128 New Agr.	
		C5	10	F	128 New Agr.	
		C6	10	S	128 New Agr.	
		C7	10	M	313 New Agr.	
		C8	10	T	205 E. H.	
		C9	10	W	313 New Agr.	
		C10	10	Th	205 E. H.	
		C11	10	F	313 New Agr.	
		C12	10	S	205 E. H.	
		D1	11	M	128 New Agr.	
		D2	11	T	128 New Agr.	
		D3	11	W	128 New Agr.	
		D4	11	Th	128 New Agr.	
		D5	11	F	128 New Agr.	
		D6	11	S	128 New Agr.	
		D7	11	M	313 New Agr.	
		D8	11	T	305 E. H.	
		D9	11	W	313 New Agr.	
		D10	11	Th	305 E. H.	
		D11	11	F	313 New Agr.	
		D12	11	S	305 E. H.	
		F1	3	M	128 New Agr.	
		F2	3	T	128 New Agr.	
		F3	3	W	128 New Agr.	
		F4	3	Th	128 New Agr.	
		F5	3	F	128 New Agr.	

10. Advanced Hygiene.—*Prerequisite:* Three semesters of university work and consent of instructor.

Hyg. 10	3	Lect.	2	M	128 New Agr.	GEBHART and others
		Quiz	2	WF	128 New Agr.	

4. Essentials of Hygiene and Sanitation.—Required of all undergraduate women during their first year of residence.

Hyg. 4	½	A2	8	T	106 L. H.	MILLBROOK
		A4	8	Th	106 L. H.	SMARZO
		A5	8	F	106 L. H.	MILLBROOK
		B1	9	M	106 L. H.	SMARZO
		B2	9	T	106 L. H.	ETHEREDGE
		B3	9	W	106 L. H.	ETHEREDGE
		B4	9	Th	106 L. H.	ETHEREDGE
		B5	9	F	106 L. H.	ETHEREDGE
		C1	10	M	106 L. H.	ETHEREDGE
		C2	10	T	106 L. H.	WHEELER
		C3	10	W	106 L. H.	WHEELER
		C4	10	Th	106 L. H.	WHEELER
		C5	10	F	106 L. H.	WHEELER
		D3	11	W	106 L. H.	MILLBROOK
		D5	11	F	106 L. H.	SMARZO
		F2	2	T	106 L. H.	SMARZO
		F4	2	Th	106 L. H.	MILLBROOK

INDUSTRIAL EDUCATION

(See Education.)

ITALIAN

(See Romance Languages and Literature.)

JOURNALISM

(Credit in journalism will be given for Rhet. 6, Engl. 45, Pol. Sci. 22, 27, 28, Law 2, 5, Hist. 21.)

Courses for Undergraduates

2. Introduction to Journalism.—*Prerequisite:* Open to pre-journalism freshmen only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Journ. 2	1	B	9	Th	211 U. H.	Barlow
		C	10	Th	113 U. H.	Barlow
		E	1	Th	204 U. H.	Barlow
		F	2	Th	204 U. H.	Barlow

3. The Newspaper and the News.—*Prerequisite:* 30 hours of university work. A non-professional course for students in other colleges. Not open to students with credit in Journalism 1-2, or to students registered in Journalism 6.

Journ. 3	2	C	10	TT	315 U. H.	Heitman
		D	11	TT	318 U. H.	Heitman

4. Newspaper Reference Service.—*Prerequisite:* Sophomore standing. (2). 2 MW; 113 U. H. Mr. Heitman.

5. Reporting.—*Prerequisite:* Sophomore standing. (3). 3 hours to be arranged. Mr. Davis.

6. Reporting.—*Prerequisite:* Sophomore standing and Journ. 5.

Journ. 6	3	Disc. B	9	MW	425 N. H.	Davis
		B2	9	TT	212 U. H.	Davis
		C	10	TT	302 U. H.	Davis
		D	11	MW	412 U. H.	Davis
		Lab.	2 hours to be arranged.		122 U. H.	Leiter
		X (Agr.)	3 hours arrange.		122 U. H.	Leiter
		Y (Gen.)	3 hours arrange.		122 U. H.	Murphy

8. Sports Writing.—(For students in Athletic Coaching.) *Prerequisite:* Journ. 7.

Journ. 8	3	B	9	MWF	434 N. H.	Dickinson
		E1	1	MWF	113 U. H.	Schooley
		E2	1	MWF	212 U. H.	Dickinson

9b. History and Practice of Printing and Publishing.—*Prerequisite:* Sophomore standing. (See also Ind. Ed. 8.)

Journ. 9b	2 or 3[1]	Lect.	11	Th	403 U. H.	Allen
		Lab. A1	8-10	T	126 U. H.	Allen
		A2	8-10	W	126 U. H.	Allen
		A3	8-10	Th	126 U. H.	Allen
		C1	10-12	M	126 U. H.	Allen
		C2	10-12	T	126 U. H.	Allen

Courses for Advanced Undergraduates

11. The Press, the Courts, and the Law.—(2). 9 TT; 308 Adm. (E). Dr. Siebert.

14. Copyreading, Head Writing, and Make-up.—*Prerequisite:* Journ. 5 and 13 and junior standing.

Journ. 14	3	Lect.	3	M	208 Adm. (E)	Siebert
		Lab. E1	1-3	TT	118 U. H.	Siebert
		E2	1-3	WF	118 U. H.	Siebert
		G1	3-5	TT	118 U. H.	Siebert
		G2[2]	3-5	WF	118 U. H.	Siebert

16. Special and Feature Articles.—*Prerequisite:* Junior standing. (2). 11 TT; 208 Adm. (E). Dr. Dickinson.

18. Ethics of Journalism.—*Prerequisite:* Junior standing. (3). 10 MWF; 315 U. H. Professor Murphy.

20. Editorials and the Editorial Page.—*Prerequisite:* Journ. 5-6 or equivalent and junior standing. (2). 11 MW; 203 U. H. Professor Murphy.

22. Newspaper Administration.—*Prerequisite:* Junior standing. (2). 3 TT; 126 U. H. Assistant Professor Allen.

24. Agricultural Journalism.—(Open to students in journalism, agriculture, and home economics.) *Prerequisite:* Junior standing. (2). 1 TT; 113 U. H. Mr. Heitman.

30. Advanced Reporting.—*Prerequisite:* Journ. 5-6 or equivalent, and junior standing. (3). 2 MWF.

(a) Section E. General news and correspondence. 318 U. H. Assistant Professor Barlow.

(b) Section F. Financial and labor news. 407 U. H. Dr. Dickinson.

34. Newspaper Advertising Copy and Layouts.—*Prerequisite:* Junior standing and Journ. 10 or 33.

Journ. 34	2	Lect.	1	T	126 U. H.	Allen
		Lab.	1-3	Th	126 U. H.	Allen

36. Contemporary Life and Thought.—*Prerequisite:* Junior standing and 6 hours of journalism. (2). 10 TT; 311 U. H. Dr. Siebert.

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[1]Three credits for Industrial Education students registering for 4 hours of laboratory work.
[2]For students with desk experience. Consult adviser before registering.

40. Special Problems.—(For seniors not writing theses in journalism.) (2). 3 W; 113 U. H. Assistant Professor BARLOW.

41. Business Problems of the Newspaper.—*Prerequisite:* Junior standing. (3). 9 MWF; 410 U. H. Assistant Professor BARLOW.

60b. Thesis Course.—Open to seniors with consent of Director. (2). Time to be arranged. Professor MURPHY and Dr. DICKINSON.

LAW

First Year Courses

1b. Contracts.—Corbin: *Cases on Contracts.*

Subject	Credits	Section	Hours	Days	Room	Instructor
Law 1b	4	A	2	TWTF	106 Law	GOBLE
		B	3	TWTF	106 Law	

2b. Torts.—Bohlen: *Cases on Torts.* (2d ed.)

Law 2b	3	A	8	MWF	103 Law	WEISIGER
		B	9	MWF	103 Law	

4b. Procedure I.—McCaskill: *Cases on Action and Suit.*

Law 4b	2	A	9	WF	106 Law	MCCASKILL
		B	10	WF	106 Law	

11. Agency.—Mechem: *Cases on Agency.* (2d ed.)

Law 11	3	A	10	MTT	103 Law	GREEN
		B	11	MTT	103 Law	

29. Real Property I.—Rights in Land. Bigelow: *Cases on Rights in Land.*

Law 29	3	A	9	MTT	106 Law	SUMMERS
		B	10	MTT	106 Law	

Second and Third Year Courses

6b. International Law.—Law of War and Neutrality. (3). 2 MWF; 304 L. H. Professor GARNER.

8. Evidence.—Hinton: *Cases on Evidence.* (4). 11 MWTF; 300 Law. Professor HARNO.

15. Bills and Notes.—Britton: *Cases on Bills and Notes.* (3). 4 MTW; 306 Law. Professor BRITTON.

16b. Trusts.—Scott: *Cases on Trusts.* (2). 8 TT; 103 Law. Professor SCHNEBLY.

18. Wills and Administration.—Costigan: *Cases on Wills, Descent, and Administration.* (3). 8 MWF; 106 Law. Professor SUMMERS.

20. Procedure II.—Sunderland: *Cases on Common Law Pleading* and Hinton: *Cases on Equity Pleading.* (4). 2 TWTF; 103 Law. Professor MCCASKILL.

21. Suretyship.—Langmaid: *Cases on Suretyship.* (2). 2 MW; 303 Law. Professor BRITTON.

22b. Constitutional Law. State and Nation.—Hall: *Cases on Constitutional Law.* (2). 9 MW; 303 Law. Professor GREEN.

25. Bankruptcy.—Britton: *Cases on Bankruptcy.* (2). 3 MT; 306 Law. Professor BRITTON.

27. Real Property III.—Future Interests. Powell: *Cases on Future Interests.* (4). 11 MTWT; 106 Law. Professor SCHNEBLY.

28. Insurance.—Goble: *Cases on Insurance.* (2). 9 TT; 303 Law. Professor GOBLE.

31. Conflict of Laws.—Lorenzen: *Cases on Conflict of Laws.* (4). 10 TWTF; 303 Law. Professor HOLT.

32. Equity Jurisdiction II.—Cook: *Cases on Equity,* Vol. III. (3). 9 MWF; 306 Law. Professor FULLER.

33. Administrative Law.—Freund: *Cases on Administrative Law.* (2d ed.) (2). 4 ThF; 306 Law. Professor HOLT.

36. Procedure IV.—Practice Court.

Law 36	4	A	1[1]	TW	300 Law	JOHNSON
			2-4	TT	300 Law	
		B	1[1]	TW	300 Law	
			2-4	WF	300 Law	

39b. Thesis Course.—This course is open to students who are candidates for the J.D. degree during the academic year next preceding their graduation. (1). Professor HOLT and other members of the staff.

45. Use of Law Books.—Weisiger: *Manual on Use of Books.* (1). 10 M; 303 Law. Professor WEISIGER.

55. Legal Problems II.—Legal Problems to be assigned. *Prerequisite:* One year of law work and at least an average grade of 4. in all law courses. (1). Professor HOLT.

57. Legal Problems IV.—Legal problems to be assigned. *Prerequisite:* Legal Problems I or II, two years of law work and at least an average grade of 4. in law courses. (1). Professor HOLT.

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[1]Motion Term.

LIBRARY SCIENCE

Courses for Freshmen and Sophomores

12. General Reference.

Subject	Credits	Section	Hours	Days	Room	Instructor
Lib. Sci. 12	2	A	9	T	106 Lib.	Black
		B	2	W	106 Lib.	Harding
		C	10	W	104 Lib.	Signor
		D	10	Th	106 Lib.	Singleton
		E	11	Th	118 Lib.	Houchens

Courses for First Year Library School Students

2b. Reference.

Lib. Sci. 2b	3	A	1	MWF	314 Lib.	Singleton
		B	11	MWF	118 Lib.	Durand
		C	8	MWF	106 Lib.	Durand
		D	9	MWF	106 Lib.	Durand

21. Printing, Binding, and Indexing.—(2). 2 TT; 118 Lib. Assistant Professor Bond, Miss Singleton, Miss Houchens.

33b. Library Administration and Extension.

Lib. Sci. 33b	3	A	2	MWF	118 Lib.	Gramesly
		B	1	MWF	118 Lib.	Gramesly
		C	8	MWF	104 Lib.	Gramesly

37. Cataloging.

Lib. Sci. 37	3	A	8	MWF	314 Lib.	Bond
		B	8	MWF	118 Lib.	Hile
		C	8	TTS	314 Lib.	Bond
		D	8	TTS	118 Lib.	Hile

38. Selection of Books.

Lib. Sci. 38	3	A	9	TTS	118 Lib.	Boyd
		B	10	TTS	118 Lib.	Boyd
		C	10	MWF	314 Lib.	Boyd
		D	10	MWF	118 Lib.	Williams

Courses for Advanced Library School Students and Graduate Students

7. History of Libraries.—(2). 3 TT; 118 Lib. Associate Professor Simpson.

24b. Selection of Books.—*Prerequisite:* Lib. 3a and 3b. (2). 9 TT; 314 Lib. Miss Hostetter.

26b. Library Administration.—*Prerequisite:* Second year standing. (3). 10 MWF; 106 Lib. Miss Gramesly.

42. State, Municipal, and Foreign Documents.—*Prerequisite:* Lib. 13a. (3). 11 MWF; 314 Lib Miss Johnson.

46. High School Library Administration.

Lib. Sci. 46	3	A	3	MWF	118 Lib.	Hostetter
		B	9	MWF	118 Lib.	Hostetter

Graduate Courses

101. Thesis.—*Prerequisite:* Graduate School standing. (1 to 2 units).* Professor Windsor and others.

102. Seminar in Library Economy.—*Prerequisite:* Second year standing. (1 unit). 3, 4 M; 314 Lib. Professor Windsor.

104. Advanced Cataloging and Classification.—*Prerequisite:* Lib. 36. (½ unit). 2 MW; 314 Lib. Assistant Professor Bond.

MATHEMATICS

For students entering prior to September, 1929

Major: 20 hours made up from any undergraduate courses offered by the department except Math. 1a, 2, 3, 4, 5, and 8. The courses selected must include Math. 7 and 9, and at least one of the following courses: Math. 10, 16, 18, 20, 21, 30, 40, 90. For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: Math. 1; or first semester, Math. 2 (or 3) and 4; second semester, Math. 6. Sophomore year: first semester, Math. 7 (Section T); second semester, Math. 9 (Section T) and 19.

Minors: 20 hours selected from not more than three of the following subjects: Astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), philosophy, theoretical and applied mechanics, and surveying. At least 8 hours must be offered in some one subject.

Credit for seniors who take Math. 1a, 1b, 2, 3, 4, 5, 6, or 6a will be reduced one hour.

For students entering after September 1, 1929

Major: 20 hours exclusive of Math. 1a, 1b, 2, 3, 4, 5, 6, 6a, and 8, and all courses taken during the freshman year; inclusive of Math. 7 and 9, and at least one of the following courses: Math. 10, 16, 18, 20, 21, 30, 40, 90, 91.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: Math. 1; or first semester, Math. 2 (or 3) and 4; second semester, Math. 6. Sophomore year: first semester, Math. 7 (Section T); second semester, Math. 9 (Section T) and 19.

Minors: 20 hours exclusive of courses taken during the freshman year selected from one or two of the following subjects: Astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), philosophy, theoretical and applied mechanics, surveying. If two subjects are chosen, at least eight hours must be offered in each.

Credit for seniors who take Math. 1a, 1b, 2, 3, 4, 5, 6, or 6a will be reduced one hour.

Courses for Undergraduates

1b. Introduction to College Mathematics.—This course is designed as a two-semester course to give in a unified way an introduction to mathematics, including material from college algebra, trigonometry, analytical geometry, and elementary calculus. A student taking Math. 1a and 1b will not take Math. 2, 3, 4, or 6. *Prerequisite:* Math. 1a. *Note:* Seniors will receive 4 hours' credit only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Math. 1b	5	T	10	MTWTF	105 Entom.	Wood
		U	11	MTWTF	105 Entom.	McClellan
		W	1	MTWTF	206 U. H.	Ott
		X	2	MTWTF	202 U. H.	Moore

2. College Algebra.—*Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit. *Note:* Seniors will receive 2 hours' credit only.

Math. 2	3	A[1]	8	TTS	158 Math.	Schilling
		S	9	MWF	159 Math.	Emch
		T1	10	MWF	311 U. H.	Bear
		T2	10	MWF	302 U. H.	Smith
		D[1]	11	MWF	202 U. H.	Hook
		E[1]	1	MWF	103 Entom.	
		X	2	MWF	105 Entom.	Wood
		Y	3	MWF	158 Math.	
		H[1]	4	MWF	155 Math.	Brown

3. Algebra.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit. Students having 1½ entrance units in algebra will receive but 3 hours' credit for this course. *Note:* Seniors will receive 4 hours' credit only.

Math. 3	5	R	8	MTWTF	103 Entom.	Rogers
		S	9	MTWTF	110 L. H.	Miles
		T1	10	MTWTF	154 Math.	G. A. Miller
		T2	10	MTWTF	103 Entom.	Sigley
		U	11	MTWTF	110 L. H.	Shaw
		W	1	MTWTF	154 Math.	Hazlett
		X	2	MTWTF	156 Math.	Ogg
		Y	3	MTWTF	206 U. H.	Dennis
		Z	4	MTWTF	158 Math.	Barber

4. Plane Trigonometry.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit. *Note:* Seniors will receive 1 hour's credit only.

Math. 4	2	A[1]	8	TT	159 Math.	Armstrong
		R	8	TT	155 Math.	Stith
		B[1]	9	TT	206 U. H.	Brown
		S1	9	TT	102 Entom.	McClellan
		S2	9	TS	154 Math.	Cooley
		T1	10	TT	208 U. H.	Lytle
		T2	10	TT	156 Math.	Locke
		T3	10	TT	202 U. H.	Bourgin
		D[1]	11	TT	318 U. H.	Miles
		U	11	TT	202 U. H.	Hook
		E[1]	1	TT	110 L. H.	Lang
		W1	1	TT	156 Math.	Wolever
		W2	1	TT	202 U. H.	Moore
		X1	2	TT	154 Math.	Hazlett
		X2	2	TT	155 Math.	Maria
		Y1	3	TT	158 Math.	Levy
		Y2	3	TT	110 L. H.	Ott
		Y3	3	TT	208 U. H.	Jacokes
		H[1]	4	T }	155 Math.	Brown
			9	S }		

6. Analytic Geometry.—*Prerequisite:* Math. 2 (or 3), 4. *Note:* Seniors will receive 4 hours' credit only.

Math. 6	5	A1[1]	8	MTWTF	156 Math.	Wolever
		A2[1]	8	MTWTF	208 U. H.	
		B1[1]	9	MTWTF	208 U. H.	Locke
		B2[1]	9	MTWTF	155 Math.	Stith
		B3[1]	9	MTWTF	103 Entom.	
		T1	10	MTWTF	158 Math.	Wilson
		T2	10	MTWTF	206 U. H.	Bower
		T3	10	MTWTF	110 L. H.	

[1]For freshman engineers only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Math. 6	5	D1[1]	11	MTWTF	103 Entom.	SIGLEY
		D2[1]	11	MTWTF	158 Math.	B. I. MILLER
		U	11	MTWTF	102 Entom.	SCHILLING
		E1[1]	1	MTWTF	159 Math.	KETCHUM
		E2[1]	1	MTWTF	208 U. H.	HOOK
		F1[1]	2	MTWTF	110 L. H.	STEIMLEY
		F2[1]	2	MTWTF	159 Math.	BRISTOW
		X	2	MTWTF	206 U. H.	JACOKES
		G1[1]	3	MTWTF	154 Math.	HOERSCH
		G2[1]	3	MTWTF	155 Math.	BARBER
		Y	3	MTWTF	156 Math.	LANG

6a. Analytic Geometry.—(For chemists, chemical engineers, architects, and architectural engineers.) *Prerequisite:* Math. 2 (or 3), 4. *Note:* Seniors will receive 3 hours' credit only.

Math. 6a	4	A[1]	8	MTWT	206 U. H.	BIRD
		S1	9	MTWT	156 Math.	BRAHANA
		S2	9	MTWT	158 Math.	B. I. MILLER
		S3	9	MTWT	105 Entom.	BAILEY
		D1[1]	11	MTWT	154 Math.	PEPPER
		D2[1]	11	MTWT	159 Math.	ARMSTRONG
		E1[1]	1	MTWT	158 Math.	HOPKINS
		E2[1]	1	MTWT	105 Entom.	BRISTOW

7. Differential and Integral Calculus.—*Prerequisite:* Math. 1 or 6.

Math. 7	5	B	9	MTWTF	202 U. H.	WILSON
		D1	11	MTWTF	208 U. H.	BOURGIN
		D2	11	MTWTF	206 U. H.	HOPKINS
		E	1	MTWTF	155 Math.	MARIA
		F	2	MTWTF	158 Math.	LEVY
		G	3	MTWTF	159 Math.	KETCHUM

8b. Integral Calculus.—(For students in chemistry and chemical engineering.) *Prerequisite:* Math. 8a.

Math. 8b	3	A1	8	MWF	155 Math.	BOWER
		A2	8	MWF	110 L. H.	MILES
		C1	10	MWF	155 Math.	EMCH
		C2	10	MWF	202 U. H.	PETERS

9. Integral Calculus.—*Prerequisite:* Math. 7.

Math. 9	3	A1	8	MWF	159 Math.	ARMSTRONG
		A2	8	MWF	158 Math.	B. I. MILLER
		A3	8	MWF	154 Math.	PETERS
		A4	8	TTS	202 U. H.	WILSON
		A5	8	TTS	110 L. H.	MILES
		B	9	MWF	154 Math.	PEPPER
		C1	10	MWF	102 Entom.	BRISTOW
		C2	10	MWF	159 Math.	ARMSTRONG
		C3	10	TTS	159 Math.	PETERS
Note: Section T is for LAS students only.		T	10	MWF	156 Math.	BRAHANA
		F	2	MWF	154 Math.	HOPKINS
		H	4	MWF	159 Math.	OGG

9a. Differential and Integral Calculus.—*Prerequisite:* Math. 7 and 9 (or 8a-b).

Math. 9a	2	B	9	MF	206 U. H.	BOWER
		D	11	TT	155 Math.	STEIMLEY
		D2	11	TT	156 Math.	CRATHORNE
		F	2	MF	155 Math.	KETCHUM

19. Solid Analytical Geometry.—*Prerequisite:* Math. 7 or 8a. (3). 2 MWF; 254 Math. Dr. HOERSCH.

Courses for Advanced Undergraduates and Graduates

17. Differential Equations and Advanced Calculus.—*Prerequisite:* Math. 16.

Math. 17	3	A	8	MWF	105 Entom.	BAILEY
		E	1	MWF	110 L. H.	STEIMLEY

18. Constructive and Projective Geometry.—*Prerequisite:* Math. 7 and 9 (or 8). (3). 1 MWF; 254 Math. Dr. OGG.

21. Theory of Probability.—*Prerequisite:* Math. 7 and 9 (or 8). (3). 11 MWF; 156 Math. Associate Professor CRATHORNE.

23. Mathematics of Finance.—*Prerequisite:* Math. 2, junior standing.

Math. 23	3	A	8	TTS	154 Math.	PETERS
		B	9	TTS	159 Math.	BOWER
		C	10	TTS	155 Math.	COOLEY
		D	11	TTS	302 U. H.	BIRD
		E	1	MWF	156 Math.	COOLEY
		F	2	MWF	208 U. H.	DENNIS
		G	3	MWF	208 U. H.	
		H	4	MWF	154 Math.	HOERSCH

[1]For freshman engineers only.

32. History of Mathematics.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 11 MWF; 254 Math. Associate Professor LYTLE.

35. Teachers' Course.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 10 MWF; 208 U. H. Associate Professor LYTLE.

53b. Integral and Operational Equations in Mathematical Physics.—*Prerequisite:* Math. 53a. (3). 10 MWF; 366 Math. Dr. BOURGIN.

60. Introduction to Theory of Numbers.—*Prerequisite:* Math. 9 or consent of instructor. (3). 10 MWF; 254 Math. Dr. PEPPER.

90b. Undergraduate Thesis.—*Prerequisite:* 24 hours of college mathematics. (2). Arrange.

91b. Introduction to Modern Mathematics.—*Prerequisite:* Math. 91a. (3). 9 TTS; 254 Math. Professor COBLE.

Courses for Graduates

100. Seminar and Thesis.—(1 to 2 units).* Arrange.

102. Functions of a Complex Variable.—(1 unit). 3 MWF; 254 Math. Assistant Professor MARIA.

113. Linear Differential Equations.—(1 unit). 11 MWF; 155 Math. Professor CARMICHAEL.

124. Theory of Numbers.—(1 unit). 2 MWF; 366 Math. Associate Professor HAZLETT.

127. Theory of Groups.—(1 unit). 9 MWF; 366 Math. Professor MILLER.

129. Theory of Statistics.—(1 unit). 9 MWF; 254 Math. Associate Professor CRATHORNE.

131. Algebraic Geometry.—(1 unit). 10 TTS; 254 Math. Professor COBLE.

133. Geometric Transformations.—(1 unit). 8 MWF; 254 Math. Professor EMCH.

135. Differential Geometry.—(1 unit). 11 TTS; 254 Math. Assistant Professor LEVY.

139. Analysis Situs.—(1 unit). 8 TTS; 254 Math. Assistant Professor BRAHANA.

149. Philosophy of Mathematics.—(1 unit). 1 MWF; 366 Math. Professor SHAW.

MECHANICAL ENGINEERING

2. Steam Engineering.—*Prerequisite:* Math. 9; Phys. 1 and 3.

Subject	Credits	Section	Hours	Days	Room	Instructor
M. E. 2	3	Z1	8	MWF	216 M. E. L.	
		Z2	11	MWF	217 M. E. L.	

6. Steam Engineering.—*Prerequisite:* Registration in M. E. 16.

M. E. 6	4	P	1	MTTF	208 M. E. L.	
		Q	8	TWTS	208 M. E. L.	

10. Thermodynamics.—*Prerequisite:* Math. 9; Phys. 1 and 3.

M. E. 10	3	JLY	8	MWF	202 T. B.	
		KMNV	9	TTS	202 T. B.	

15. Heat Engineering.—*Prerequisite:* M. E. 16. (3). Sec. PQ, 11 MWF; 202 T. B.

16. Thermodynamics.—*Prerequisite:* M. E. 13.

M. E. 16	2	P	2	Th	202 T. B., 217 M. E. L.	
			2-4	T	202 T. B., 217 M. E. L.	
		Q	10	T	202 T. B., 217 M. E. L.	
			10-12	Th	202 T. B., 217 M. E. L.	

17. Refrigeration Engineering.—*Prerequisite:* M. E. 16.

M. E. 17	3	PQ	11	MW	208 M. E. L.	
			8-10	S	112 T. B.	

28. Heating and Ventilation.—*Prerequisite:* M. E. 16 and 65.

M. E. 28	4	P	8	TT	107 M. E. L.	
			9-11	T	112, 114 T. B.	
			10-12	S	112, 114 T. B.	
		Q	8	TT	107 M. E. L.	
			9-11	Th	112, 114 T. B.	
			10-12	S	112, 114 T. B.	

34. Aeronautical Engineering.—*Prerequisite:* M. E. 33. (3). Sec. PQ, 11 MWF; 216 M. E. L.

40. Mechanical Engineering Design.—*Prerequisite:* M. E. 31; T. A. M. 3 and 63.

M. E. 40	3	P	8-11	MWF	216, 201 T. B.	
		Q	1-4	MWF	216, 201 T. B.	

52. Power Plant Design.—*Prerequisite:* M. E. 65.

M. E. 52	3	P	8-11	MWF	112, 114 T. B.	
		Q	1-4	MWF	112, 114 T. B.	

62. Steam Engineering and Power Laboratory.—*Prerequisite:* Junior standing.

M. E. 62	3	OX	1	WF	216 M. E. L.	
			1-4	M	M. E. L.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

64. Steam Power Laboratory.—*Prerequisite:* Registration in M. E. 6 and 16.

Subject	Credits	Section	Hours	Days	Room	Instructor
M. E. 64	3	P	8-12	S	M. E. L.	
			1-5	W	M. E. L.	
		Q	8-12	MF	M. E. L.	
		J	8-12	TT	M. E. L.	

85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing.

M. E. 85	3	PK	8-12	TT	Pattern Lab.
		J2Q	8-12	MF	Pattern Lab.
		J1RM	1-5	TT	Pattern Lab.
		SVWN	1-5	MF	Pattern Lab.

87. Machine Laboratory.—*Prerequisite:* M. E. 85 or junior standing.

M. E. 87	3	L	8-12	MF	Machine Lab.
		N	1-5	MF	Machine Lab.

88. Machine Laboratory.—*Prerequisite:* M. E. 87.

M. E. 88	3	PW	8-12	TT	Machine Lab.
		Q	1-5	TT	Machine Lab.

89. Heat Treatment of Metals.—*Prerequisite:* Senior standing in Mechanical or Railway Mechanical Engineering.

M. E. 89	3	P	2-4	MWF	Heat Treatment Lab.
		Q	8-10	MWF	Heat Treatment Lab.

98. Thesis.—*Prerequisite:* Senior standing. (3). Time to be arranged.

Courses for Graduates

Entrance on graduate work in Mechanical Engineering presupposes the full undergraduate course in that subject.

107. Thermodynamics.—Application of thermodynamics to the solution of physical and engineering problems. (1 unit). Twice a week. Time to be arranged. Associate Professor Goff.

108. The Flow of Fluids and Heat Transfer.—The application of dimensional analysis and other rational formulas. Special problems. (1 unit). Twice a week. Time to be arranged. Associate Professor Macintire.

109. Machine Design.—Rational design; the application of mechanics of materials. Individual problems. (1 unit). Twice a week. Time to be arranged. Professor Leutwiler.

112. Laboratory Investigations.—Combustion of fuel, boiler economy; steam engines and turbines; gas engines and producers; explosive mixtures; mechanical refrigeration. Original work. (1½ units). Three times a week. Time to be arranged. Professors Willard, Polson, Kratz, Ham; Associate Professor Macintire.

MECHANICS, THEORETICAL AND APPLIED

1. Analytical Mechanics (Statics).—*Prerequisite:* Math. 7; registration in Math. 9.

T. A. M. 1	2	C	8	MW	305 M. T. L.
		Q	8	TT	309 M. T. L.
		R	8	TT	311 M. T. L.
		U	9	MW	309 M. T. L.
		X	9	MW	305 M. T. L.
		M	9	TT	202 E. H.
		N	10	TT	309 M. T. L.
		S	10	TT	202 E. H.
		E	11	TT	313 M. T. L.
		F	11	TT	202 E. H.
		J1	11	TT	311 M. T. L.
		D	1	MW	305 M. T. L.
		G	1	TT	313 M. T. L.
		H	1	TT	202 E. H.
		K	1	TT	311 M. T. L.
		P	1	WF	311 M. T. L.
		L	2	TT	305 M. T. L.
		J2	2	TT	309 M. T. L.

2. Analytical Mechanics (Dynamics).—*Prerequisite:* T. A. M. 1.

T. A. M. 2	3	Y	11	MWF	202 E. H.
		Z	4	MWF	202 E. H.

3. Resistance of Materials.—*Prerequisite:* T. A. M. 1 or 20.

T. A. M. 3	3	Z1	8	MWF	309 M. T. L.
		Z2	9	TTS	305 M. T. L.
		L	10	MWF	305 M. T. L.
		K	10	TTS	311 M. T. L.
		N	10	TTS	313 M. T. L.
		Y	11	MWF	305 M. T. L.
		M	1	MWF	309 M. T. L.

4. Hydraulics.—*Prerequisite:* T. A. M. 1 and registration in T. A. M. 2 or 21.

Subject	Credits	Section	Hours	Days	Room	Instructor
T. A. M. 4	2	J	8	TT	313 M. T. L.	
		E	11	TT	305 M. T. L.	
		F	11	TT	309 M. T. L.	
		G	1	TT	305 M. T. L.	
		H	1	TT	309 M. T. L.	

16. Strength of Materials.—*Prerequisite:* T. A. M. 15.

T. A. M. 16	3	A Quiz	10	WF	309 M. T. L.	
		Lab.	1-3	F	305 M. T. L.	
		B Quiz	9	MW	311 M. T. L.	
		Lab.	8-10	F	311 M. T. L.	

18. Strength of Materials.—*Prerequisite:* T. A. M. 17.

T. A. M. 18	3	A	4	MWF	313 M. T. L.	

20. Analytical Mechanics.—*Prerequisite:* Math. 8a; registration in Math. 8b.

T. A. M. 20	3	Ch1	8	MWF	202 E. H.	
		Ch2	10	MWF	202 E. H.	

21. Analytical Mechanics.—*Prerequisite:* T. A. M. 20.

T. A. M. 21	2	C	9	MW	202 E. H.	
		D	2	MW	202 E. H.	
		Y	4	TT	305 M. T. L.	

63. Resistance of Materials Laboratory.—*Prerequisite:* Registration in T. A. M. 3.

T. A. M. 63	1	Z2	10-12	M	223 M. T. L.	
		K	10-12	W	223 M. T. L.	
		Y	1-3	M	223 M. T. L.	
		L	1-3	T	223 M. T. L.	
		N	1-3	W	223 M. T. L.	
		M	3-5	M	223 M. T. L.	
		Z1	3-5	W	223 M. T. L.	

64. Hydraulics Laboratory.—*Prerequisite:* Registration in T. A. M. 4.

T. A. M. 64	1	G	8-10	F	M. T. L.	
		H	10-12	M	M. T. L.	
		J	1-3	M	M. T. L.	
		E	1-3	F	M. T. L.	
		F	3-5	Th	M. T. L.	

Courses for Advanced Undergraduates and Graduates

42. Properties of Engineering Materials: Specifications and Inspection.—*Prerequisite:* T. A. M. 1, 3, and 63. (3 credits or ½ unit). Time to be arranged. Professor SEELY.

44. Laboratory Work in Testing Materials.—*Prerequisite:* T. A. M. 1, 3, and 63. (3 credits or ½ to 1 unit).* Time to be arranged. Professor MOORE.

46. Advanced Technical Mechanics.—*Prerequisite:* T. A. M. 1 and 3 or equivalent work in mathematics and physics. (2 credits or ½ unit). Time to be arranged. Professor WESTERGAARD.

Courses for Graduates

102. Resistance of Materials.—(1 unit). Twice a week. Time to be arranged. Professor MOORE.

103. Hydraulics and Hydraulic Engineering.—(½ to 1 unit).* Twice a week. Time to be arranged. Professor ENGER.

104. Experimental Work in the Laboratory of Applied Mechanics.—(½ to 1 unit).* Twice a week. Time to be arranged. Professors ENGER and MOORE.

105. Experimental and Analytical Work in Reinforced Concrete.—(1 to 2 units).* Twice a week. Time to be arranged. Associate Professor RICHART.

106. Theory of Elasticity and Applications to Engineering Problems.—(1 unit). Three times a week. Time to be arranged. Professor WESTERGAARD.

MILITARY BANDS

Note: The following courses are open only to those who have passed the examination for admittance to one of the bands. All new students who play band instruments and who desire to try for places in the bands should make application at the Band Office, in the Band Building, at the earliest possible time. Those who are accepted for membership will be given a slip indicating that they have been accepted.

Service in the bands takes the place of the regular military drill.

2. Freshman Band.—(1). Twice a week. Days and section to be assigned according to proficiency. Director HARDING.

4. Sophomore Band.—(1). See foregoing. Director HARDING.

6. Junior Band.—(1). Twice a week. Days and section to be assigned. Director HARDING.

8. Senior Band.—(1). See foregoing. Director HARDING.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

MILITARY SCIENCE

All military courses consist of two parts designated by the same number: a practical course lettered with "a" and a theoretical course lettered with "b." Students who have had training in a senior ROTC unit are permitted to register for work one year advanced for each year they have had in the senior unit. All students who register for junior and senior courses are required to sign a contract with the Government to take five hours of military per week during two years in the University and to attend one summer camp of six weeks.

Infantry

2a. Freshman Infantry.

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 2a	½	Co. A	8-10	M	Arm.	Kramer
		Co. B	8-10	M	Arm.	Innis
		Co. E	10-12	W	Arm.	
		Co. G	1-3	Th	Arm.	
		Co. H	1-3	Th	Arm.	
		Co. L	10-12	S	Arm.	
		Co. M	10-12	S	Arm.	

2b. Freshman Infantry.

Mil. Sci. 2b	½	1	10	M	150 Arm.	Kramer
		2	11	M	150 Arm.	Innis
		3	2	M	150 Arm.	
		4	9	T	150 Arm.	
		5	2	T	150 Arm.	
		6	8	W	150 Arm.	
		7	9	W	150 Arm.	
		8	1	W	150 Arm.	
		9	2	W	150 Arm.	
		10	9	Th	150 Arm.	
		11	10	Th	150 Arm.	
		12	11	Th	150 Arm.	
		13	9	F	150 Arm.	
		14	10	F	150 Arm.	
		15	11	F	150 Arm.	
		16	9	S	150 Arm.	

4a. Sophomore Infantry.

Mil. Sci. 4a	½	Co. C	1-3	M	Arm.	Kramer
		Co. D	1-3	M	Arm.	Kellogg
		Co. F	10-12	W	Arm.	
		Co. I	1-3	Th	Arm.	
		Co. K	10-12	S	Arm.	

4b. Sophomore Infantry.

Mil. Sci. 4b	½	50	10	M	151 Arm.	Kramer
		51	11	M	151 Arm.	Kellogg
		52	3	M	151 Arm.	
		53	10	T	151 Arm.	
		54	11	T	151 Arm.	
		55	8	W	151 Arm.	
		56	9	W	151 Arm.	
		57	11	Th	151 Arm.	
		58	3	Th	151 Arm.	
		59	9	F	151 Arm.	
		60	9	S	151 Arm.	

6a. Junior Infantry.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 6a	½	Group I	10-12	W	Arm.	Burney
		and	4	F	Arm.	
		Group II	1-3	Th	Arm.	
		and	4	F	Arm.	

6b. Junior Infantry.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 6b	1	80	10-12	M	152 Arm.	Burney
		81	1-3	T	152 Arm.	
		82	1-3	W	152 Arm.	
		83	10-12	Th	152 Arm.	
		84	10-12	F	151 Arm.	

8a. Senior Infantry.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 8a	½	Co.'s A to M (See 2a and 4a for hours.)				
		and	4	F	Arm.	G. L. Smith

8b. Senior Infantry.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 8b	1	90	9	TT	151 Arm.	G. L. Smith
		91	2	TT	151 Arm.	
		92	2	WF	151 Arm.	

Field Artillery

12a. Freshman Field Artillery.

Mil. Sci. 12a	½	1st Bn.	3-5	M	Arm.	Weiland
		2nd Bn.	1-3	T	Arm.	Dalferes
		3rd Bn.	3-5	W	Arm.	
		4th Bn.	3-5	Th	Arm.	
		5th Bn.	1-3	F	Arm.	

12b. Freshman Field Artillery.

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 12b	½	100	9	M	155 Arm.	Weiland
		101	10	M	155 Arm.	Dalferes
		102	11	M	155 Arm.	
		103	2	M	155 Arm.	
		104	9	T	155 Arm.	
		105	10	T	155 Arm.	
		106	11	T	155 Arm.	
		107	9	W	155 Arm.	
		108	10	W	155 Arm.	
		109	11	W	155 Arm.	
		110	9	Th	155 Arm.	
		111	10	Th	155 Arm.	
		112	11	Th	155 Arm.	
		113	2	Th	155 Arm.	
		114	9	F	155 Arm.	
		115	10	F	155 Arm.	
		116	11	F	155 Arm.	

14a. Sophomore Field Artillery.

Mil. Sci. 14a	½	1st Bn.	3-5	M	Arm.	Daugherty
		2nd Bn.	1-3	T	Arm.	March
		3rd Bn.	3-5	W	Arm.	
		4th Bn.	3-5	Th	Arm.	
		5th Bn.	1-3	F	Arm.	

14b. Sophomore Field Artillery.

Mil. Sci. 14b	½	130	9	M	154 Arm.	Daugherty
		131	10	M	154 Arm.	March
		132	11	M	154 Arm.	Dalferes
		133	9	T	154 Arm.	
		134	10	T	154 Arm.	
		135	11	T	154 Arm.	
		136	10	W	154 Arm.	
		137	9	Th	154 Arm.	
		138	10	Th	154 Arm.	
		139	11	Th	154 Arm.	
		140	9	F	154 Arm.	
		141	10	F	154 Arm.	

16a. Junior Field Artillery.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 16a	½	1st Bn.	3-5	M	Arm.	Lee
		2nd Bn.	1-3	T	Arm.	
		4th Bn.	3-5	Th	Arm.	
		5th Bn.	1-3	F	Arm.	

16b. Junior Field Artillery.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 16b	1	160	9	M	152 Arm.	Lee
		and	9	W	152 Arm.	
		and	4	F	154 Arm.	
		161	11	M	153 Arm.	
		and	11	W	153 Arm.	
		and	4	F	154 Arm.	
		162	9	T	152 Arm.	
		and	9	Th	152 Arm.	
		and	4	F	152 Arm.	
		163	10	T	153 Arm.	
		and	10	Th	153 Arm.	
		and	4	F	152 Arm.	

18a. Senior Field Artillery.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 18a	½	1st Bn.	3-5	M	Arm.	McCleave
		2nd Bn.	1-3	T	Arm.	
		3rd Bn.	3-5	W	Arm.	
		4th Bn.	3-5	Th	Arm.	
		5th Bn.	1-3	F	Arm.	

18b. Senior Field Artillery.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 18b	1	190	9	M	153 Arm.	McCleave
		and	9	W	153 Arm.	
		and	4	F	155 Arm.	
		191	10	M	153 Arm.	
		and	10	W	153 Arm.	
		and	4	F	155 Arm.	
		192	9	T	153 Arm.	
		and	9	Th	153 Arm.	
		and	4	F	155 Arm.	
		193	11	T	153 Arm.	
		and	11	Th	153 Arm.	
		and	4	F	155 Arm.	

Cavalry

Subject	Credits	Section	Hours	Days	Room	Instructor
22a. Freshman Cavalry.						
Mil. Sci. 22a	½	1A	10-12	M	Arm.	Patterson
		1B	8-10	T	Arm.	
		1C	8-10	W	Arm.	
		1D	8-10	Th	Arm.	
		1E	10-12	Th	Arm.	
		1F	8-10	F	Arm.	
		1G	10-12	F	Arm.	
22b. Freshman Cavalry.						
Mil. Sci. 22b	½	201	1	M	146 Arm.	Sullivan
		202	2	M	146 Arm.	
		203	3	M	146 Arm.	
		204	9	T	146 Arm.	
		205	10	T	146 Arm.	
		206	1	T	146 Arm.	
		207	8	W	146 Arm.	
		208	9	W	146 Arm.	
		209	2	W	146 Arm.	
		210	10	Th	144 Arm.	
		211	11	Th	144 Arm.	
		212	9	F	146 Arm.	
		213	10	F	146 Arm.	
		214	11	F	146 Arm.	
24a. Sophomore Cavalry.						
Mil. Sci. 24a	½	2A	8-10	M	Arm.	Rogers
		2B	9-11	T	Arm.	
		2C	9-11	F	Arm.	
		2D	8-10	S	Arm.	
		2E	10-12	S	Arm.	
24b. Sophomore Cavalry.						
Mil. Sci. 24b	½	221	9	M	147 Arm.	Conard
		222	10	M	147 Arm.	
		223	1	M	147 Arm.	
		224	11	T	147 Arm.	
		225	3	T	147 Arm.	
		226	8	W	147 Arm.	
		227	9	W	147 Arm.	
		228	10	Th	147 Arm.	
		229	1	Th	147 Arm.	
		230	2	Th	147 Arm.	
		231	11	F	147 Arm.	
		232	1	F	147 Arm.	
26a. Junior Cavalry.—*Prerequisite:* First and second year basic credits.						
Mil. Sci. 26a	½	3A	8-10	W	Arm.	Featherstone
		3B	8-10	S	Arm.	
26b. Junior Cavalry.—*Prerequisite:* First and second year basic credits.						
Mil. Sci. 26b	1	241	10-12	M	146 Arm.	Featherstone
			4	F	146 Arm.	
		242	3-5	T	146 Arm.	
			4	F	146 Arm.	
		243	10-12	Th	146 Arm.	
			4	F	146 Arm.	
		244	3-5	Th	146 Arm.	
			4	F	146 Arm.	
28a. Senior Cavalry.—*Prerequisite:* First and second year basic credits.						
Mil. Sci. 28a	½	1A-1G incl. (See 22a and 24a for hours.)				S. D. Smith
		2A-2E incl.				Rogers
						Patterson
28b. Senior Cavalry.—*Prerequisite:* First and second year basic credits.						
Mil. Sci. 28b	1	251	3-5	M	147 Arm.	S. D. Smith
			4	F	147 Arm.	
		252	8-10	T	147 Arm.	
			4	F	147 Arm.	
		253	3-5	Th	147 Arm.	
			4	F	147 Arm.	
		254	9-11	F	147 Arm.	
			4	F	147 Arm.	

Engineers

32a. Freshman Engineers.						
Mil. Sci. 32a	½	1st Bn.	3-5	W	Arm.	Lemen
		2nd Bn.	3-5	Th	Arm.	Griffiths
		3rd Bn.	10-12	S	Arm.	

32b. Freshman Engineers.

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 32b	½	300	11	T	143 Arm.	Griffiths
		301	2	T	143 Arm.	
		302	3	T	143 Arm.	
		303	11	Th	143 Arm.	
		304	9	F	143 Arm.	
		305	10	F	143 Arm.	

34a. Sophomore Engineers.

Mil. Sci. 34a	½	1st-3rd Bn. incl. (See 32a for hours.)			Arm.	Lemen Griffiths

34b. Sophomore Engineers.

Mil. Sci. 34b	½	320	11	T	145 Arm.	Lemen
		321	3	T	145 Arm.	
		322	4	T	145 Arm.	
		323	2	W	145 Arm.	
		324	11	Th	147 Arm.	

36a. Junior Engineers.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 36a	½	1st-3rd Bn. incl. (See 32a for hours.)			Arm.	Lemen Griffiths

36b. Junior Engineers.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 36b	1	340	2-4	F	143 Arm.	Griffiths
			4	F	143 Arm.	
		341	8-10	S	143 Arm.	
			4	F	143 Arm.	

38a. Senior Engineers.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 38a	½	1st-3rd Bn. incl. (See 32a for hours.)			Arm.	Lemen Griffiths

38b. Senior Engineers.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 38b	1	350	10-12	F	145 Arm.	Lemen
			4	F	145 Arm.	
		351	8-10	S	145 Arm.	
			4	F	145 Arm.	

Signal Corps

42a. Freshman Signal Corps.

Mil. Sci. 42a	½	A	3-5	T	Arm.	Parsons
		B	3-5	W	Arm.	Engerud
		C	3-5	Th	Arm.	
		D	2-4	F	Arm.	

42b. Freshman Signal Corps.

Mil. Sci. 42b	½	400	10	M	222 Arm.	Engerud
		401	10	T	222 Arm.	
		402	8	W	222 Arm.	
		403	1	W	222 Arm.	
		404	1	Th	222 Arm.	
		405	10	F	222 Arm.	

44a. Sophomore Signal Corps.

Mil. Sci. 44a	½	A-D incl. (See 42a for hours.)				Parsons Engerud

44b. Sophomore Signal Corps.

Mil. Sci. 44b	½	410	9	T	222 Arm.	Parsons
		411	11	T	222 Arm.	
		412	9	F	222 Arm.	
		413	11	F	222 Arm.	

46a. Junior Signal Corps.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 46a	½	A-D incl. (See 42a for hours.)				Parsons Engerud

46b. Junior Signal Corps.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 46b	1	420	3-5	M	222 Arm.	Parsons
			4	F	222 Arm.	
		421	9-11	S	222 Arm.	
			4	F	222 Arm.	

48a. Senior Signal Corps.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 48a	½	A-D incl. (See 42a for hours.)				Parsons

48b. Senior Signal Corps.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 48b	1	431	3-5	M	144 Arm.	Engerud
			4	F	144 Arm.	
		432	9-11	W	144 Arm.	
			4	F	144 Arm.	

Air Corps

52a. Freshman Air Corps.

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 52a	½	AC	1-3	Th	Arm.	HILDRETH

52b. Freshman Air Corps.

Mil. Sci. 52b	½	501	11	Th	148 Arm.	HILDRETH
		502	11	F	148 Arm.	

54a. Sophomore Air Corps.

Mil. Sci. 54a	½	AC	(See 52a for hours.)		Arm.	HILDRETH

54b. Sophomore Air Corps.

Mil. Sci. 54b	½	510	11	T	148 Arm.	HILDRETH
		511	3	T	148 Arm.	

56a. Junior Air Corps.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 56a	½	AC	2-4	M	Arm.	HILDRETH

56b. Junior Air Corps.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 56b	1	515	2-4	F	148 Arm.	HILDRETH
			4	F	148 Arm.	

58a. Senior Air Corps.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 58a	½	AC (See 52a for hours.)			Arm.	HILDRETH

58b. Senior Air Corps.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 58b	1	520	1-3	T	148 Arm.	HILDRETH
			4	F	148 Arm.	

Coast Artillery (Antiaircraft)

62a. Freshman Coast Artillery.

Mil. Sci. 62a	½	A	10-12	M	Arm.	McBRIDE
		B	10-12	T	Arm.	
		C	8-10	Th	Arm.	
		D	8-10	F	Arm.	

62b. Freshman Coast Artillery.

Mil. Sci. 62b	½	601	8	M	153 Arm.	CHAPMAN
		602	1	M	153 Arm.	McBRIDE
		603	3	M	153 Arm.	
		604	1	T	153 Arm.	
		605	3	T	153 Arm.	
		606	1	Th	153 Arm.	
		607	3	Th	153 Arm.	
		608	11	F	153 Arm.	
		609	1	F	153 Arm.	
		610	3	F	153 Arm.	

64a. Sophomore Coast Artillery.

Mil. Sci. 64a	½	A-D incl. (See 62a for hours.)				McBRIDE

64b. Sophomore Coast Artillery.

Mil. Sci. 64b	½	621	2	M	153 Arm.	CHAPMAN
		622	9	T	143 Arm.	McBRIDE
		623	2	T	153 Arm.	
		624	2	Th	153 Arm.	
		625	2	F	153 Arm.	

66a. Junior Coast Artillery.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 66a	½	Group I	1-3	T	Arm.	CHAPMAN
		and	4	F	Arm.	
		Group II	10-12	F	Arm.	
		and	4	F	Arm.	

66b. Junior Coast Artillery.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 66b	1	631	1-3	M	154 Arm.	CHAPMAN
		632	10-12	Th	145 Arm.	

MINERALOGY

(See Geology.)

MINING ENGINEERING

Courses for Undergraduates

2. Mining Principles.—(For students in courses other than mining.) *Prerequisite:* Chemistry and physics; junior standing. (3). 9 MWF; 206 T. B. Mr. MITCHELL.

4. Mining Methods.—*Prerequisite:* Mining 1 and registration in Geology 43. (3). 8 TTS; 206 T. B. Mr. NICHOLSON.

10. Electrical Engineering of Mines.—*Prerequisite:* Phys. 1b-3b. (3). 8-11 M, 10 WF; Min. Lab. and 206 T. B. Mr. NICHOLSON.

15. Mine Ventilation.—*Prerequisite:* Mining 4. (2). 11 MW; 206 T. B. Professor CALLEN.

20. Mine Ventilation Laboratory.—*Prerequisite:* Registration in Mining 15. (2). 1-4 M, 9 Th; Min. Lab. and 206 T. B. Professor CALLEN, Mr. MITCHELL.

21. Examination, Valuation, and Reports.—*Prerequisite:* Mining 4, Geol. 20 and 43 or equivalent. (3). 11 TTS; 206 T. B. Mr. NICHOLSON.

42. Mining and Metallurgical Design.—*Prerequisite:* Mining 41. (2). 1-4 TT; 207 T. B. Mr. MITCHELL.

62. Mine Surveying.—*Prerequisite:* Mining 61. (3). 10 T, 2-5 WF; 207 T. B. Mr. NICHOLSON.

64. Coal and Ore Preparation Laboratory.—*Prerequisite:* Mining 9. (3). 1-5 WF; Min. Lab. Mr. MITCHELL.

90. Mining and Metallurgical Reports.—*Prerequisite:* Senior standing in Mining Engineering. (1). 9 T; 206 T. B. Professor CALLEN.

Courses for Graduates

101. Advanced Mining Practice.—(1 unit). Twice a week. Professor CALLEN.

104.[1] Mining Reports.—(1 unit). Twice a week. Professor CALLEN.

105.[1] Welfare Work and Education Among Mine Employees.—(1 unit). Twice a week. Professor CALLEN.

MUSIC

2. History of Music.—*Prerequisite:* One year of university work. (2). 11 MWF; Lect. Room, S. M. H. Associate Professor SCHWARTZ.

3-4. Theory of Music (Harmony).

Subject	Credits	Section	Hours	Days	Room	Instructor
Music 3	2		10	TT	106 S. M. H.	PHIPPS
Music 4	2	A	8	TT	106 S. M. H.	KESSLER
		B	9	TT	106 S. M. H.	KESSLER
		C	1	TT	106 S. M. H.	KESSLER
		D	2	TT	103 S. M. H.	KESSLER
		E	8	TT	103 S. M. H.	

6. Theory of Music (Harmony).—*Prerequisite:* Music 5.

Music 6	3	A	10	MWF	103 S. M. H.	KESSLER
		B	3	MWF	103 S. M. H.	KESSLER
		C	3	MWF	106 S. M. H.	

8. Counterpoint, Canon, and Fugue—*Prerequisite:* Music 7.

Music 8	3	A	11	MWF	103 S. M. H.	MILES
		B	2	MWF	103 S. M. H.	MILES

10. Analysis, Musical Form.—*Prerequisite:* Music 9.

Music 10	2	A	9	MTh	103 S. M. H.	SCHWARTZ
		B	9	TT	103 S. M. H.	SCHWARTZ

12. Advanced Composition (for Theory Major).—*Prerequisite:* Music 11. (4). Arrange time. Associate Professor MILES.

14. Music Appreciation.—The appreciation of good music from the standpoint of the listener. Copiously illustrated with phonograph and reproducing piano. Primarily for students from the other colleges of the University. Attendance at Star Course concerts required.

Music 14	1	A	10	TT	Lecture Room, third floor, S. M. H.	Director STIVEN
		B	3	TT	200 S. M. H.	KITCHELL

(Section B is for School of Music students only.)

16. Instrumentation.—*Prerequisite:* Music 15. (1 to 2).* 2 TT; Band Building. Professor HARDING.

18. Advanced Orchestration (for Theory Major).—*Prerequisite:* Music 10, 15, and 17. (4). Arrange time. Professor HARDING.

20. Rudiments of Theory.—*Prerequisite:* Music 19.

Music 20	1	A	11	T	103 S. M. H.	SCHWARTZ
		B	11	Th	103 S. M. H.	SCHWARTZ

22. Ear Training and Sight Singing.—*Prerequisite:* Music 21.

Music 22	1	A	10	MWF	106 S. M. H.	PERCIVAL
		B	11	MWF	106 S. M. H.	PERCIVAL

24. Ear Training and Sight Singing.—*Prerequisite:* Music 23.

Music 24	1	A	9	MWF	106 S. M. H.	PERCIVAL
		B	1	MWF	106 S. M. H.	PERCIVAL

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Of courses 104 and 105 only one will be given, according to election of students.

25b. Public School Methods.—*Prerequisite:* Music 25a. (4). 2 MWTF; 106 S. M. H. Mr. HOLMES.

26b. Public School Methods.—*Prerequisite:* Music 26a. (4). 1 MTWT; 103 S. M. H. Miss KITCHELL.

27. Thesis.—(Senior elective.) (1).

29. Keyboard Harmony.—*Prerequisite:* Music 28.

Subject	Credits	Section	Hours	Days	Room	Instructor
Music 29	2	A	8	MW	206 S. M. H.	PHIPPS
		B	8	TT	206 S. M. H.	PHIPPS

30b. Accompanying and Ensemble.—*Prerequisite:* Junior standing. (½ to 1).* Arrange time.

31b. Accompanying and Ensemble.—*Prerequisite:* Music 30a-b. (½ to 1).* Arrange time.

33. Advanced History of Music.—*Prerequisite:* Music 1 and 2. (1). 9 F; 103 S. M. H. Associate Professor SCHWARTZ.

34. Recital Course in Applied Music.—(For Juniors in Music 44b, 54b, 64b, 74b, 84b, or 94b.) *Prerequisite:* At least two satisfactory appearances in major subject in Students' Recitals. (2). Arrange time.

35. Recital Course in Applied Music.—(For Seniors in Music 45b, 65b, 75b, 85b, or 95b.) (4). Arrange time.

36. Recital Course in Applied Music.—(For Seniors in Music 55b.) (3). Arrange time.

37. Recital Course in Composition.—(For Seniors in Theory Major.) (4). Arrange time.

38b. Band and Orchestra Conducting.—*Prerequisite:* Music 38a. (2). 2 M, 1 TT; Band Building. Professor HARDING.

APPLIED MUSIC COURSES

Students in the School of Music will receive 4 to 5 hours' credit for their major subject in Applied Music. They will ordinarily receive 2½ hours' credit for their minor subject. Students from other colleges will ordinarily receive 2 hours' credit if in accordance with the regulations of their college.

Courses in Applied Music which require one half-hour lesson per week of recitation and one hour daily of preparation receive 2 hours' credit.

Courses in Applied Music which require two twenty-minute lessons per week of recitation and one hour daily of preparation receive 2½ hours' credit.

Courses in Applied Music which require two half-hour lessons per week of recitation and two hours daily of preparation receive 4 hours' credit.

Courses in Music 44a-b, 45a-b, 64a-b, 65a-b, 74a-b, 75a-b, 84a-b, 85a-b, require two half-hour lessons per week of recitation and three hours daily of preparation.

PIANO

Associate Professor VAN DEN BERG, Mr. MACNEILL, Mr. SCHOONMAKER, Mrs. PHIPPS, Miss DELANCY, Miss RUFFIN
Hours to be arranged.

42a-42b. Piano, First Year.—(2-4).*

43a-43b. Piano, Second Year.—(2-4).*

44a-44b. Piano, Third Year.—(2-5).*

45a-45b. Piano, Fourth Year.—(2-5).*

VOICE

Assistant Professor BERESFORD, Mr. JOHNSON, Miss SUTHERLIN, Mrs. THOMAS
Hours to be arranged.

52a-52b. Voice, First Year.—(2-4).*

53a-53b. Voice, Second Year.—(2-4).*

54a-54b. Voice, Third Year.—(2-4).*

55a-55b. Voice, Fourth Year.—(2-4).*

VIOLIN

Assistant Professor ROOSA, Mr. JAEHNE
Hours to be arranged.

62a-62b. Violin, First Year.—(2-4).*

63a-63b. Violin, Second Year.—(2-4).*

64a-64b. Violin, Third Year.—(2-5).*

65a-65b. Violin, Fourth Year.—(2-5).*

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VIOLONCELLO

Associate Professor SCHWARTZ

Hours to be arranged.

72a-72b. Violoncello, First Year.—(2-4).*

73a-73b. Violoncello, Second Year.—(2-4).*

74a-74b. Violoncello, Third Year.—(2-5).*

75a-75b. Violoncello, Fourth Year.—(2-5).*

ORGAN

Associate Professor MILES, Mr. DEMMING

Hours to be arranged.

Students desiring to take organ will be obliged to pass without conditions the entrance examination in piano. Under no circumstances will they be accepted if their piano work falls below the standard represented by this examination.

82a-82b. Organ, First Year.—(2-4).*

83a-83b. Organ, Second Year.—(2-4).*

84a-84b. Organ, Third Year.—(2-5).*

85a-85b. Organ, Fourth Year.—(2-5).*

BAND AND ORCHESTRAL INSTRUMENTS

Mr. DVORAK, Mr. OVERGARD

Hours to be arranged.

92a-92b. Wind Instruments, First Year.—(2-4).*

93a-93b. Wind Instruments, Second Year.—(2-4).*

94a-94b. Wind Instruments, Third Year.—(2-4).*

95a-95b. Wind Instruments, Fourth Year.—(2-4).*

PHILOSOPHY

(See also Psychology and Education.)

For students entering prior to September, 1929

Major: 20 hours from any courses offered by the department, including Phil. 1, 2, 3, 4, and 7. Six hours in psychology may be counted toward a major in philosophy.

Minors: 20 hours in (a) psychology (at least 6 additional hours, if psychology is counted toward a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) botany, chemistry, mathematics, physics, zoology, geology. No course in any subject of the above groups may be counted for the minor requirement if it is excluded from the major requirement of its respective department.

For students entering after September 1, 1929

Major: 20 hours from any courses offered by the department, including Phil. 2, 3, 4, and 7. Six hours in psychology may be counted toward a major in philosophy.

Minors: 20 hours, excluding courses taken during the freshman year, in (a) psychology (at least 6 additional hours if psychology is counted toward a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) astronomy, botany, chemistry, mathematics, physics, zoology, geology. At least 8 hours must be offered in each subject, if two are chosen.

1. **Logic.**—*Prerequisite:* One year of university work.

Subject	Credits	Section	Hours	Days	Room	Instructor
Phil. 1	3	A	8	MWF	117 L. H.	NICHOLSON
		B	9	MWF	117 L. H.	NICHOLSON
		C	9	MWF	113 L. H.	KUBITZ
		D	10	MWF	117 L. H.	SANFORD
		E	11	MWF	104 L. H.	SANFORD
		F	11	MWF	117 L. H.	GOTSHALK
		G	2	MWF	117 L. H.	DELARGY
		H	8	TTS	117 L. H.	KUBITZ
		I	11	TTS	117 L. H.	MCCLURE

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

2. Introduction to Philosophy.—*Prerequisite:* One year of university work.

Subject	Credits	Section	Hours	Days	Room	Instructor
Phil. 2	3	A	8	MWF	113 L. H.	DeLargy
		B	9	MWF	104 L. H.	DeLargy
		C	10	MWF	104 L. H.	Kubitz
		D	11	MWF	120 L. H.	Tawney
		E	1	MWF	113 L. H.	DeLargy
		F	9	TTS	113 L. H.	Kubitz
		G	10	TTS	113 L. H.	Morrow

Courses for Advanced Undergraduates and Graduates

4. History of Modern Philosophy.—*Prerequisite:* Three hours in philosophy and junior standing, or senior standing.

Phil. 4	4	Lect.	10	TT	300 Math.	McClure
		A Disc.	1	Th	117 L. H.	Nicholson
		B Disc.	11	Th	113 L. H.	Gotshalk
		C Disc.	2	Th	117 L. H.	Gotshalk
		D Disc.	3	Th	117 L. H.	Gotshalk
		E Disc.	1	F	104 L. H.	Nicholson
		F Disc.	2	F	113 L. H.	Nicholson
		G Disc. (to be arranged; graduate students only)				McClure

9. Political and Social Ethics.—*Prerequisite:* Junior standing.

Phil. 9	3	Lect.	11	TT	109 L. H.	Morrow
		A Disc.	3	Th	113 L. H.	Morrow
		B Disc.	2	F	128 L. H.	Morrow

16. Metaphysics.—*Prerequisite:* Three hours in philosophy. (3). 10 MWF; 123 L. H. Dr. Gotshalk.

20. Honors Course.—*Prerequisite:* Senior standing. (2). Hours to be arranged.

Courses for Graduates

105. Seventh Century Continental Thought.—(1 unit). Twice a week. Hours to be arranged. 108 Adm. (E). Professor Daniels.

106. English and American Idealism.—(1 unit). Twice a week. Hours to be arranged. Professor Morrow.

112. German Idealism.—(1 unit). Twice a week. Hours to be arranged. Professor McClure.

118. Medieval Philosophy.—(1 unit). Twice a week. Hours to be arranged. Professor Tawney.

PHYSICAL EDUCATION FOR MEN

Note: Freshmen must register in courses numbered 11, 12, 13, 14, 15, 16, and 17.
Sophomores must register in courses numbered 21, 22, 23, 24, 25, 26, and 27.
Students previously enrolled in Individual Gymnastics must continue to take this course until notified otherwise by the University Health Service.
All students excepting those taking Individual Gymnastics must elect a different course each semester.
For information, late registration, and changing sections, call at Room 201, Old Gymnasium.

11. Individual Gymnastics.—(Freshmen who do not pass the health examination are excused from Military and must register in this course.)

P. E. 11	1½	A	9	MTWTF	New Gym.	Derr
		B	10	MTWTF	New Gym.	Stafford
		C	11	MTWTF	New Gym.	Stafford
		D	1	MTWTF	New Gym.	Derr
		E	2	MTWTF	New Gym.	Derr
		F	3	MTWTF	New Gym.	McCristal
		G	4	MTWTF	New Gym.	Derr
		H	10	MTWTF	Gym. Annex	Hankner
		I	11	MTWTF	Gym. Annex	Hankner
		J	2	MTWTF	Wrestl'g Room	Brown
		K	3	MTWTF	Gym. Annex	Hankner
		L	4	MTWTF	Gym. Annex	Hankner

12. Individual Gymnastics.—*Prerequisite:* P. E. 11.

P. E. 12	1½	A	9	MTWTF	New Gym.	Derr
		B	10	MTWTF	New Gym.	Stafford
		C	11	MTWTF	New Gym.	Stafford
		D	1	MTWTF	New Gym.	Derr
		E	2	MTWTF	New Gym.	Derr
		F	3	MTWTF	New Gym.	McCristal
		G	4	MTWTF	New Gym.	Derr
		H	10	MTWTF	Gym. Annex	Hankner
		I	11	MTWTF	Gym. Annex	Hankner
		J	2	MTWTF	Wrestl'g Room	Brown
		K	3	MTWTF	Gym. Annex	Hankner
		L	4	MTWTF	Gym. Annex	Hankner

13. Beginning Swimming.—(This course is open to non-swimmers only. Freshmen who cannot swim fifty yards are advised to register in this course.)

Subject	Credits	Section	Hours	Days	Room	Instructor
P. E. 13	½	A	9	MW	Old Pool	Craig
		B	10	MW	Old Pool	Treece
		C	11	MW	Old Pool	Treece
		D	2	MW	Old Pool	Gerard
		E	3	MW	Old Pool	Gerard
		F	4	MW	Old Pool	Law
		G	9	TT	Old Pool	Craig
		H	10	TT	Old Pool	Treece
		I	11	TT	Old Pool	Treece
		J	2	TT	Old Pool	Gerard
		K	3	TT	Old Pool	Gerard
		L	4	TT	Old Pool	Law

14. Individual Athletics.

P. E. 14	½	A	8	MW	Old Gym.	Gerard
		B	9	MW	Old Gym.	Gerard
		C	10	MW	Old Gym.	Law
		D	11	MW	Old Gym.	Burt
		E	2	MW	Old Gym.	Hankner
		F	3	MW	Old Gym.	Burt
		G	9	TT	Old Gym.	Gerard
		H	10	TT	Old Gym.	Law
		I	3	TT	Old Gym.	Burt

15. Tumbling Stunts.

P. E. 15	½	A	8	MW	Old Gym.	Burt
		B	9	MW	Old Gym.	Burt
		C	10	MW	Old Gym.	Gerard
		D	1	MW	Old Gym.	Brown
		E	3	MW	Old Gym.	Law
		F	8	TT	Old Gym.	Gerard
		G	9	TT	Old Gym.	Burt
		H	10	TT	Old Gym.	Gerard
		I	11	TT	Old Gym.	McCristal
		J	1	TT	Old Gym.	Brown
		K	2	TT	Old Gym.	Burt
		L	3	TT	Old Gym.	Law

16. Soccer Football.

P. E. 16	½	A	10	MW	Soccer Field	Derr
		B	11	MW	Soccer Field	Craig
		C	1	MW	Soccer Field	Treece
		D	2	MW	Soccer Field	Treece
		E	3	MW	Soccer Field	Paterson
		F	4	MW	Soccer Field	Paterson
		G	10	TT	Soccer Field	Derr
		H	11	TT	Soccer Field	Gerard
		I	2	TT	Soccer Field	Treece
		J	3	TT	Soccer Field	Treece
		K	4	TT	Soccer Field	Paterson

17. Gymnastic Dancing.

P. E. 17	½	A	10	MW	New Gym.	Burt
		B	1	MW	New Gym.	McCristal
		C	4	MW	New Gym.	McCristal
		D	10	TT	New Gym.	Burt
		E	1	TT	New Gym.	McCristal
		F	4	TT	New Gym.	McCristal

21. Individual Gymnastics.

P. E. 21	1½	A	9	MTWTF	New Gym.	Derr
		B	10	MTWTF	New Gym.	Stafford
		C	11	MTWTF	New Gym.	Stafford
		D	1	MTWTF	New Gym.	Derr
		E	2	MTWTF	New Gym.	Derr
		F	3	MTWTF	New Gym.	McCristal
		G	4	MTWTF	New Gym.	Derr
		H	10	MTWTF	Gym. Annex	Hankner
		I	11	MTWTF	Gym. Annex	Hankner
		J	2	MTWTF	Wrestl'g Room	Brown
		K	3	MTWTF	Gym. Annex	Hankner
		L	4	MTWTF	Gym. Annex	Hankner

22. Individual Gymnastics.—*Prerequisite:* P. E. 21.

P. E. 22	1½	A	9	MTWTF	New Gym.	Derr
		B	10	MTWTF	New Gym.	Stafford
		C	11	MTWTF	New Gym.	Stafford
		D	1	MTWTF	New Gym.	Derr
		E	2	MTWTF	New Gym.	Derr
		F	3	MTWTF	New Gym.	McCristal

Subject	Credits	Section	Hours	Days	Room	Instructor
P. E. 22	1½	G	4	MTWTF	New Gym.	Derr
		H	10	MTWTF	Gym. Annex	Hankner
		I	11	MTWTF	Gym. Annex	Hankner
		J	2	MTWTF	Wrestl'g Room	Brown
		K	3	MTWTF	Gym. Annex	Hankner
		L	4	MTWTF	Gym. Annex	Hankner
23. Advanced Swimming.						
P. E. 23	½	A	9	MW	New Pool	Treece
		B	10	MW	New Pool	Paterson
		C	11	MW	New Pool	Paterson
		D	1	MW	New Pool	Paterson
		E	2	MW	New Pool	Paterson
		F	9	TT	New Pool	Treece
		G	10	TT	New Pool	Paterson
		H	11	TT	New Pool	Paterson
		I	1	TT	New Pool	Paterson
		J	2	TT	New Pool	Paterson
		K	3	TT	New Pool	Paterson
24. Boxing.						
P. E. 24	½	A	9	MW	Gym. Annex	Law
		B	10	MW	Gym. Annex	
		C	11	MW	Gym. Annex	
		D	1	MW	Gym. Annex	Gerard
		E	2	MW	Gym. Annex	
		F	8	TT	Gym. Annex	Law
		G	9	TT	Gym. Annex	Law
		H	10	TT	Gym. Annex	
		I	11	TT	Gym. Annex	
		J	1	TT	Gym. Annex	Gerard
		K	2	TT	Gym. Annex	
25. Wrestling.						
P. E. 25	½	A	10	MW	Wrestl'g Room	Kenney
		B	11	MW	Wrestl'g Room	Kenney
		C	2	MW	Wrestl'g Room	Kenney
		D	3	MW	Wrestl'g Room	Kenney
		E	4	MW	Wrestl'g Room	
		F	10	TT	Wrestl'g Room	Kenney
		G	11	TT	Wrestl'g Room	Kenney
		H	2	TT	Wrestl'g Room	Kenney
		I	3	TT	Wrestl'g Room	Kenney
		J	4	TT	Wrestl'g Room	
26. Fencing.						
P. E. 26	½	A	2	MW	Gym. Annex	Craig
		B	3	MW	Gym. Annex	Craig
		C	4	MW	Gym. Annex	Craig
		D	2	TT	Gym. Annex	Craig
		E	3	TT	Gym. Annex	Craig
		F	4	TT	Gym. Annex	Craig
27. Apparatus Stunts.						
P. E. 27	½	A	11	MW	Old Gym.	McCristal
		B	4	MW	Old Gym.	Burt
		C	11	TT	Old Gym.	Law
		D	4	TT	Old Gym.	Burt
9. Circus Stunts.—(Open to juniors and seniors only.)						
P. E. 9	1	A	4	MW	Old Gym.	Jackson
		B	4	TT	Old Gym.	Jackson

PHYSICAL EDUCATION FOR WOMEN

Major: (Subject of specialization) in the College of Education. 20 hours in courses given in the department in addition to 7a, 7b, 8a, and 8b.

7b. Physical Education Practice.—Required of all freshmen.

Gymnastics	1	A	3	MTWTF	W. B.	Kitzinger
(Section A open only to freshmen who expect to specialize in P. E.)						Johnson
		B	9	MWF	W. B.	Lawson
		C	9	TT		
			1	M	W. B.	Meares
		D	10	TT		
			1	W	W. B.	Robertson
		E	11	MWF	W. B.	Huelster
		F	11	TT		
			4	M	W. B.	Lawson
		G	10	MWF	W. B.	Robertson
Clogging (Elementary)	1	H	8	MWF	W. B.	Huelster
Elementary Rhythms	1	I	2	MWF	W. B.	Johnson
Folk Dancing (Elementary)	1	J1	3	MWF	W. B.	Johnson

Subject	Credits	Section	Hours	Days	Room	Instructor
Elementary Rhythms	1	J2	10	TT		
			1	F	W. B.	Johnson
Swimming (Elementary)	1	K1	10	MWF	W. B.	
		K2	2	TT		
			1	F	W. B.	
		L	11	MWF	W. B.	Smith
Intermediate Swimming	1	M	3	MWF	W. B.	
		N	9	MWF	W. B.	
		O	2	MWF	W. B.	
Advanced Beginners	1	P	4	MWF	W. B.	Stahmer
Intermediate Swimming	1	Q	10	TT	W. B.	
			8	W		
Advanced Swimming and Diving	1	R	11	TT	W. B.	
			8	M		
		S	3	TT		
			1	W	W. B.	
Life Saving	1	T	4	TT		
			1	M	W. B.	
Individual and Remedial Gymnastics	1	U	9	MWF	W. B.	
(To be chosen only on recommendation of the Health Service)		V	10	MWF	W. B.	Schnauber
		W	11	MWF	W. B.	
		X	2	MWF	W. B.	
		Y	3	MWF	W. B.	Meares
		Z1	11	TT		
			1	W	W. B.	
		Z2	10	TT		
			1	M	W. B.	

8b. Physical Education Practice.—Required of all sophomores. *Prerequisite:* P. E. 7a and 7b.

Advanced Gymnastic Practice	1	A	3	MTWTF	W. B.	Kitzinger
(Section A open only to sophomores who expect to specialize in P. E.)						Huelster
Folk Dancing (Intermediate)	1	B	8	MWF	W. B.	Robertson
Clogging (Elementary)	1	C	9	TT		
			1	M	W. B.	Huelster
Clogging (Elementary)	1	D	10	MWF	W. B.	Huelster
Group Games	1	E	11	TT		
			1	W	W. B.	Meares
Folk Dancing (Elementary)	1	F	11	MWF	W. B.	Johnson
Apparatus	1	G	2	TT		
			4	W	W. B.	Kitzinger
Intermediate Rhythms	1	H	8	TT		
			4	W	W. B.	Johnson
Elementary Rhythms	1	I	10	TT		
			1	F	W. B.	Johnson
Fundamental Gymnastics	1	J1	3	TT		
			4	M	W. B.	Kitzinger
Intermediate Clogging	1	J2	8	TT		
			1	F	W. B.	Kitzinger
Advanced Rhythms	1	J3	(Time to be arranged.)			
Swimming (Elementary)	1	K	10	MWF	W. B.	
		L	11	MWF	W. B.	Smith
Intermediate Swimming	1	M	3	MWF	W. B.	
		N	9	MWF	W. B.	
		O	2	MWF	W. B.	Stahmer
Advanced Beginners	1	P	4	MWF	W. B.	
Intermediate Swimming	1	Q	10	TT		
			8	W	W. B.	
Advanced Swimming and Diving	1	R	11	TT		
			8	M	W. B.	
		S	3	TT		
			1	W	W. B.	
Life Saving	1	T	4	TT		
			1	M	W. B.	
Individual and Remedial Gymnastics	1	U	9	MWF	W. B.	
(To be chosen only on recommendation of the Health Service)		V	10	MWF	W. B.	
		W	11	MWF	W. B.	Schnauber
		X	2	MWF	W. B.	
		Y	3	MWF	W. B.	Meares
		Z1	11	TT		
			1	W	W. B.	
		Z2	10	TT		
			1	M	W. B.	

10b. Organization and Administration.—*Prerequisite:* Senior standing in the College of Education.
(1). 11 TT; W. B. Professor Freer.

11b. First Aid in Emergencies.—*Prerequisite:* Junior standing in the College of Education; P. E. 15a, 16. (1). 11 MW; W. B. Miss Smith.

15b. Methods.—*Prerequisite:* P. E. 15a; junior standing in the College of Education or consent of the instructor. (3). 9 MWF; W. B. Miss Robertson.

17b. Educational Practice.—*Prerequisite:* P. E. 15a, 16, 17a; senior standing in the College of Education. (3). 1 MWF; W. B. Assistant Professor Lawson.

18. Theory of Individual and Remedial Gymnastics.—*Prerequisite:* P. E. 15a, 16. (3). 8 MWF; W. B. Miss Schnauber.

19. Physical Diagnosis.—*Prerequisite:* P. E. 15, 16, 17, 18. (2). 2 TT; W. B. Professor Etheredge.

PHYSICS

Major: 20 hours from courses offered in the department. At least 5 hours must be offered from the group of courses for advanced undergraduates and graduates.

Minors: 20 hours, exclusive of courses taken during the freshman year, in one or two of the following subjects, with not less than 8 hours in each department if two subjects are chosen: Mathematics, astronomy, chemistry, education.

Physics 7a-7b and 8a-8b are recommended to students not specializing in physics, mathematics, chemistry, or engineering. For undergraduate students taking advanced work or a major in physics, the following courses are suggested:

Freshman year: Trigonometry (Math. 4) and chemistry.
Sophomore year: Physics 1a-1b, 3a-3b, or Physics 7a-7b, 8a-8b.
Junior year: Physics 14, 16, 23, 33, 36, 44.
Senior year: Physics 14, 20, 22, 30, 31, 45, 46, 78, 97, 98.

Introductory Courses for Undergraduates

1b. General Physics.—*Prerequisite:* Math. 2, 4, and 6; credit in Phys. 1a or 3a; registration in Phys. 3b.

Subject	Credits	Section	Hours	Days	Room	Instructor
Physics 1b	3	Lect. A	9	MW	100 P. L.	Schulz and others
		Lect. B	11	MW	100 P. L.	
		Lect. C	3	MW	100 P. L.	
		A Quiz	8	TT	305, 306, 406 P. L.	
		B Quiz	9	TT	305, 403, 406 P. L.	
		C Quiz	10	TT	302, 305, 306 P. L.	
		D Quiz	11	TT	302, 305, 306, 406 P. L.	
		E Quiz	2	TT	302, 305, 306, 406 P. L.	
		F Quiz	10	WF	305 P. L.	
		G Quiz	3	WF	302 P. L.	

3b. Physical Measurements.—*Prerequisite:* Credit in Phys. 1a or 3a; registration in Phys. 1b.

Physics 3b	2	A	9-12	M	302, 305 P. L.	Schulz and others
		B	1-4	M	302, 306 P. L.	
		C	9-12	T	208, 302, 306 P. L.	
		D	1-4	T	302, 306 P. L.	
		E	9-12	W	208, 305, 406 P. L.	
		F	1-4	W	302, 306 P. L.	
		G	9-12	Th	302 P. L.	
		H	1-4	Th	302, 306 P. L.	
		J	9-12	F	305, 406 P. L.	
		K	1-4	F	302, 306 P. L.	
		L	9-12	S	302 P. L.	

7b. General Physics.—*Prerequisite:* Math. 4 or registration therein; credit in Phys. 7a or 8a and registration in Phys. 8b.

Physics 7b	3	Lect.	11	TT	100 P. L.	Watson and others
		A Quiz	8	WF	208 P. L.	
		B Quiz	9	WF	302, 403 P. L.	
		C Quiz	10	WF	208, 302, 306 P. L.	
		D Quiz	11	WF	208, 302, 306 P. L.	

8b. Introductory Laboratory Physics.—*Prerequisite:* Credit in Phys. 7a or 8a; registration in Phys. 7b.

Physics 8b	2	A	8-11	M	208 P. L.	Paton and others
		B	1-4	M	208 P. L.	
		C	8-11	T	208 P. L.	
		D	2-5	T	208 P. L.	
		E	9-12	W	108 P. L.	
		F	1-4	W	208 P. L.	
		G	8-11	Th	208 P. L.	
		H	2-5	Th	208 P. L.	
		J	9-12	F	208 P. L.	
		K	1-4	F	208 P. L.	
		L	9-12	S	208 P. L.	

Intermediate Courses

15. Electricity and Magnetism.—*Prerequisite:* Physics 1a-1b, 3a-3b; or Physics 7a-7b, 8a-8b. (3). 8 TT; 204 P. L. 1-4 F; 112 P. L. Dr. Sanders.

25. Architectural Acoustics.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b. (2). 9 MW; 119 P. L. Professor WATSON.

Courses for Advanced Undergraduates and Graduates

14b. Theoretical Mechanics.—*Prerequisite:* Physics 14a. (3). 8 MWF; 204 P. L. Dr. SANDERS.

16. Heat.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 7 and 9, or 8a-8b. (3). 10 TTS; 204 P. L. Associate Professor PATON.

20b. Light.—*Prerequisite:* Physics 20a. (2). 9 TT; 204 P. L. Dr. ALMY.

22b. Advanced Light Measurements.—*Prerequisite:* Registration in Physics 20b. (2). 2-5 MW; 313 P. L. Dr. ALMY.

30. Introduction to Theoretical Electricity.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 7 and 9, or 8a-8b. (3). 9 MWF; 204 P. L. Associate Professor WILLIAMS.

31b. Special Problems in Advanced Physical Measurements.—(2 or 3).* Arrange. Professor LOOMIS and others.

36. Heat Laboratory.—*Prerequisite:* Registration in Physics 16. (1). 2-5 T; 213 P. L. Associate Professor PATON.

44b. Electrical and Magnetic Measurements.—*Prerequisite:* Physics 44a.

Subject	Credits	Section	Hours	Days	Room	Instructor
Physics 44b	3	K	1-4	TT	112 P. L.	KNIPP
		L	8-11	TT	112 P. L.	WILLIAMS
		Y	1-4	W	112 P. L.	F. W. COOKE
			8-11	S	112 P. L.	BROWN
		N	1-4	MF	112 P. L.	R. K. COOK
		M	8-11	MF	112 P. L.	

78. X-Rays.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 7 and 9, or 8a-8b. (3). 11 MWF; 204 P. L. Dr. SANDERS.

98. Thesis.—(2 to 5).* Professor LOOMIS and others.

Courses for Graduates

104b. Selected Problems in Electrical Measurements.—(1 unit). Arrange. 112 P. L. Professor KNIPP.

120. Light.—(1 to 2 units).* 9 TT; 204 P. L.; 2-5 MW; 313 P. L. Associate Professor PATON and Dr. ALMY.

126. Physics Colloquium.—(No credit.) 7:15 p.m., Th; 119 P. L. Professor LOOMIS.

131. Investigation of Special Problems.—(1 to 2 units).* Arrange. Professor LOOMIS and others.

132a. Dynamics.—(1 unit). 8 MWFS; 302 P. L. Professor KUNZ.

132c. Hydrodynamics.—(½ unit). 8 TT; 302 P. L. Professor KUNZ.

185. Band Spectra and Molecular Structure.—(1 unit). 10 MWF; 204 P. L. Professor LOOMIS.

186b. Quantum Mechanics and Wave Mechanics.—(1 unit). 9 MWF; 306 P. L. Assistant Professor BARTLETT.

190. Research.—(1 to 3 units).* Arrange. Professors in the department.

PHYSIOLOGY

For students entering prior to September, 1929

Major: 20 hours from courses offered in the department exclusive of Physiology 1.

Minors: 20 hours in not more than three of the following: Botany, bacteriology, chemistry, entomology, and zoology.

Seniors registered in Physiology 1, 2, 4, 6 will receive one hour less credit.

For students entering after September 1, 1929

Major: 20 hours from courses offered in the department exclusive of Physiology 1, and all courses taken during the freshman year.

Minors: 20 hours, excluding work taken during the freshman year, in not more than two of the following: Botany, bacteriology, chemistry, entomology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

1. Elements of Physiology.—A survey of the field of mammalian physiology. *Note:* Seniors will receive 1 hour's credit only.

Physiol. 1	2	Lect.	11	TT	228 N. H.	BURGE
		A Quiz[1]	9	T	425 N. H.	VERDA
		B Quiz	8	T	425 N. H.	WILLIAMS
		C Quiz[1]	1	T	425 N. H.	OLSON

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Sections for athletic coaching and physical education students only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Physiol. 1	2	D Quiz	9	Th	425 N. H.	WICKWIRE
		E Quiz[1]	10	Th	425 N. H.	
		F Quiz	8	S	425 N. H.	
		G Quiz[1]	9	S	425 N. H.	
		H Quiz	10	S	425 N. H.	

2. **Physiology of Physical Exercise.**—(Required of athletic coaching and physical education students.) *Prerequisite:* Physiol. 1 and sophomore standing. *Note:* Seniors will receive 3 hours' credit only.

Physiol. 2	4	Lect.	10	TT	228 N. H.	ELHARDT
		A Lab.	10, 11	M	413 N. H.	ORTH
		B Lab.	1, 2	M	413 N. H.	
		C Lab.	3, 4	M	413 N. H.	
		D Lab.	8, 9	W	413 N. H.	
		E Lab.	10, 11	W	413 N. H.	
		F Lab.	3, 4	W	413 N. H.	
		G Lab.	8, 9	S	413 N. H.	
		A Quiz	9	F	425 N. H.	
		B Quiz	10	F	425 N. H.	
		C Quiz	11	F	425 N. H.	
		D Quiz	2	F	425 N. H.	

4. **General Physiology.**—Circulation, Respiration, Glands of Internal Secretion, Digestion, Metabolism, Excretion, Reproduction, Special Senses, Nervous System, Muscle, Vitamins, and Osseous System. (Required of Home Economics students.) *Note:* Seniors will receive 4 hours' credit only. (Not open to students who have had Physiol. 1.)

Physiol. 4	5	Lect. and Demonstration	11	TT	228 N. H.	BURGE
		A Quiz	9	M	229 N. H.	WILLIAMS
		B Quiz	10	M	423 N. H.	KNEER
		C Quiz	8	W	425 N. H.	OLSON
		D Quiz	9	W	423 N. H.	
		A Lab.	8, 9	MF	413 N. H.	
		B Lab.	1, 2	TT	413 N. H.	
		C Lab.	3, 4	TT	413 N. H.	
		D Lab.	1, 2	WF	413 N. H.	
		E Lab.	8, 9	TS	413 N. H.	

6. **Advanced Physiology.**—Physiology of the Nervous System. Glands of Internal Secretion, Respiration, and Muscle. (Recommended for the general student.) *Prerequisite:* Physiol. 1. *Note:* Seniors will receive 2 hours' credit only.

Physiol. 6	3	Lect.	9	T	M. H.	WICKWIRE
		A Quiz	9	Th	423 N. H.	
		A Lab.	10, 11	F	413 N. H.	

Courses for Advanced Undergraduates and Graduates

8. **Thesis.**—*Prerequisite:* Senior standing and 15 hours of physiology. (3 to 5.)* Time to be arranged before registration.

9. **Physiology of the Special Senses.**—*Prerequisite:* Senior standing, Physiol. 1 and 6.

Physiol. 9	3	Lect.	9	W	229 N. H.	BURGE
		Quiz	11	M	425 N. H.	
		Lab.	10, 11	W	403 N. H.	

Courses for Graduates

101. **Journal Club.**—Review of literature. (¼ unit). Members of staff.

102. **Research.**—(1 to 2 units).*

103. **Experimental Physiology.**—Special phases of the Physiology of Respiration, Circulation, Digestion, Metabolism, Excretion, Secretion, Glands of Internal Secretion, Nervous System. (½ to 1 unit).* Associate Professor BURGE.

POLITICAL SCIENCE

For students entering prior to September, 1929

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 27, 44, or 62).

Minors: 20 hours, selected from two of the following subjects: History, economics, law, sociology, philosophy, and education.

Courses 1 and 3 give a general survey of national, state, and local government in the United States. Undergraduates beginning the study of political science are advised to take first, course 1, 3, or 16, and those planning for advanced work should take course 1 and either 3 or 16 in their sophomore year. Course 3 is offered the second semester.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Sections for athletic coaching and physical education students only.

For students entering after September 1, 1929

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 27, 44, or 62).

Minors: 20 hours exclusive of courses taken during the freshman year, selected from two of the following subjects: History, economics, law, sociology, philosophy, and education. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

3.[1] **State and Local Government.**—(A continuation of Pol. Sci. 1; may be taken independently.) *Prerequisite:* 30 hours of university work.

Subject	Credits	Section	Hours	Days	Room	Instructor
Pol. Sci. 3	3	A1 Disc.	8	MWF	300 L. H.	Lenoir
		A2 Disc.	8	MWF	304 L. H.	Waltz
		A3 Disc.	8	MWF	204 L. H.	Hyneman
		B1 Disc.	9	MWF	300 L. H.	Berdahl
		B2 Disc.	9	MWF	109 L. H.	Waltz
		B3 Disc.	9	MWF	308 L. H.	Mathews
		C1 Disc.	10	MWF	238 L. H.	Lenoir
		C2 Disc.	10	MWF	204 L. H.	Carleton
		C3 Disc.	10	MWF	300 L. H.	Kneier
		D1 Disc.	11	MWF	202 L. H.	Lenoir
		D2 Disc.	11	MWF	204 L. H.	Carleton
		D3 Disc.	11	MWF	203-A L. H.	Hyneman
		E1 Disc.	1	MWF	238 L. H.	Sikes
		E2 Disc.	1	MWF	204 L. H.	Waltz
		F Disc.	2	MWF	238 L. H.	Sikes
		G Disc.	3	MWF	204 L. H.	Waltz
		L Disc.	9	TTS	204 L. H.	Carleton
		M Disc.	10	TTS	204 L. H.	Carleton

16.[1] **Government of Illinois.**—*Prerequisite:* 30 hours of university work. (2). 9 TT; 308 L. H. Professor Mathews.

Courses for Advanced Undergraduates and Graduates

Note: Junior standing is required for admission to the following courses.

5. Constitutional Law of the United States.—*Prerequisite:* Pol. Sci. 1; junior standing. (3). 11 MWF; 308 L. H. Professor Mathews.

6b. International Law: Law of War and Neutrality.—*Prerequisite:* Open to seniors, graduate students, and law students of junior standing. (3). 2 MWF; 304 L. H. Professor Garner.

8. International Organization.—*Prerequisite:* Junior standing. (3). 11 TT; 300 L. H. Professor Berdahl.

9. Principles of Jurisprudence.—*Prerequisite:* Pol. Sci. 1, or its equivalent; junior standing. (3). 8 MWF; 300 Math. Professor Fuller.

13. State Administration in the United States.—*Prerequisite:* Pol. Sci. 3; junior standing. (3). 9 MWF; 204 L. H. Assistant Professor Hyneman.

22. Continental European Governments.—*Prerequisite:* Graduate or senior standing, or junior standing with six hours of political science; Hist. 20a-20b recommended. (3). 3 MWF; 304 L. H. Professor Garner.

34. Municipal Problems.—*Prerequisite:* Open to graduate students and to undergraduate students who have had Pol. Sci. 4 or Econ. 1, or who have senior standing.

Pol. Sci. 34	3	Lect.	9	TT	Theatre	Kneier
		A Quiz	2	Th	300 L. H.	Kneier
		B Quiz	3	Th	300 L. H.	Kneier
		C Quiz	9	F	302 L. H.	Kneier

Courses for Graduates

103. Seminar in Political Science and Public Law.—Once a week. Time to be arranged. Members of the department.

106b. Special Topics in International Law.—(1 unit). Twice a week. Time to be arranged. Professor Garner.

108. Problems of International Organization.—(1 unit). Twice a week. Time to be arranged. Professor Berdahl.

PSYCHOLOGY

For students entering prior to September, 1929

Major: 20 hours chosen from courses announced by the department, excepting 1.

Minors: 20 hours chosen from not more than three of the following subjects: Education, physiology, philosophy, sociology, and zoology.

For students entering after September 1, 1929

Major: 20 hours chosen from courses announced by the department, excepting 1. At least 5 hours must be offered in the advanced group.

[1]The total credit for students who take both 3 and 16 will not be more than four hours.

Psychology

Minors: 20 hours, excluding those taken during the freshman year, chosen from not more than two of the following subjects: Education, mathematics, philosophy, sociology, physiology, and zoology. At least 8 hours must be offered in each, if two are chosen.

Courses for Undergraduates

1. **Introduction to Psychology.**—*Prerequisite:* One year of university work.

Subject	Credits	Section	Hours	Days	Room	Instructor
Psych. 1	4	Lect. A	9	MW	218 U. H.	Young
		Quiz A1	8	TT	404 U. H.	
		A2	9	TS	404 U. H.	
		A3	9	TT	403 U. H.	
		A4	10	TS	404 U. H.	
		A5	11	TT	404 U. H.	
		A6	2	TT	404 U. H.	
		A7	3	TT	403 U. H.	
		A8	3	MW	404 U. H.	
		A9	4	MW	404 U. H.	
		Lect. B	11	MW	218 U. H.	Williams
		Quiz B1	8	TT	403 U. H.	
		B2	9	TS	211 U. H.	
		B3	10	TS	203 U. H.	
		B4	11	TS	403 U. H.	
		B5	11	TT	213 U. H.	
		B6	1	TT	404 U. H.	
		B7	2	TT	403 U. H.	
		B8	3	TT	213 U. H.	
		B9	4	TT	403 U. H.	

2. **General Psychology.**—*Prerequisite:* Psych. 1.

Psych. 2	4	Lect.	9	TT	218 U. H.	Higginson
		Quiz A	8	ThS	211 U. H.	
		B	8	MW	403 U. H.	
		C	9	MW	311 U. H.	
		D	9	MW	403 U. H.	
		E	10	MW	403 U. H.	
		F	10	MW	404 U. H.	
		G	11	MW	403 U. H.	
		H	1	MW	404 U. H.	
		J	2	MW	404 U. H.	
		K	3	MW	403 U. H.	
		L	4	MW	403 U. H.	

3. **Laboratory Practice (Elementary).**—*Prerequisite:* Psych. 1.

Psych. 3	2	Lab. A	10-12	MW	417, 418 U. H.	Higginson,
		Lab. B	2-4	MW	417, 418 U. H.	Barkley,
		Lab. C	10-12	TT	417, 418 U. H.	and assistants
		Lab. D	2-4	TT	417, 418 U. H.	

26. **Recent Experimental Problems.**—*Prerequisite:* Psych. 1. (2). 2 TT; 407 U. H. Dr. Möller.

Courses for Advanced Undergraduates and Graduates

5. **Comparative Psychology.**—*Prerequisite:* Psych. 1 and one other course.

Psych. 5	3	Lect.	2	MW	403 U. H.	McAllister
		Lab.	2, 3	F	510, 511 U. H.	McAllister

9. **Physiological Psychology.**—*Prerequisite:* Psych. 2. (2). 11 TT; 207 U. H. Associate Professor Young.

13. **Minor Problems (Advanced Laboratory).**—*Prerequisite:* Psych. 3 and consent of the instructor. (3). 4 M, and other times to be arranged; 419 U. H. Professor Woodrow; Assistant Professors Higginson, Williams; Dr. McAllister.

14. **Social Psychology.**—*Prerequisite:* Psych. 1; consent of the instructor.

Psych. 14	3	Lect.	11	MW	303-A L. H.	Sullivan
		Quiz A	10	F	233 L. H.	
		Quiz B	11	F	303-A L. H.	
		Quiz C	2	F	326 L. H.	

20. **Systematic Psychology.**—*Prerequisite:* Psych. 2 or 3, and senior standing. (2). 9 TT; 419 U. H. Professor Woodrow.

23. **Abnormal Psychology.**—*Prerequisite:* Psych. 2. (3). 9 MWF; 315 U. H. Assistant Professor Williams.

27b. **Thesis and Honors Course.**—(Primarily designed for major students and for candidates for honors.) *Prerequisite:* Psych. 1, 2, 3; consent of the instructor. (2). Time to be arranged; 402 U. H. Professor Woodrow.

Courses for Graduates

102. **Translation of Psychological Treatises.**—(½ unit). Time to be arranged. Professor Woodrow.

103. **Research.**—(½ to 2 units).* Time to be arranged. Professor Woodrow, Associate Professor Young, and Assistant Professor Higginson.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

105. Seminar.—(1 unit). Once a week. Time to be arranged. 419 U. H. Professor WOODROW.

PUBLIC SPEAKING
(See English.)

RAILWAY ADMINISTRATION
(See Transportation.)

RAILWAY ENGINEERING
(See also Transportation.)

4. Locomotive.—*Prerequisite:* R. E. 3; T. A. M. 21 and 3; registration in M. E. 64. (3). Sec. W, 11 MWF; 104 T. B. Mr. SCHRADER.

7. Advanced Design.—*Prerequisite:* R. E. 2. (3). Sec. W, 1-4 MWF; 104 T. B. Mr. SCHRADER.

8. Railway Laboratory.—*Prerequisite:* R. E. 5. (2). Sec. W, 8-11 TT; 104 T. B. Mr. SCHRADER.

33. Economic Theory of Railway Location.—*Prerequisite:* C. E. 37; T. A. M. 21. (4). Sec. U, 11 MWF, 1-4 T; 117 T. B. Professor KING.

33a. Economic Theory of Railway Location.—*Prerequisite:* C. E. 37; T. A. M. 21. (3). Sec. U, 11 MWF; 117 T. B. Professor KING. (An abridgment of course 33, for students in departments other than railway engineering.)

36. Railway Maintenance.—*Prerequisite:* Registration in C. E. 37. (3). Sec. U, 10 MW, 9-12 S; 117 T. B. Professor KING.

37. Railway Design Problems.—*Prerequisite:* Registration in C. E. 85. (2). Sec. U, 10 TT; 117 T. B. Professor KING.

51. Seminar.—Open to railway students only. (1). Sec. U, 10 F; 117 T. B. Professor KING.

60. Electric Railway Principles.—*Prerequisite:* R. E. 59; T. A. M. 3; E. E. 25, 75. (2). Sec. V, 11 TT; 105 T. B. Assistant Professor TUTHILL.

61. Electric Traction.—*Prerequisite:* T. A. M. 21 or 3; E. E. 11, 61 or 25, 75. (3). Sec. V, 10 MWF; 105 T. B. Assistant Professor TUTHILL.

67. Seminar.—Open to seniors in railway courses only. (1). Sec. V, 9 Th; 117 T. B. Professor SCHMIDT.

70. Electric Railway Design.—*Prerequisite:* R. E. 64; registration in R. E. 74. (2). Sec. V, 1-4 MW; 117 T. B. Assistant Professor TUTHILL.

74. Electric Railway Economics.—*Prerequisite:* R. E. 64. (3). Sec. V, 11 MWF; 105 T. B. Assistant Professor TUTHILL.

98. Thesis.—Arrange.

Courses for Graduates

102. Locomotive Design.—(1 unit). Arrange. Professor YOUNG.

106. Locomotive Operation.—(1 unit). Arrange. Professor SCHMIDT.

110. Railway Location.—(1 unit). Arrange. Professor KING.

RHETORIC
(See English.)

ROMANCE LANGUAGES AND LITERATURES
For students entering prior to September, 1929

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, 6b, and including at least two semester courses or the equivalent from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: Comparative literature, English (excluding Rhet. 1, 2, 12), German, Greek, history, Italian, Latin, Spanish, provided that at least 8 hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, 2a, and including at least two semester courses or the equivalent from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: Comparative literature, English (excluding Rhet. 1, 2, 12), French, German, Greek, history, Italian, Latin, provided that at least 8 hours be taken in any subject chosen.

For students entering after September 1, 1929

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, 6b, and all work taken during the freshman year, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours, excluding all courses taken during the freshman year, in not more than two of the following subjects: Education, English (excluding Rhet. 1, 2, 12), German, Greek, history, Italian, Latin, philosophy, Spanish, provided that 8 hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, 2a and all courses taken during the freshman year, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours, excluding courses taken during the freshman year, in not more than two of the following subjects: Education, English (excluding Rhet. 1, 2, 12), French, German, Greek, history, Italian, Latin, philosophy, provided that at least 8 hours be taken in any subject chosen.

A. FRENCH

Courses for Undergraduates

1a. Elementary Course.—For students who have no credit in French. *Note:* French 1a and Spanish 1a may not be taken at the same time. Seniors will receive only 3 hours' credit in French 1a and 1b.

Subject	Credits	Section	Hours	Days	Room	Instructor
French 1a	4	A1	8	TWTF	224 L. H.	Burnier
		A2	8	TWTF	308 Adm. (E)	Goggin
		B	9	TWTF	224 L. H.	Burnier
		C1	10	TWTF	224 L. H.	Mayeur
		C2	10	TWTF	205 L. H.	Bussard
		F1	2	MTWT	303 Adm. (E)	Thénaud
		F2	2	MTWT	224 L. H.	Smith
		G	3	MTWT	211 U. H.	Mayeur

1b. Elementary Course (continued).—*Prerequisite:* French 1a or S1a, or one year of high-school French. *Note:* Seniors will receive only 3 hours' credit.

French 1b	4	†A1	8	TWTF	133 L. H.	Kissel
		A2	8	TWTF	214 U. H.	Steep
		A3	8	TWTF	304 Adm. (E)	Balthazard
		A4	8	TWTF	311 U. H.	Alexander
		†B1	9	TWTF	106 Entom.	Pietrangeli
		B2	9	TWTF	227 L. H.	Rew
		B3	9	TWTF	304 Adm. (E)	Alexander
		†C1	10	TWTF	305 L. H.	Pietrangeli
		C2	10	TWTF	227 L. H.	Rew
		C3	10	TWTF	318 U. H.	Smith
		†D1	11	TWTF	214 U. H.	Kissel
		D2	11	TWTF	303 Adm. (E)	Woodworth
		†E1	1	MTWT	102 Entom.	Woodworth
		E2	1	MTWT	211 U. H.	Dismukes
		F1	2	MTWT	312 U. H.	Dismukes
		F2	2	MTWT	304 Adm. (E)	Alexander
		G1	3	MTWT	102 Entom.	Steep
		G2	3	MTWT	304 Adm. (E)	Alexander
		H	4	MTWT	102 Entom.	Balthazard

2a. Modern French.—*Prerequisite:* French 1b, or two years of high-school French.

French 2a	4	B	9	TWTF	113 U. H.	Steep
		C	10	TWTF	235 L. H.	Goggin
		D	11	TWTF	106 Entom.	Goggin
		E	1	MTWT	133 L. H.	Rew
		F	2	MTWT	214 U. H.	Burnier
		G	3	MTWT	310 U. H.	Smith

2b. Modern French.—*Prerequisite:* French 2a, or three years of high-school French.

French 2b	4	†A1	8	TWTF	303 Adm. (E)	Bussard
		A2	8	TWTF	318 U. H.	Pietrangeli
		A3	8	TWTF	136 L. H.	Dismukes
		†B1	9	TWTF	321 L. H.	Roche
		B2	9	TWTF	136 L. H.	Bussard
		B3	9	TWTF	214 U. H.	Vaile
		†C1	10	TWTF	423 N. H.	Dismukes
		C2	10	TWTF	214 U. H.	Vaile
		†D1	11	TWTF	232 L. H.	Burnier
		D2	11	TWTF	113 U. H.	Balthazard
		E	1	MTWT	412 U. H.	Steep
		F	2	MTWT	208 Adm. (E)	Mayeur
		G	3	MTWT	139 L. H.	Rew
		H	4	MTWT	139 L. H.	Mayeur

3b. Introduction to French Literature.—*Prerequisite:* French 3a.

French 3b	3	A	8	MWF	211 L. H.	Gullette
		B1	9	MWF	105 L. H.	Jacob
		B2	9	MWF	203-A L. H.	Thénaud
		D	11	MWF	128 L. H.	Roche
		E	1	MWF	109 L. H.	Gullette
		F	2	MWF	206 L. H.	Jacob

6b. Second Year Composition and Conversation.—*Prerequisite:* French 6a or three years of high-school French.

French 6b	2	C	10	MW	113 L. H.	Kissel
		E	1	TT	304 Adm. (E)	Kissel
		F	2	TT	106 Entom.	Balthazard

†Primarily for students who expect to go beyond French 2b. More attention is paid to the speaking and hearing of French.

7b. Intermediate Composition and Conversation.—*Prerequisite:* French 7a.

Subject	Credits	Section	Hours	Days	Room	Instructor
French 7b	2	A	8	TT	104 L. H.	Roche
		B1	9	TT	104 L. H.	Kissel
		B2	9	TT	117 L. H.	Thénaud
		C	10	TT	211 L. H.	Roche
		D	11	TT	224 L. H.	Thénaud
		E	1	MW	128 L. H.	Thénaud

Note: Required of those who desire the departmental recommendation to teach French.

8b. Advanced Composition and Conversation.—*Prerequisite:* French 8a.

French 8b	2	A	8	TT	211 L. H.	Thénaud
		F	2	TT	113 L. H.	Roche

28b. Senior Thesis.—For candidates for honors in French. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Prerequisite: French 3a-3b and junior standing; or senior standing and permission of the instructor.

10b. Survey of French Literature.

French 10b	3	C	10	MWF	128 L. H.	Carnahan
		D	11	MWF	113 L. H.	Jacob

17b. French Drama of the Nineteenth Century.—(2). 1 TT; 104 L. H. Associate Professor Hamilton.

24b. French Drama of the Seventeenth and Eighteenth Centuries.—(3). 9 MWF; 206 L. H. Professor Oliver.

32b. French Novel of the Nineteenth Century.—(3). 8 MWF; 104 L. H. Dr. Jacob.

33b. La Littérature Contemporaine.—(In French.) (2). 11 TT; 128 L. H. Professor Michaud.

Courses for Graduates

101. Old French Literature.—(1 unit). 10 TT; 204-A L. H. Professor Oliver.

103. Seventeenth Century Prose Writers.—(1 unit). 4 TT; 204-A L. H. Professor Oliver.

127. French Romanticism.—(1 unit). 3 TT; 425-A Lib. Professor Carnahan.

129. Research Problems in French Romanticism.—(½ to 1 unit).* 5 T; 425-A Lib. Professor Carnahan.

132. French Lyric Poetry.—(1 unit). 3 MW; 222 L. H. Professor Michaud.

144. Le Réalisme et le Naturalisme français.—(In French.) (1 unit). 3, 4 F; 120 L. H. Professor Michaud.

195. Seminar.—Research work in preparation for theses in French. (1 to 2 units).* Members of the department.

B. ITALIAN

Courses for Undergraduates

1b. Elementary Course.—*Prerequisite:* Italian 1a and sophomore standing.

Italian 1b	4	B	9	TWTF	128 L. H.	Welch
		D	11	TWTF	136 L. H.	Pietrangeli
		F	2	MTWT	128 L. H.	Van Horne

2b. Modern Italian Authors.—*Prerequisite:* Italian 2a. (3). 11 MWF; 219 L. H. Miss Welch.

Course for Advanced Undergraduates

3b. Dante.—*Prerequisite:* Italian 3a. (2). 2 TT; 219 L. H. Miss Welch.

Courses for Graduates

146. Modern Italian Literature.—(1 unit). 1 TT; 211 L. H. Associate Professor Van Horne.

195. Seminar.—Research work in preparation for theses in Italian. (1 to 2 units).* Members of the department.

C. SPANISH

Courses for Undergraduates

1a. Elementary Course.—For students who have no credit in Spanish. *Note:* Spanish 1a and French 1a may not be taken at the same time. Seniors will receive only 3 hours' credit in Spanish 1a and 1b.

Spanish 1a	4	A	8	TWTF	139 L. H.	Kendall
		B	9	TWTF	235 L. H.	Utley
		C1	10	TWTF	207 Adm. (E)	Young
		C2	10	TWTF	203-A L. H.	Kendall
		F1	2	MTWT	232 L. H.	Avilés
		F2	2	MTWT	139 L. H.	Dallera
		G	3	MTWT	133 L. H.	Utley

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

1b. Elementary Course (continued).—*Prerequisite:* Spanish 1a or S1a, or one year of high-school Spanish. *Note:* Seniors will receive only 3 hours' credit.

Subject	Credits	Section	Hours	Days	Room	Instructor
Spanish 1b	4	†A1	8	TWTF	128 L. H.	Dallera
		A2	8	TWTF	235 L. H.	Abbas
		A3	8	TWTF	232 L. H.	Utley
		†B1	9	TWTF	232 L. H.	Sáenz
		B2	9	TWTF	311 L. H.	McLain
		B3	9	TWTF	240 L. H.	Abbas
		†C1	10	TWTF	304 Adm. (E)	Ellies
		C2	10	TWTF	105 L. H.	Swain
		C3	10	TWTF	114 L. H.	Dallera
		C4	10	TWTF	133 L. H.	Welch
		†D1	11	TWTF	139 L. H.	Sáenz
		D2	11	TWTF	304 Adm. (E)	Young
		D3	11	TWTF	105 L. H.	Swain
		D4	11	TWTF	238 L. H.	Smith
		†E1	1	MTWT	235 L. H.	McLain
		E2	1	MTWT	214 U. H.	Goggin
		E3	1	MTWT	303 Adm. (E)	Kendall
		F1	2	MTWT	227 L. H.	Utley
		F2	2	MTWT	136 L. H.	McLain
		G1	3	MTWT	203 L. H.	Kidder
		G2	3	MTWT	211 L. H.	Swain
		H	4	MTWT	110 L. H.	Burner

2a. Modern Spanish.—*Prerequisite:* Spanish 1b, or two years of high-school Spanish.

Spanish 2a	4	B	9	TWTF	340 L. H.	Kendall
		D	11	TWTF	235 L. H.	Ellies
		F	2	MTWT	204 L. H.	Young
		G	3	MTWT	203 U. H.	Young

2b. Modern Spanish.—*Prerequisite:* Spanish 2a, or three years of high-school Spanish.

Spanish 2b	4	†A1	8	TWTF	240 L. H.	Kidder
		A2	8	TWTF	302 L. H.	McLain
		†B1	9	TWTF	139 L. H.	Kidder
		B2	9	TWTF	326 L. H.	Avilés
		C1	10	TWTF	136 L. H.	Hamilton
		C2	10	TWTF	139 L. H.	Lundeberg
		E	1	MTWT	206 L. H.	Avilés
		F	2	MTWT	203-A L. H.	Kidder
		G	3	MTWT	136 L. H.	Burner

3b. Introduction to Spanish Literature.—*Prerequisite:* Spanish 3a.

Spanish 3b	3	B	9	MWF	204 U. H.	Lundeberg
		D	11	MWF	133 L. H.	Balseiro
		F	2	MWF	133 L. H.	Lundeberg

5b. Commercial Spanish.—*Prerequisite:* Spanish 5a.

Spanish 5b	2	B	9	TT	133 L. H.	Ellies
		D	11	TT	120 L. H.	Dallera

7b. Intermediate Composition and Conversation.—*Prerequisite:* Spanish 7a.

Spanish 7b	2	A	8	MW	227 L. H.	Sáenz
		C	10	TT	123 L. H.	Avilés
		F	2	TT	123 L. H.	Ellies

Note: Required of those who are given the departmental recommendation to teach Spanish.

8b. Advanced Composition and Conversation.—*Prerequisite:* Spanish 8a. (2). 8 TT; 123 L. H. Mr. Sáenz.

28b. Senior Thesis.—For candidates for honors in Spanish. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Prerequisite: Spanish 3a-3b and junior standing, or senior standing and permission of the instructor.

10b. Survey of Spanish Literature.—(3). 11 MWF; 302 L. H. Associate Professor Hamilton.

11b. Masterpieces of the Golden Age.—Don Quixote, Calderon, Lope de Vega. (2). 11 TT; 123 L. H. Associate Professor Van Horne.

17b. Modern Spanish Drama.—(2). 10 TT; 303-A L. H. Assistant Professor Balseiro.

25. Methods of Teaching Spanish.—Discussions and laboratory work. *Prerequisite:* 20 hours' credit in Spanish, or 16 hours' credit in Spanish plus 20 in French. Not open to students other than seniors except by permission of instructor. (3). 10 MWF; 340 L. H. Dr. Gullette and Dr. Lundeberg.

Courses for Graduates

130. Spanish Literature in the Sixteenth Century.—(1 unit). 3 MW; 235 L. H. Associate Professor Van Horne.

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†Primarily for students who expect to go beyond Spanish 2b. More attention is paid to the speaking and hearing of Spanish.

134. Spanish Literature in the Eighteenth Century.—(1 unit). To be arranged; 214 L. H. Associate Professor HAMILTON.

137. La Crítica Literaria en España.—(In Spanish.) (1 unit). 4 TT; 425 Lib. Assistant Professor BALSEIRO.

195. Seminar.—Research work in preparation for theses in Spanish. (1 to 2 units).* Members of the department.

SCANDINAVIAN LANGUAGES AND LITERATURE

(See English.)

THE SOCIAL SCIENCES

(See Economics, History, Political Science, and Sociology.)

SOCIOLOGY

For students entering prior to September, 1929

Major: 20 hours from any courses in the department.

Minors: 20 hours from any two of the following subjects: History, philosophy, psychology, economics, political science.

For students entering after September 1, 1929

Major: 20 hours from any courses in the department.

Minors: 20 hours, excluding courses taken during the freshman year, from one or two of the following subjects: History, philosophy, psychology, economics, political science. At least 8 hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

1. Principles of Sociology.—*Prerequisite:* Junior standing, or sophomore standing with either the principles of economics, or the principles of psychology, or 5 hours of history. Sophomores are received in Sections A, D, G, K, and M.

Subject	Credits	Section	Hours	Days	Room	Instructor
Sociol. 1	3	A	8	MWF	306 L. H.	HOUGHTON
		B	8	MWF	326 L. H.	ALBIG
		C	8	TTS	334 L. H.	TIMMONS
		D	9	MWF	306 L. H.	VOELKER
		E	9	MWF	334 L. H.	ALBIG
		F	9	TTS	334 L. H.	HILLER
		G	10	MWF	326 L. H.	VOELKER
		H	10	MWF	306 L. H.	TYLOR
		J	11	MWF	340 L. H.	TIMMONS
		K	11	MWF	326 L. H.	ALBIG
		L	1	MWF	308 L. H.	VOELKER
		M	1	MWF	306 L. H.	HOUGHTON
		N	2	MWF	306 L. H.	VOELKER
		O	3	MWF	306 L. H.	TYLOR

2. Social Factors in Personality.—*Prerequisite:* Sociol. 1. No seniors will be admitted to this course except those who need it as a concurrent requirement for Sociology 4 or 8.

Sociol. 2	3	A	8	MWF	105 L. H.	AHRENS
		B	9	MWF	202 L. H.	AHRENS
		C	9	TTS	303 L. H.	AHRENS

Courses for Advanced Undergraduates and Graduates

3. Social Evolution.—*Prerequisite:* Sociol. 1 and junior standing. (3). 11 MWF; 203 L. H. Mr. AHRENS.

4. Social Control.—*Prerequisite:* Sociol. 1 and either 2 or 3. Sociology 2 or 3 may be taken concurrently with this course.

Sociol. 4	2	A	10	TT	334 L. H.	ALBIG
		B	11	TT	334 L. H.	ALBIG

7. Rural Sociology.—*Prerequisite:* Sociol. 1 and junior standing.

Sociol. 7	3	A	8	MWF	334 L. H.	TYLOR
		B	2	MWF	334 L. H.	TYLOR

8. Charities.—*Prerequisite:* Sociol. 1 and Sociol. 2 or 4 and economic theory or 5 hours of history. Sociol. 2 or 4 may be taken concurrently with this course. (3). 10 MWF; 304 L. H. Dr. TIMMONS.

9. Criminology.—*Prerequisite:* Sociol. 1 and senior standing.

Sociol. 9	3	A	9	MWF	203 L. H.	TAFT
		B	3	MWF	334 L. H.	TAFT

24. Penology.—*Prerequisite:* Sociol. 9. (3). 1 MWF; 334 L. H. Professor TAFT.

27. Community Welfare Administration.—*Prerequisite:* Sociol. 1, 2, 4, 8, 9. (3). 8 MWF; 340 L. H. Dr. TIMMONS.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

44. **Negro Origins.**—*Prerequisite:* Sociol. 3 or 42. (3). 10 MWF; 334 L. H. Assistant Professor KELLY.

45. **Prehistoric Archaeology.**—*Prerequisite:* Junior standing. (3). 11 MWF; 334 L. H. Assistant Professor KELLY.

90b. **Honors Course.**—For senior majors in sociology. Consent of instructor required. (2). Arrange. Assistant Professor HILLER.

Courses for Graduates

109. **Research in Criminology.**—(1 unit). Twice per week. Arrange. 201 L. H. Professor TAFT.

128. **Fusion of Culture Resulting from Migration.**—(1 unit). Twice per week. Arrange. 201 L. H. Assistant Professor HILLER.

150. **Seminar.**—Preparation of theses. (½ to 2 units).* Arrange. Members of the department.

TRANSPORTATION

(See also Railway Engineering.)

1. **Economics of Transportation.**—*Prerequisite:* Econ. 1; junior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Trans. 1	3	A	9	MWF	101 Com.	LOCKLIN
		B	10	MWF	312 Com.	FITZGERALD
		C	11	MWF	312 Com.	FITZGERALD

Courses for Advanced Undergraduates and Graduates

3. **Industrial Traffic Management.**—*Prerequisite:* Trans. 1. (3). 9 TTS; 101 Com. Assistant Professor LOCKLIN.

16. **Railway Operation.**—*Prerequisite:* Trans. 1. (3). 10 MWF; 100 Com. Mr. ORLAND.

26. **Current Transportation Problems.**—*Prerequisite:* Trans. 1. (3). 10 TTS; 101 Com. Assistant Professor LOCKLIN.

Course for Graduates

100. **Economics of Transportation.**—(1 unit). Time to be arranged. Assistant Professor LOCKLIN.

ZOOLOGY

For students entering prior to September, 1929

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9.

Minors: 20 hours chosen from one or two of the following subjects: Bacteriology, botany, chemistry, entomology, physics, physiology, psychology, paleontology, and physiography.

Note: Credit for seniors who take Zoology 1, 2 will be reduced one hour.

For students entering after September 1, 1929

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and all courses taken during the freshman year, and including Zoology 2, 3, 4, 5 (or 7), and 9. At least five hours must be offered from the advanced group.

Minors: 20 hours, excluding courses taken during the freshman year, chosen from one or two of the following subjects: Animal husbandry, bacteriology, botany, chemistry, entomology, geology, physics, physiology, psychology. At least 8 hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

1. **General Zoology.**—(Four hours' credit for seniors.)

Zool. 1	5	Lect.	9	MWF	228 N. H.	THOMAS
		E1 Quiz	8	W	241 N. H.	KUDO
		E2 Quiz	8	W	423 N. H.	LUCE
		F1 Quiz	8	F	229 N. H.	and
		F2 Quiz	8	F	425 N. H.	assistants
		G1 Quiz	1	T	229 N. H.	
		G2 Quiz	1	T	434 N. H.	
		H1 Quiz	1	Th	229 N. H.	
		H2 Quiz	1	Th	425 N. H.	
		A1 Lab.	8, 9	TTS	312 N. H.	
		A2 Lab.	8, 9	TTS	310 N. H.	
		B1 Lab.	10, 11	MWF	312 N. H.	
		B2 Lab.	10, 11	MWF	310 N. H.	
		C1 Lab.	1, 2	MWF	312 N. H.	
		C2 Lab.	1, 2	MWF	310 N. H.	
		D1 Lab.	10, 11	TTS	418 N. H.	
		(D2 Lab.[1])	10, 11	TTS	310 N. H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Will not be opened until the other sections are filled.

2. Vertebrate Zoology and Comparative Anatomy.—*Prerequisite:* Zool. 1. (Four hours' credit for seniors.)

Subject	Credits	Section	Hours	Days	Room	Instructor
Zool. 2	5	Lect.	10	MW	228 N. H.	ADAMS
		A Lab.	8, 9	MWF	330 N. H.	CAHN
		(B Lab.[1])	8, 9	MWF	418 N. H.	PARK
		C Lab.	10, 11	TTS	330 N. H.	and
		D Lab.	8, 9	TTS	330 N. H.	assistants
		E Lab.	8, 9	TTS	418 N. H.	
		F Lab.	1, 2	MWF	330 N. H.	
		(G Lab.[1])	1, 2	MWF	418 N. H.	
		H Lab.	1, 2, 3	TT	418 N. H.	
		I Quiz	8	TT	423 N. H.	
		J Quiz	8	MW	113 U. H.	
		K Quiz	1	TT	423 N. H.	
		L Quiz	1	MW	423 N. H.	
		M Quiz	2	TT	423 N. H.	
		N Quiz	3	TT	423 N. H.	
		(O Quiz[1])	3	MW	423 N. H.	
		(P Quiz[1])	4	TT	423 N. H.	

3. Microscopical Technic and Vertebrate Embryology.—*Prerequisite:* Zool. 1, 2.

Zool. 3	5	Lect.	1	TT	228 N. H.	SHUMWAY
		A Lab.	8, 9	MWF	323 N. H.	ADAMSTONE
		B Lab.	10, 11	MWF	323 N. H.	and
		C Lab.	1, 2	MWF	323 N. H.	assistants
		(D Lab.[1])	3, 4	MWF	323 N. H.	
		(E Lab.[1])	8, 9	TTS	323 N. H.	
		1 Quiz	10	T	229 N. H.	
		2 Quiz	10	Th	229 N. H.	
		3 Quiz	2	T	425 N. H.	
		(4 Quiz[1])	2	Th	425 N. H.	
		(5 Quiz[1])	1	M	434 N. H.	

4. Invertebrate Morphology.—*Prerequisite:* Zool. 1 and 30 hours of university work.

Zool. 4	3	Lect. or Quiz	3	TT	229 N. H.	VAN CLEAVE
		A Lab.	10, 11	TT	420 N. H.	and
		B Lab.	1, 2	TT	420 N. H.	assistant

5. Heredity.—*Prerequisite:* One year of university work. Credit may not be received in both Zool. 5 and Zool. 15.

Zool. 5	2	Lect.	8	TT	228 N. H.	ZELENY and
		A1 Quiz	8	F	423 N. H.	assistants
		A2 Quiz	8	F	241 N. H.	
		B1 Quiz	9	F	241 N. H.	
		B2 Quiz	9	F	423 N. H.	
		C Quiz	10	M	241 N. H.	
		D Quiz	11	M	423 N. H.	
		(E Quiz[1])	1	F	423 N. H.	
		(F Quiz[1])	11	T	229 N. H.	

9. Animal Ecology.—*Prerequisite:* One year of zoology or one and one-half years of university work, including Zool. 1.

Zool. 9	3 to 4*[2]	Lect. (1st half sem.)	9	TT	229 N. H.	SHELFORD
		Lab. (2nd half sem.)	9, 10	S	202 Viv.	SHELFORD
		Field	9-12	S	(Two all day trips)	

10. Field Ecology and Ornithology.—Study in forests, streams, and lakes in the vicinity of Reelfoot Lake, Tenn. Covering Easter vacation. Expenses about $26. *Prerequisite:* Registration in Zoology 9 or 16 or their equivalent, and 30 hours of university work. (1). Professor SHELFORD, Assistant Professor CAHN.

16. General Ornithology.—*Prerequisite:* 30 hours of university work.

Zool. 16	2	Lect. or Quiz	2	TT	228 N. H.	CAHN and
		A	8, 9	TT	419 N. H.	assistants
		B	8-12	S	choose one only	
		C	4, 5	MW		

(Field trips four hours per week in April and May.)

18. Introduction to Protozoology.—*Prerequisite:* One year in zoology and sophomore standing. (2). 3, 4 MW; 310 N. H. Assistant Professor KUDO.

Courses for Advanced Undergraduates and Graduates

8b. Thesis Investigation.—*Prerequisite:* Two years of zoology. (3 to 5).* Arrange. Members of the department.

---

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Will not be opened until the other sections are filled.

[2]For 4 hours' credit, additional field work is assigned.

19b. Advanced Ornithology.—*Prerequisite:* Zool. 1, 2, 16, and senior standing. (2 or 3).* Arrange. 419 N. H. Assistant Professor CAHN.

20b. Current Investigation.—Required of all graduate students majoring in zoology; may be elected by seniors majoring in zoology with consent of instructor. (1). 3 F; 229 N. H. Members of the department.

21b. Introduction to Zoological Research.—*Prerequisite:* One year in zoology courses; senior standing. (2 to 5).* Arrange. 314 N. H. Professor WARD.

23. Morphology of Vertebrates.—*Prerequisite:* Zool. 3, 22.

Subject	Credits	Section	Hours	Days	Room	Instructor
Zool. 23	2 to 4*	Lect.	4	W	419 N. H.	ADAMS
		A Lab.	1-5	TT	419 N. H.	

66. Ontogeny of Vertebrates.—*Prerequisite:* Zool. 63. (2 to 4).* Arrange. Professor SHUMWAY.

Courses for Graduates

Students entering on graduate study in the department of zoology should have had two years of undergraduate work in the subject. When chosen as a minor the courses listed for graduates and undergraduates must be preceded by at least one full year's undergraduate work in zoology. Work done at other institutions will be evaluated on conference with the head of the department.

107. Parasitology.—(1 unit). 3 MW; 229 N. H. Professor WARD.

109. Physiological Ecology.—(½ to 1 unit).* Arrange. Professor SHELFORD.

111. Experimental and Field Ecology.—(½ to 2 units).* Time to be arranged. Professor SHELFORD.

115. Factors of Individual and Racial Development.—(1 unit). Arrange. Professor ZELENY.

117. Faunistic Zoology.—(½ to 1 unit).* Time to be arranged. Professor VAN CLEAVE.

Individual Research Courses

121. Invertebrate Morphology and Parasitology.—(1 to 2 units).* Time to be arranged. Professor WARD.

122. Vertebrate Morphology.—(1 to 2 units).* Time to be arranged. Assistant Professor ADAMS.

123. Faunistic and Systematic Zoology.—(½ to 2 units).* Time to be arranged. Professor VAN CLEAVE.

124. Experimental Zoology and Genetics.—(1 to 2 units).* Time to be arranged. Professor ZELENY.

125. Animal Ecology and Behavior.—Time and credits to be arranged. Professor SHELFORD.

126. Embryology and Cytology.—(1 to 2 units).* Time to be arranged. Professor SHUMWAY.

ANATOMY

2. Human Anatomy.—(For students in Athletic Coaching only.) *Prerequisite:* Anat. 1 or its equivalent.

Anat. 2	3	Lab. and Quiz			
		A1	8, 9	MWF	408 N. H.
		A2	8, 9	MWF	405 N. H.
		B1	10, 11	MWF	408 N. H.
		B2	10, 11	MWF	405 N. H.
		C1	1, 2	MWF	408 N. H.
		C2	1, 2	MWF	405 N. H.
		(D1[1])	8, 9	TTS	408 N. H.
		(D2[1])	8, 9	TTS	405 N. H.

2a. Human Anatomy.—(Exclusively for Women in Physical Education.) *Prerequisite:* Zoology 1 and 2 and registration in the curriculum of Physical Education for Women. (3). 1-4 TT; 408 N. H.

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UNIVERSITY OF ILLINOIS.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Will not be opened until other sections are filled.

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UNIVERSITY OF ILLINOIS BULLETIN

ISSUED TWICE A WEEK

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Directions for Registration

FIRST SEMESTER, 1931-32

ANNOUNCEMENT OF NEW COURSES

TIME TABLE

PUBLISHED BY THE UNIVERSITY OF ILLINOIS
URBANA

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LEARNING AND LABOR

DIRECTIONS FOR REGISTRATION

First Semester, 1931-32

ANNOUNCEMENT
OF NEW COURSES

TIME TABLE

PUBLISHED BY THE UNIVERSITY, URBANA

UNIVERSITY
OF ILLINOIS
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1931/32

REGISTRATION CALENDAR

1931-32

FIRST SEMESTER

Sept. 9-12, Wed.-Sat.	Entrance examinations (get programs and permits at the Registrar's Office)
Sept. 16, Wed., 8 p.m.	The President's Welcome to Freshmen
Sept. 17, Thurs., 8 a.m.	Meetings for freshman groups with advisers
8:30 p.m.	College Mixers for Freshmen
Sept. 18-19, Fri., 8 a.m. 5 p.m., Sat., 8-12 a.m.	Registration for freshmen
Sept. 18-19, Fri.-Sat.	Registration for Graduate School
Sept. 21-22, Mon.-Tues.	Registration for Upper Classmen
	Talks for freshmen by Dean of Men and Dean of Women; Psychological Examinations for Freshmen
Sept. 23, Wed., 8 a.m.	Instruction begun
Sept. 28, Mon., 12 m.	Latest date for change of study-lists without fee
Oct. 3, Sat., 12 m.	Latest date for rebates in full
Nov. 2, Mon.	Latest date for announcement of subjects for all theses
Nov. 19-21, Thurs.-Sat.	High School Conference
Nov. 21, Sat., 12 m.	Latest date for rebates of one-half fees
	Latest date for removal by seniors graduating in February of last semester or summer session failures, and for substitutions in courses
Nov. 25, Wed., 11 a.m.	Thanksgiving Recess begun
Nov. 30, Mon., 1 p.m.	Instruction resumed
Dec. 22, Tues., 11 a.m.	Holiday Recess begun
1932	
Jan. 4, Mon., 1 p.m.	Instruction resumed
Jan. 15, Fri.	Special examinations not allowed after this date
Jan. 26, Tues.	Semester Examinations begun
Feb. 3, Wed.	Semester Examinations ended
Feb. 3-6, Wed.-Sat.	Entrance Examinations (get programs and permits at Registrar's Office)

SECOND SEMESTER

Feb. 8-9, Mon.-Tues.	Registration Days
Feb. 10, Wed., 8 a.m.	Instruction begun
Feb. 13, Sat.	Time limit on special examinations expires
Feb. 15, Mon., 12 m.	Latest date for change of study-lists without fee
Feb. 20, Sat.	Latest date for rebates in full
Mar. 24, Thurs., 11 a.m.	Easter Recess begun
Mar. 29, Tues., 1 p.m.	Instruction resumed
Apr. 9, Sat., 12 m.	Latest date for removal by seniors of first semester failures, and for substitutions in courses
	Latest date for rebates of one-half fees
May 19, Thurs.	Special examinations not allowed after this date
May 26, Thurs.	Military Day
May 27, Fri.	Final Examinations begun
June 6, Mon.	Final Examinations ended
June 13, Mon.	Sixtieth Annual Commencement

SUMMER SESSION, 1932

June 20, Mon.	Registration Day

DIRECTORY OF REGISTRATION OFFICERS

Information Office.....157 Administration Building

Registrar's Office.....100-A Administration Building
GEORGE PHILIP TUTTLE, JR., B.S., *Registrar*
DONALD ASHWAY GROSSMAN, LL.B., *Examiner*
EARL CHARLES SEYLER, B.S., M.S., *Recorder*

OTHER GENERAL UNIVERSITY OFFICERS

Comptroller.....257 Administration Building
LLOYD MOREY, A.B., B.Mus., C.P.A.

Bursar.....100-B Administration Building
HORACE BALLOU INGALLS, B.S.

Dean of Men.....152 Administration Building
FRED HAROLD TURNER, Ph.D., *Acting Dean*
GEORGE HERBERT SMITH, A.M., *Assistant Dean for Freshmen and Foreign Students*
CHARLES ROBERT FREDERICK, B.S., *Assistant Dean for Student Organizations and Activities*

Dean of Women.....100 Woman's Building
MARIA LEONARD, A.M., *Dean*
IRENE DOROTHY PIERSON, A.B., *Assistant to the Dean*
ELIZABETH DEBERARD, A.B., *Assistant to the Dean*

Director of Physical Welfare.....104 New Gymnasium
GEORGE A. HUFF, B.S.

Director of Physical Education for Women.....110 Woman's Building
LOUISE FREER, A.M.

Health Office.....Health Service Building
JOSEPH HOWARD BEARD, M.D., *Health Officer*
MAUDE LEE ETHEREDGE, M.D., *Professor of Hygiene and Medical Adviser for Women*

Commandant.....107 Armory
CHARLES W. WEEKS, Colonel, Infantry, D.O.L.

OFFICERS OF COLLEGES AND SCHOOLS

College of Liberal Arts and Sciences
ARTHUR HILL DANIELS, Ph.D., *Acting Dean*.....304 University Hall
HARRIS FRANCIS FLETCHER, Ph.D., *Assistant Dean*.....304 University Hall

College of Commerce and Business Administration
CHARLES MANFRED THOMPSON, Ph.D., LL.D., *Dean*...214 Commerce Building
CHARLES F. SCHLATTER, M.S., C.P.A., *Assistant to the Dean*..214 Commerce Building

College of Engineering
MILO SMITH KETCHUM, C.E., D.Sc., *Dean*.....103 Engineering Hall
HARVEY HERBERT JORDAN, B.S., *Assistant Dean*.....300 Engineering Hall

College of Agriculture
HERBERT WINDSOR MUMFORD, B.S., D.Agr., *Dean*.....101 New Agriculture
FRED HENRY RANKIN, B.S., *Assistant Dean*.....104 New Agriculture

College of Education
THOMAS ELIOT BENNER, Ed.D., *Dean*.....104 Administration Building

College of Fine and Applied Arts
The School of Music
FREDERIC B. STIVEN, *Director*.....100 Smith Memorial Hall
The Department of Art
EDWARD JAMES LAKE, B.S., *Head*.....105 Architecture Building
The Department of Architecture
LORING HARVEY PROVINE, B.S., A.E., *Head*....104 Architecture Building
The Department of Landscape Architecture
OTTO GEORGE SCHAFFER, B.S., *Head*.....202 New Agriculture Building

College of Law
ALBERT JAMES HARNO, B.S., LL.D., *Dean*.....301 Law Building

School of Journalism
LAWRENCE W. MURPHY, A.M., *Director*.....101 University Hall

Library School
PHINEAS LAWRENCE WINDSOR, Ph.B., *Director*.....222 Library Building
AMELIA KRIEG, B.L.S., A.M., *Assistant Director*.....322 Library Building

Graduate School
ARTHUR HILL DANIELS, Ph.D., *Dean*.....109 Administration Building

GENERAL DIRECTIONS FOR REGISTRATION

To Every Student:

You should at once look over the HEADINGS, at least, of ALL the paragraphs, numbered 1-23, which follow. It is certain that one or two of them, and probable that several others, are OF VITAL IMPORTANCE to YOU individually at this time.

1. New Students WITHOUT Permits to Register

A new student *who has not yet secured a permit to register* should proceed at once to the Registrar's Office, 100-A Administration Building, taking with him his credit statements from all former schools attended (high school, academy, normal school, junior college, or college), and make application for a permit.

The foregoing direction applies to all new students without permits except:

(1) Library School Students—see page 64.

(2) Applicants for Admission as "Unclassified Students"—see paragraph 10.

(3) Students Dropped from Other Institutions—see paragraph 8.

2. New Students WITH Permits to Register

A new student *who has already received a permit to register* need not go to the Registrar's Office, but will receive his study-list, together with further detailed instructions, at one of the following points, according to the college or school which his permit entitles him to enter:

College of Liberal Arts and Sciences—at the head of the main staircase, University Hall

College of Commerce and Business Administration—Commerce Building

College of Education, including the Curricula in Athletic Coaching and Industrial Education—Room 104 Administration Building

College of Engineering—Engineering Hall

College of Agriculture, including the Curriculum in Home Economics—New Agricultural Building

College of Fine and Applied Arts (including the School of Music and the departments of Art, Architecture, and Landscape Architecture)—Architecture Building

School of Music—Room 100 Smith Memorial Hall

School of Journalism—Room 101 University Hall

College of Law—Room 301 Law Building

Library School—Room 331 Library Building

Graduate School—Room 109 Administration Building

Students in the Colleges of Liberal Arts and Sciences, Commerce and Business Administration, Education, Engineering, Agriculture, and Fine and Applied Arts, should see the posters on University bulletin boards regarding "Order of Registration."

3. Former Students in Attendance Last Semester

A former student *in attendance the second semester of the year 1930-31,* and in all respects in good standing (see paragraph 5), should call for his study-list at one of the points mentioned in paragraph 2, according to the college or school in which he is enrolled.

Students in the Colleges of Liberal Arts and Sciences, Commerce, Education, Engineering, Agriculture, and Fine and Applied Arts should see the posters on the University bulletin boards regarding "Order of Registration."

4. Former Students Not in Attendance Last Semester

A former student *not in attendance the second semester of the year 1930-31,* but in all respects in good standing (see paragraph 5), must first secure a permit to re-enter, if a man, from the Dean of Men, if a woman, from the Dean of Women, and must then obtain a study-list at the Registrar's Office.

A former student who has withdrawn from the University within the last three weeks of his last term of attendance may register again only with the approval of the dean of his college.

5. Former Students Not in Good Standing

A former student, whether or not in attendance the last semester, *if not in good standing,* either—

(a) Because he has been registered for two years as an *unclassified student* without matriculating; or—

(b) Because he has been *dropped for poor scholarship* or *dismissed on disciplinary grounds*—

may not register except on the recommendation of the dean of his college. Such a student should go first to see the dean or the assistant dean of his college.

6. Students Changing Colleges or Curricula within the University

A student who desires to transfer from one college or school of the University of Illinois to another college or school of the University must (1) secure from the dean or director of the college or school in which he was formerly enrolled a statement of his record therein; (2) secure from the Registrar's Office a statement of his entrance credits; and (3) submit these papers to the dean of the college or the director of the school which he wishes to enter; except that students transferring to the College of Law, the College of Education, or the School of Journalism from one of the undergraduate colleges of the University, need only a permit from the Registrar's Office.

A student who wishes to transfer from the curriculum in which he was last registered to another curriculum *in the same college* must consult the dean or the assistant dean of his college. He must also register the change with the Registrar in order to determine whether or not he is able to meet the requirements for admission.

7. Students with Advanced Standing

A student transferring from another university, a college, a normal school, or a junior college must submit his credits from that institution, or his "Estimate of Advanced Standing," if he has already obtained an "Estimate" from the Registrar, to his adviser when consulting the latter about his curriculum. Then, whether he has already had an "Estimate" made or not, he should call between October 1 and October 15 at the Registrar's Office to file a formal petition for transfer of credits.

8. Students Dropped from Other Institutions

A student who has been dropped from another institution may be admitted to the University of Illinois only on the recommendation of the dean of the college or school of the University which he desires to enter. Such a student must first see the dean or the assistant dean of the college of his choice. If admitted, it will be with the understanding that he shall be on probation.

9. Students Earning Their Way

Students who are earning their way, in whole or in part, during the school year should state that fact to their advisers when registering. Such students should carry light work.

10. Unclassified Students

Persons over twenty-one years of age may be admitted as unclassified students, provided they secure (1) the recommendation of the instructors whose

courses they wish to take, and (2) the approval of the dean of the college in which the course is given. They must give evidence that they possess the requisite information and ability to pursue profitably, as unclassified students, their chosen subjects, and must meet the special requirements of the particular college in which they wish to enroll.

An unclassified student is not matriculated and must pay a tuition fee of $7.50 a semester in addition to the regular incidental fee of $35 a semester for Illinois students, or $62.50 for non-Illinois students.

No one may enroll as an unclassified student for more than two years, except by special permission, application for which must be made through the dean of the college.

An unclassified student in any college desiring to take a course in another college of the University must obtain the approval of the dean of the latter college.

A person desiring admission as an unclassified student must first see the dean or the assistant dean of the college he wishes to enter (see the directory on pages 4 and 5).

11. Permission to Attend Classes as Listeners

Permission to attend classes regularly as listeners only may be given to persons who are not connected with the University on the following conditions:

(a) They must first secure the consent of the instructor concerned and of the dean of the college in which the course is given.

(b) They must pay a fee of $7.50 for each course attended.

No instructor is authorized to admit any such listener to any of his classes except on presentation of a *visitor's card* showing that the foregoing conditions have been complied with.

N.B.—A permit to visit a class does not entitle the person holding the permit to participate in the work of the class; permits to visit classes not administratively assigned to any college or school must be approved by the instructor in charge of the class and by the dean of the college in which the student would most naturally be enrolled as determined by the work offered for entrance credit or, if necessary, by requiring the student to express a preference.

Permission to attend classes regularly as visitors only may be granted without fee to persons in the employ of the University on the recommendation of the head of the department in which the employee is at work, with the consent of the instructor in the course, and with the approval of the dean of the college in which the course is given.

12. Number of Hours[1] Prescribed

Every student must pursue studies aggregating *not fewer than fifteen nor more than eighteen hours,* except in curricula requiring more than such number of hours in any semester; and except further that a student who has received grades of A in not less than one-half of his work for the preceding semester with no grades lower than B may take for the semester studies aggregating not more than twenty hours. A student may be permitted to take more or less than the amount of work prescribed above only by permission of the dean of his college or the director of his school.

A student who cannot devote his entire time to his studies because of illness, or outside work necessary to meet expenses, or for some other good reason, may be required by the dean of his college or the director of his school to take fewer than fifteen hours.

13. Required Subjects Take Precedence

Any required subject in which there is a failure must on the first recurrence of such subject take precedence over all other subjects.

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[1]Credit is reckoned in "semester hours" or simply "hours." An hour is one class period a week for one semester, each class period presupposing two hours' preparation by the student, or the equivalent in laboratory, shop, or drawing room.

14. Credit Forfeited by Reregistering

By reregistering in a subject for which he has received credit, a student forfeits his credit. When a course is thus repeated the grade given at the end of the repetition becomes the official grade.

15. Candidacy for Graduation

A candidate for graduation must have completed by the beginning of his final semester (or summer session) all studies required for the degree, *except those to be taken in class during that semester (or summer session).*

It is provided, however:

(1) That special examinations to remove failures incurred *during the preceding semester* may be taken at any time before the beginning of the tenth week of a student's final semester; or, if the final period of attendance is a summer session, at any time before the beginning of the fifth week.

(2) That, similarly, substitutions for courses required for the degree may be made as indicated for special examinations in (1) above.

16. Courses with Variable Credit

In registering for a course with variable credit hours (e.g., Animal Husbandry 24, 2-5 hours), a student must put down on his study-list the number of hours for which *he* intends to take the course; e.g., not 2-5, but 2, or 3, or 4, or 5.

17. Military Training and Physical Education for Men

(a) The Requirement in Military

All male students, except those specifically exempted below, must register in Military, and, unless properly excused, must take the full basic course therein, whether they intend to graduate or not. To have any credits received for basic military work count for graduation, the full course (basic) must be taken. The classes of students exempted below may take military work, if they so desire, by registering for it, except that no student who is not a citizen of the United States and no student who holds a Reserve Corps Commission will be permitted to register.

Exemptions:

a. Students over 22 years of age when entering the University.
b. Students entering the University with junior standing.
c. Students who are not citizens of the United States.
d. Students who have had two years of military work in other Senior Units of the R.O.T.C.
e. Students holding Commissions in the Reserve Corps, United States Army.
f. Students holding certificates of eligibility for commission in the Reserve Corps.

A deposit of fifteen dollars ($15) with the Bursar is required before equipment is issued.

For full directions for registration in Military, see under Military in the Description of Courses and Time Table in the colored section of this book.

(b) The Requirement in Physical Education (Men)

All freshman and *sophomore men* take physical education throughout the year. Freshmen must also register for *Hygiene.*

Freshmen who do not pass the health examination will be required to register for *Physical Education 11* (*12* the second semester), five times each week, which gives 1½ hours of credit. Sophomore men with pronounced physical deficiencies should register for *Physical Education 21* (*22* the second semester), which also gives 1½ hours of credit. While enrolled in these courses they will be excused from Military, but when transferred to the regular work in physical education they will be required to make up the work in military science in so far as that may be practicable.

18. Physical Education for Women

Freshman women have Gymnasium Practice three hours a week throughout the year, and lectures on Hygiene throughout both semesters. Directions for registration will be found under the department announcements in the colored section of this bulletin.

19. Late Registration

A late registration fee of five dollars is charged all former students registering later than the registration days.

A student is not registered until his fees are paid. *A student who pays his fees on the first day of instruction or thereafter instead of on the registration days will, therefore, be charged the late registration fee.*

20. Week Old Study-List Invalid

A study-list becomes invalid if not filed at the Bursar's Office within one week after the date of its issue.

21. Changes in Study-Lists

Permission to change study-lists after registration may be obtained only from the dean of the college or the director of the school in which the student is enrolled. No changes can be made on the registration days.

Changes in study-lists should be completed and filed at the Bursar's Office not later than 12 m. on the Monday following registration. After this date a fee of $1 is charged for each change except that the total charge for the rearrangement authorized on any one change slip shall not exceed $2. The Registrar is authorized to waive the fee for change of a study-list in cases where the change is required by a University officer.

22. Fees Payable in Advance

All fees are payable in advance at registration.

A student who is in debt to the University at the end of any semester is not permitted to register in the University again, and is not entitled to receive an official statement of his credits from the Registrar, until his indebtedness has been discharged.

23. Hospital Fund

Every student should, on the registration days, join the Students' Mutual Benefit Hospital Fund. A payment of three dollars insures care in a hospital, without hospital fees, for any period of illness not exceeding four weeks during the semester. Apply at the office of the Dean of Men or of the Dean of Women.

THE COLLEGE OF LIBERAL ARTS AND SCIENCES

I. DIRECTIONS FOR REGISTRATION

1. Study-Lists

(1) Read the General Directions for Registration, pages 6-10.

(2) Obtain your study-list as prescribed in the General Directions.

(3) Read the directions printed on the back of the first coupon of the study-list.

2. Advisers

You will receive with your study-list a room ticket, indicating the number of the room where you will find your class adviser. Do not write anything on your study-list until you have consulted with the adviser. New students must bring with them a permit to register and show it to the adviser. *Be sure to obtain his signature before proceeding further.*

Juniors and seniors in the General Curriculum before consulting the class adviser must obtain from a representative of the department in which they will do their major work a statement of the courses in the major and minor subjects recommended for the coming semester. They should, also, bring with them the summary of their record mailed from the college office during the summer.

Transfer students from other institutions and other colleges of the University must bring with them a transcript of their record or the Registrar's "Estimate of Advanced Standing." They are given credit for all courses which are coordinate with the requirements of the curriculum in which they register.

3. Curricula

The College of Liberal Arts and Sciences offers the following curricula:

(1) The General Curriculum leading to the degree of Bachelor of Arts or Bachelor of Science (see below).

Note: Under this curriculum students may take their major work in home economics, leading to the degree of Bachelor of Arts or Bachelor of Science (see page 17).

(2) The degree of Bachelor of Science in Chemistry or Chemical Engineering (see page 18).

(3) The degree of Bachelor of Science in Applied Optics (see page 19).

(4) Students preparing for law will register in the general curriculum for at least three years.

(5) A two-year curriculum preparatory to medicine, which satisfies the minimum requirements for admission to the College of Medicine of the University. After two years of residence and the fulfilment of specified requirements, that college will grant the degree of Bachelor of Science in Medicine (see page 20).

(6) A two-year curriculum preparatory to dentistry, which satisfies the minimum requirements for admission to the College of Dentistry of the University (see page 21).

(7) A one-year curriculum preparatory to pharmacy which satisfies the minimum requirements for admission to the College of Pharmacy of the University (see page 21).

(8) A two-year curriculum preparatory to journalism which fulfils the requirements for admission to the School of Journalism (see page 21).

II. DIRECTIONS FOR STUDENTS IN THE GENERAL CURRICULUM

1. Freshmen

Freshmen will register under the new requirements, taking all subjects prescribed in Group A, and selecting one subject from each division in Group B.

2. Sophomores

Required subjects each semester: Physical education, military science (for men).

Note: Sophomores will register under the new requirements.

3. Juniors

Juniors will register under the new requirements and are expected to devote approximately half of their time to work on major and minor subjects.

4. Seniors

Seniors may elect to graduate under the new requirements.

Seniors must complete in the first semester all requirements for graduation except those to be taken in class during the second semester.

Note: Most courses in the College of Liberal Arts and Sciences open to freshmen suffer reduced credit when elected by seniors—see Time Table.

Requirements for the A.B. Degree

(Effective for students entering after September 1, 1929)

University Requirements.—Each candidate must meet the general University requirements with respect to registration and residence, and must also secure credit in approved courses amounting to 130 hours, an hour being one class period a week for one semester. Each class period presupposes two hours of preparation by the student, or the equivalent in the laboratory or drawing room.

A. *Prescribed Subjects*

To be commenced in the first semester of the freshman year, except as otherwise provided, and to be continued until the completion of the requirements.

1. Hygiene—1 hour.
2. Physical Education—4 semesters.
3. Military Science (for men)—4 semesters or the equivalent.
4. Rhetoric—2 semesters. This requirement may be satisfied by either of the following methods:
   (I) Passing Rhetoric 1 and 2.
   (II) Passing a proficiency examination[1] equivalent to that of an examination in Rhetoric 2.
5. Foreign Language—A reading knowledge of a foreign language (French, German, Greek, Latin, Spanish, or Italian) equivalent to that obtainable after four semesters of a foreign language when commenced in college. This requirement may be satisfied by either of the following methods:
   (I) Passing French 2b, or a more advanced course;
   German 5 or 6, or a more advanced course;
   Greek 4, or a more advanced course;
   Latin 1a, or a more advanced course;
   Spanish 2b, or a more advanced course;
   Italian 2b, or a more advanced course.
   (II) Passing a proficiency examination[1] equivalent to the final examination in any of the courses mentioned in 5 (I).

B. *To be taken prior to the senior year.*

1. *Liberal Arts*—English literature, foreign literature (based on the first two years of college work in the language chosen, or its equivalent), economics, history, political science, philosophy, and sociology: a total

[1]*Note on Proficiency Examinations.* Proficiency examinations in rhetoric and foreign languages will be offered before the end of the second week in each semester. Students expecting to take these examinations will register for the courses in these subjects indicated by their previous preparation, and apply to the departments concerned for examination. If such examinations are passed, students will apply to the Office of the Dean to be transferred to other courses, as they are permitted to do by present regulations. No University credit hours will be earned by passing such proficiency examinations, but the successful applicants will be excused from taking the parallel courses, thereby increasing the number of free electives which they may offer for graduation.

of 15 hours chosen from at least three departments, including one course in English or foreign literature, or in the history of philosophy.

2. *Science*—Astronomy, bacteriology, botany, chemistry, geography, geology, entomology, mathematics, physiology, physics, psychology, and zoology: a total of 15 hours chosen from at least three departments, including one course with a minimum of four hours' laboratory work per week.

In any curriculum in which fewer than 15 hours of laboratory science are required a student who enters without at least one unit of laboratory science shall be required to substitute 5 hours of laboratory science for 5 hours of free electives in the requirements for graduation.

C. *To be taken after the freshman year.*

1. In the major subject as defined by departments with the approval of the faculty, 20 hours. See page 17.
2. In the minor subjects, 20 hours in one or two departments designated by the department in which the major subject is pursued, and approved by the faculty, with not less than 8 hours in each department, if two subjects are chosen.
3. Thirty hours of the work taken in the junior and senior years must be in courses not open ordinarily to freshmen or sophomores.

D. *Electives.*

1. All courses offered by the departments of this college except those exclusively for students in other colleges.
2. Not more than 36 hours' credit toward graduation will be given for courses offered in other colleges and schools of this University, aside from the first year's work in the College of Medicine, and courses acceptable for major and minor credits. Such courses must be selected from the following list approved by the Faculty:

Accountancy

1a or 1e (Principles of Accounting)
1b (Accounting Procedure)

Agronomy

For students majoring in Botany or Entomology:
7 (Advanced Crop Production)
8 (Forage Crops)
11 (Soil Biology)
25 (Crop Production)
28 (Soils)

Animal Husbandry

For students majoring in Entomology:
34 (Anatomy and Physiology, and Non-Contagious and Parasitic Diseases of Farm Animals)
35 (Animal Hygiene; Sanitation; Contagious Diseases of Farm Animals)

Architecture

11, 12 (History of Architecture)
71, 72 (Architectural Drawing)

Art

20 hours excluding courses for teachers; at least one-half of the total hours offered shall be in the theory or history of art.

Business Organization and Operation

2 (Marketing Organization)
9 (Trade and Commercial Organizations)
10 (Newspaper Advertising)
11 (Survey Course)

Business Law

1a, 1b (General law—no credit given to students in the combined arts-law curriculum)
2 (Elementary Law of Business)

Civil Engineering

27, 28, 34 (Surveying)

Dairy Husbandry

For students majoring in Bacteriology:
10 (Advanced Dairy Bacteriology)

Drawing, General Engineering

1 (Elements of Drafting)
2 (Descriptive Geometry)

Economics

All courses

Education

All courses in General Education except those listed also under Educational Practice, Agricultural Education, Athletic Coaching, Home Economics Education, or Industrial Education.

Electrical Engineering

2 (Elementary Electrical Engineering)
For students majoring in Physics:
25 (Direct Current Apparatus)
26 (Alternating Currents)
75, 76 (Electrical Engineering Laboratory)

Farm Mechanics

For students majoring in Home Economics:
12 (Farm Home Equipment)

Graduate

A student who has earned at least 125 semester hours may be permitted to elect courses in the Graduate School with the consent of the Dean of the Graduate School. Such a student must register both in the College of Liberal Arts and Sciences and the Graduate School.

Home Economics

All courses except those in Practice Teaching

Horticulture

For students majoring in Botany or Entomology:
1a, 1b (Elements of Horticulture)
2 (Small Fruit Culture)
3 (Commercial Vegetable Gardening)
5 (Plant Propagation)
6 (Nursery Methods)
7 (Spraying)
19 (Amateur Floriculture)
31 (Garden Flowers)

Journalism

3 (The Newspaper and the News)
5, 6 (Reporting)
9a, 9b (Printing and Publishing)
17 (History and Principles of Journalism)

Attention is called to the announcement of the School of Journalism on page 62.

Landscape Architecture

11 (History of Landscape Architecture)
71, 72 (City Planning)
64 (Landscape Architecture)

Law

A student of senior standing with an average grade of C (3.) who has been in residence either the first two years or the last year of his pre-legal work may take and count toward the A.B. degree not to exceed 36 hours in the College of Law, provided that not less than two courses amounting to at least 5 hours are taken per semester under the advice of the Dean of the College of Law as to the courses to be taken, and provided further that if any such student desires to take more than 6 hours of law work he must also register in the College of Law.

Attention is called to the announcement of the College of Law, page 60.

Library

2a, 2b, or 12 (Reference)
3a and 38 (Book Selection)
9 (History of Books and Printing)

Attention is called to the announcement of the Library School, page 64.

Mechanical Engineering

For students majoring in Physics:
10, 13 (Thermodynamics)

Mechanics, Theoretical and Applied

All Courses.

Medicine

Students who have spent three years in residence, earning not less than 94 semester hours in the College of Liberal Arts and Sciences, are permitted, at the end of their first year in a Class A college of medicine, to transfer credits in the medical sciences to complete the requirements for graduation from this college and to receive the degree of Bachelor of Arts.

Attention is called to the pre-medical curriculum, page 20.

Military Science and Tactics

Maximum: 10 hours

Mining Engineering

For students majoring in Geology:
21 (Mining Examination and Valuation)
61 (Elementary Mine Surveying—No credit in addition to C.E. 27)

Music

Maximum: 20 hours
1, 2 (History of Music)
3, 4, 5, 6 (Harmony)
7, 8 (Counterpoint)
9, 10 (Analysis and Form)
11, 12 (Advanced Composition)
13, 14 (Music Appreciation)
32, 33 (Advanced History of Music)

Credit to an extent of four hours is allowed for applied music (piano, voice, etc.) after Music 3 and 4 (Harmony) have been taken and on the recommendation of the Director. For every additional hour of applied music the student must elect a similar number of hours of theoretical music from the courses mentioned above.

No credit will be allowed for courses in Public School Music.

Physical Education and Hygiene

Maximum:

For men, 6 hours

For women, 9 hours

No credit is allowed for courses in educational practice.

Physics

All courses

Transportation

For students majoring in Economics or Geography:

1 (Economics of Transportation)

E. The degree of Bachelor of Science will be granted in lieu of the degree of Bachelor of Arts to students whose major is in mathematics, a science, or home economics, upon petition to the Dean not later than six weeks preceding the granting of the degree.

Requirements for the A.B. Degree

(For students who entered before September 1, 1929)

A. *Prescribed Subjects.*—Rhetoric 1-2; Physical Education through the first and second year, and Hygiene 1 and 3 for men; Physical Education 7a-7b, 8a-8b, and Hygiene 2 for women; Military Science (4 hours) for men.

B. *Group Requirements.*—Students are expected to complete the group requirements within the first 60 hours of work. Every candidate must offer the minimum of work specified in each of the following groups:

I. *English.*—The offering in this group must include at least one semester course in literature.

II. *Foreign Language and Literature* (exclusive of courses in English translation).

If a student has offered but two units of a foreign language for entrance to the University, he must pursue the study of foreign language through two one-year courses or the equivalent. If he has offered for entrance three or more units of foreign language, he must continue the study of foreign language through one year of his college course.

Note: Candidates for the degree who have not offered Greek or Latin or French or German for entrance *must offer one of these languages for graduation.*

III. *History, Political and Social Science.*—History, economics, political science, sociology: 8 hours.

IV. *Mathematics and Physical Science.*—Mathematics, astronomy (courses with college mathematics as prerequisites), physics, chemistry: at least 5 hours.

Note: Every candidate for the degree of A.B. shall offer a minimum total of 15 semester hours in Groups IV and V combined with a minimum of 5 semester hours in each. Not less than four laboratory hours a week for one semester, or the equivalent, shall be offered in *some one department.*

In any curriculum in which fewer than 15 hours of laboratory science are required a student who enters without at least one unit of laboratory science shall be required to substitute 5 hours of laboratory science for 5 hours of free electives in the requirements for graduation.

V. Botany, bacteriology, entomology, geology, geography, physiology, zoology: at least 5 hours. See note under IV.

VI. Education, philosophy, psychology: 6 hours, of which 3 shall be in philosophy or psychology.

C. *Major Subjects.*—Each candidate must select some one subject as his major. A major consists of courses amounting to at least 20 hours chosen from among those designated by a department and approved by the faculty of the college. Such courses are to be exclusive of those elementary or beginning courses which are open to freshmen and inclusive of *some distinctly advanced work.* At least five hours of the work accepted for a major must have been *done in residence at this University* and be included within the maximum credits allowed in any one division.

The subjects at present recognized as majors in this college are: bacteriology, botany, chemistry, classics, economics, English, entomology, French, geography, geology, German, Greek, history, home economics, Latin, mathematics, philosophy, physics, physiology, political science, psychology, public speaking, sociology, Spanish, zoology.

D. *Minor Subjects.*—Each candidate must offer, in addition to his major, a minor of 20 hours in one or more allied subjects designated by the major department and approved by the faculty of the college. *At least 8 hours must be offered in one subject.*

E. *Elective Subjects.*—

1. Not more than 40 hours in any one subject may be counted for graduation, except: (a) in special courses approved by the faculty of the college; (b) when a student is writing a thesis, he may count, in addition to the 40 hours, the hours of the course in which he does his thesis work; (c) in the department of English a student may take 40 hours in addition to Rhetoric 1-2, Public Speaking, and the linguistic courses in Scandinavian.

   Note: The total credit in Art and Design is limited to 20 hours.

2. In order to secure any credit in a beginning course in a foreign language, a full year's work must be completed.

Courses in Other Colleges Approved for A.B. Degree

3. A limited amount of credit toward the A.B. degree is ordinarily given for courses offered in other colleges and schools of this University (see list on page 13).

F. *Bachelor's Theses.*—A bachelor's thesis is not generally required in this college. Students of high standing are, however, encouraged to write theses in connection with their major studies. Credit toward the degree is given for thesis work only as a part of the work in a Thesis or Honors course.

G. *Optional Degree of Bachelor of Science.*—Students who do their major work in one of the subjects in Group IV or Group V, or in home economics, and who have credit for 60 semester hours or more in these groups or in home economics, on petition to and on the recommendation of the faculty of this college, may be graduated with the degree of B.S. instead of A.B. Such a petition must be presented not later than 10 days after the opening of the last semester or summer session preceding the granting of the degree.

III. DIRECTIONS FOR STUDENTS WHOSE MAJOR IS IN HOME ECONOMICS

Students planning to do their major work in home economics should note that certain prerequisite courses must be taken during the first two years. They will be assigned to advisers in the Home Economics Department in the rooms indicated on their room tickets.

Students who hold scholarships in home economics must make this subject their major and take each semester at least four hours in home economics or in subjects required for admission to courses in home economics.

IV. DIRECTIONS FOR STUDENTS IN CHEMISTRY AND CHEMICAL ENGINEERING

Students who follow the general curriculum in the College of Liberal Arts and Sciences with Chemistry as a major subject are eligible for the degree of Bachelor of Arts. They should follow the directions given on page 12 or 16.

For the more specialized training of the chemist, the following curricula have been arranged. Each requires a maximum total of 136 hours and leads to the degree of Bachelor of Science.

The schedules for the first and second years in chemistry and chemical engineering are the same.

Preliminary preparation in German or French equivalent to 2 years of high-school work is advised. The total language requirement for graduation including courses offered for entrance must be equivalent to 2 years of University work in German or French. When a student does not offer German or French for entrance the second year of the language required for graduation will be accepted in partial fulfilment of the non-chemical electives in either curriculum. Students entering under this arrangement should take the second year of language during the sophomore year and will not be admitted to senior standing until the requirement has been satisfied.

Students registering in either curriculum must offer 1 unit of high-school chemistry and ½ unit of advanced algebra for admission. University credit in Chemistry 1 (five hours) is acceptable in lieu of Chemistry 2 and one unit of entrance chemistry, Mathematics 3 (five hours) in lieu of one-half unit of advanced algebra and Mathematics 2.

FIRST YEAR, BOTH CURRICULA

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 2—Inorganic Chemistry	3	Chem. 6—Inorganic Chemistry	5
Math. 2—College Algebra	3	Math. 6a—Analytical Geometry	4
Math. 4—Plane Trigonometry	2	German or French	4
German or French	4	Rhet. 2—Rhetoric and Themes	3
Rhet. 1—Rhetoric and Themes	3	Physical Education	½
Physical Education	½	Hygiene 3—Hygiene (men)	½
Hygiene 1—Hygiene (men)	½	Mil. 2a and 2b, 12a and 12b, or 22a and 22b—Military Drill and Theory	1
Mil. 1a and 1b, 11a and 11b, or 21a and 21b—Military Drill and Theory	1		
Total	17	Total	18

SECOND YEAR, BOTH CURRICULA

Chem. 10—Qualitative Analysis	5	Chem. 24—Quantitative Analysis	5
Math. 8a—Differential Calculus	3	Math. 8b—Integral Calculus	3
Phys. 1a—General Physics	3	Phys. 1b—General Physics	2
Phys. 3a—Physical Measurements	2	Phys. 3b—Physical Measurements	2
Physical Education	½	Physical Education	½
Electives[2]	3	Electives[2]	3
Mil. 3a and 3b, 13a and 13b, or 23a and 23b—Military Drill and Theory	1	Mil. 4a and 4b, 14a and 14b, or 24a and 24b—Military Drill and Theory	1
Total	17½	Total	16½

Curriculum in Chemistry, Third and Fourth Years

Students who have presented German for entrance should take French 1a and 1b among the electives; those who have offered French should take German 1 and 2.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 34a—Organic Chemistry	5	Chem. 36b—Organic Chemistry	3
Chem. 40—Physical Chemistry	3	Chem. 37b—Organic Chemistry Lab.	2
Chem. 41—Physical Chemistry Lab.	1	Chem. 42b—Physical Chemistry	3
Chem. 92a—Chemical Literature	1	Chem. 43b—Physical Chemistry Lab.	1
Econ. 2—Elements of Economics	3	Chem. 92b—Chemical Literature	1
Electives[2] (Must total 8 hrs. for the year)	4	Chem. 27b—Quantitative Analysis	3
		Electives[2] (Must total 8 hrs. for the year)	4
Total	17	Total	17

[1]Semester hours. For definition, see page 75.

[2]T. A. M. 20 required for Chemical Engineers. Chemistry courses may not be chosen as electives. Suggested courses for electives are—Zoology 1, 2, 5, or 7; Botany 1; English 20; Geology 20, 43, or 47; History 3a or 3b; German or French.

Of the electives at least four hours must be outside of chemistry courses.

FOURTH YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 90a—Research[2]	5	Chem. 90b—Research[2]	5
Chem. 60a—Chemical Technology	4	Electives (must total 17 hrs. for the yr.)	11
Chem. 95a—History of Chemistry	2		
Electives (must total 17 hrs. for the yr.)	6		
Total	17	Total	16

Of the electives at least eleven hours should be from advanced courses in chemistry.

Curriculum in Chemical Engineering, Third and Fourth Years

The work of the technical chemist or superintendent is frequently so closely associated with mechanical and other engineering lines as to make a knowledge of these subjects essential. To meet these conditions, the following third and fourth years of the curriculum in chemistry and related engineering subjects have been arranged. The degree given is that of Bachelor of Science in Chemical Engineering.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 34a—Organic Chemistry	5	Chem. 36b—Organic Chemistry	3
Chem. 40—Physical Chemistry	3	Chem. 37b—Organic Chemistry Lab.	2
Chem. 41—Physical Chemistry Lab.	1	Chem. 42b—Physical Chemistry	3
T. A. M. 3—Resistance of Materials	3	M. E. 2—Steam Engineering	3
T. A. M. 63—Resistance of Mat'ls Lab.	1	G. E. D. 6—Elements of Drafting	3
E. E. 11—Direct Current Apparatus	3	E. E. 12—Alternat. Current Apparatus	3
E. E. 61—Laboratory	1	E. E. 62—Laboratory	1
Total	17	Total	18

FOURTH YEAR

Chem. 60a—Chemical Technology	4	Chem. 61b—Principles of Chemical Engineering	4
Chem. 61a—Principles of Chemical Engineering	4	Chem. 90b—Thesis	5
Chem. 44a—Thermodynamics	2	Electives	6
M. E. 61—Power Measurement	2		
Chem. 62a—Principles of Research and Development	2		
Electives	3		
Total	17	Total	15

It is suggested that students take the elective courses outside of chemistry.

V. DIRECTIONS FOR STUDENTS IN APPLIED OPTICS

Students who wish to prepare themselves to pass the examination prescribed by the Illinois Optometry Act of April 19, 1919, which regulates the practice of optometry within the state, must meet the requirements for the degree of Bachelor of Arts or Bachelor of Science, taking their major work in the Department of Physics. For students preparing for the design of optical instruments, sometimes called "optical engineering," a special curriculum leading to the degree of Bachelor of Science may be arranged.

VI. DIRECTIONS FOR STUDENTS PREPARING FOR LAW

The College of Law admits only graduates, and students of senior standing who are permitted to elect courses in Law. See page 60.

[1]Semester hours. For definition, see page 75.

[2]Ten hours of thesis credit are required for graduation in chemistry and five hours for graduation in chemical engineering, subject to a provision that in special cases a partial substitution of chemical electives may be granted on recommendation of the department. In no case may the total thesis credit in either curriculum be reduced below a minimum of five hours.

VII. DIRECTIONS FOR STUDENTS PREPARING FOR MEDICINE

The College of Liberal Arts and Sciences offers the following two-year curriculum which satisfies the requirements for entrance to the College of Medicine of the University. Two units of Latin, Greek, French, or German are required for entrance to this curriculum. Those lacking in this requirement will register in the General Curriculum and commence the study of one of these languages instead of zoology.

Students who have earned 94 semester hours in the College of Liberal Arts and Sciences are permitted, at the end of their first year in the College of Medicine, to transfer credits in the medical sciences to complete the requirements for graduation of the College of Liberal Arts and Sciences (see page 15), and receive the degree of Bachelor of Arts. In transferring the credits of the first year in the College of Medicine, the following semester hour credits are allowed:

Anatomy	10
Histology	5
Embryology, Human	2½
Neurology	2½
Physiological Chemistry	5
Physiology	5
	30
General Elective Credit	6*
Total	36

Each applicant, whether from the University of Illinois, or from other institutions of recognized standing, must have attained *in his premedical work a scholastic average of not less than 3.5,* or its equivalent as determined by the University of Illinois for institutions using a different grading system. Grades received in military science, physical education, and hygiene will not be considered in determining this average.

Suggested Two-Year Curriculum Preparatory to Medicine

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 1 or 2—General Chemistry	5 or 3	Chem. 5—Inorganic Chemistry	5
Math. 4—Trigonometry	2	Zool. 2—Vertebrate Zoology	5
Zool. 1—General Zoology	5	Rhet. 2—Rhetoric and Themes	3
Rhet. 1—Rhetoric and Themes	3	Hyg. 3—Hygiene (men)	½
Hyg. 1—Hygiene (men)	½	Physical Education	½
Phys. Ed.—Gymnasium	½	Military Drill and Theory	1
Military Drill and Theory	1	Electives	3
Total	15–17	Total	18

SECOND YEAR

French or German	4	French or German	4
Phys. 7a—General Physics	2½	Phys. 7b—General Physics	2½
Phys. 8a—Laboratory	2½	Phys. 8b—Laboratory	2½
Zool. 3—Vertebrate Embryology[2]		Chem. 33—Organic Chemistry	
or		*or*	
Chem. 33—Organic Chemistry	5	Zool. 3—Vertebrate Embryology	5
Physical Education	½	Physical Education	½
Military Drill and Theory	1	Military Drill and Theory	1
Electives[3]	3	Electives[3]	3
Total	18½	Total	18½

*When the student has completed satisfactorily the full program of the first year in Medicine, he will be allowed up to a maximum of six semester hours of general elective credit, in addition to subject credit as indicated above.

[1]Semester hours. For definition, see page 75.

[2]Students who plan to take physiological chemistry (Chemistry 50a) at Urbana during the third year must secure credit for Chemistry 22 during the second year. This may be accomplished by substituting Chemistry 22 for Zoology 3, which may then be taken during the third year. These students must secure five hours of subject credit in elective courses during the first year at the College of Medicine.

[3]Psychology is especially recommended.

VIII. DIRECTIONS FOR STUDENTS PREPARING FOR DENTISTRY

Students preparing for Dentistry are advised to follow the curriculum suggested for premedical students, which satisfies the requirements for entrance to the College of Dentistry of the University.

IX. DIRECTIONS FOR STUDENTS PREPARING FOR PHARMACY

Students preparing for Pharmacy should follow the one-year curriculum described below which constitutes the first year of the course in Pharmacy. The following three years are given in the College of Pharmacy of the University at Chicago.

Curriculum in Pharmacy

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Physical Education	½ or 1	Physical Education	½ or 1
Hygiene 1 or 2	½	Hygiene 3 or 4	½
Military (for men)	1	Military (for men)	1
Rhet. 1—Rhetoric and Themes	3	Rhet. 2—Rhetoric and Themes	3
Mathematics 2 or 3—Algebra	3 or 5	Mathematics 4—Trigonometry	2
Chem. 2 or 1—General Chemistry	3 or 5	Chem. 5—Inorganic Chemistry	5
Electives[2]	6–2	Electives	5
Total	17 or 16½	Total	17 or 16½

X. DIRECTIONS FOR STUDENTS PREPARING FOR JOURNALISM

The following two-year journalism curriculum covers entrance requirements of the School of Journalism of the University and includes specific courses of special value to students of journalism. It is recommended that, where possible, students choose additional electives from the departments of: economics, political science, history, literature, philosophy, psychology, and art.

See also the announcement of the School of Journalism, page 62.

A Suggested Two-Year Curriculum Preparatory to Journalism

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Military Drill and Theory	1	Military Drill and Theory	1
Hygiene 1—Hygiene (men)	½	Hygiene 3—Hygiene (men)	½
Phys. Ed.—Gymnasium	½	Phys. Ed.—Gymnasium	½
Rhet. 1—Rhetoric and Themes	3	Rhet. 2—Rhetoric and Themes	3
Journ. 1—Introduction	1	Journ. 2—Introduction	1
History	3 or 4	History	3 or 4
English 10—Introduction—or History	3–4	English 11—Introduction—or History	3–4
Foreign Language[3]	4	Foreign Language[3]	4
Total	16 or 17	Total	16 or 17

SECOND YEAR

Military Drill and Theory	1	Military Drill and Theory	1
Phys. Ed.	½	Phys. Ed.	½
Journ. 5—Reporting	3	Journ. 6—Reporting	3
Journ. 9a—Printing and Publishing	2	Journ. 9b—Printing and Publishing	2
Accountancy 1a	3	Pub. Spk. 1—Principles	3
History, Pol. Sci., or Economics	3	Zoology or Botany	5
Physics, Chemistry, or Geology	5	Electives	3
Total	17½	Total	17½

[1]Semester hours. For definition, see page 75.

[2]Electives recommended are: Accy. 1a, 1b; History 1a, 1b, or 2a, 2b; Zoology 1, 2; Economics 22, 27. Botany, physiology and additional courses in chemistry are *not* accepted.

[3]High School credit may reduce these requirements; reading knowledge of one foreign language required.

XI. HEADQUARTERS OF DEPARTMENTS

The headquarters of the different departments, where the heads or their representatives may be consulted during the registration period, are as follows:

Adm.—Administration Building; Chem.—Chemistry Building; Com.—Commerce Building; L. H.—Lincoln Hall; Math.—Mathematics Building; N. H.—Natural History Hall; P. L.—Physics Laboratory; U. H.—University Hall; W. B.—Woman's Building.

Astronomy	Observatory
Bacteriology	362 Chem.
Botany	308 N. H.
Chemistry	102 Chem.
Economics	226 Com.
Education	104 Adm.
English	324 U. H.
Entomology	303 Entom.
French	309 U. H.
Geology	232 N. H.
German	217 L. H., 210 U. H.
Greek	126 L. H.
History	315 L. H., 414 U. H.
Home Economics	109 W. B.
Italian	309 U. H.
Journalism	101 U. H.
Latin	126 L. H.
Mathematics	251 Math.
Philosophy	119 L. H.
Physics	203 P. L.
Physiology	414 N. H.
Political Science	208 Entom.
Psychology	402 U. H.
Rhetoric	324 U. H.
Scandinavian	209 L. H.
Sociology	314 L. H.
Spanish	309 U. H.
Zoology	322 N. H.

THE COLLEGE OF COMMERCE AND BUSINESS ADMINISTRATION

DIRECTIONS FOR REGISTRATION

1. Commerce students should read the headings of the paragraphs numbered 1-23 of the General Directions for Registration on pages 6-10 of this Announcement and follow those which apply to them.

2. *Freshmen* who have received a permit to register will obtain their study-lists at the table in the lobby on the first floor of the Commerce Building.

3. *Freshmen* who have not received a permit to register should report at the Registrar's Office, 100-A Administration Building.

4. *Former Commerce students* who were in attendance the second semester of 1930-31 and are in good standing will obtain their study-lists at the table in the lobby on the first floor of the Commerce Building.

5. Students not in attendance last semester, not in good standing, transferring from other colleges within the University, etc., should follow the general directions referred to in paragraph 1 above.

6. Having secured his study-list, the student should follow, *point by point,* the directions on the first coupon. Assignment of Commerce students to *registration advisers* will be made in the lobby of the Commerce Building.

7. Each student must secure the approval of his Registration Officer for the studies he has chosen. *This approval must be stamped on the study-list.* Each student must then report first to the Library to secure approval of sections in sectional courses, and afterwards to the Auditorium to make out class cards, and to pay fees.

REQUIREMENTS FOR GRADUATION

Students who complete a curriculum in the College of Commerce and Business Administration are awarded the degree of Bachelor of Science. The requirements for graduation are as follows:

1. *University Requirements.* A candidate must comply with the University requirements as to residence and registration, and secure credit amounting to 130 hours, including credit in the following subjects prescribed by general University regulations for all students: *Rhetoric 1-2,* 6 hours for both men and women; *Physical Education* and *Hygiene 1* and *3,* 3 hours for men; *Physical Education* and *Hygiene 2,* 5 hours for women; and *Military Science,* 4 semesters, 4 hours for men. Men who elect the Reserve Officers' Training Corps must also take *Military Science,* 4 additional semesters, 6 hours.

2. *Prescribed Subjects.* A candidate must also secure credit in the other subjects listed as *prescribed* in his chosen curriculum.

(*Note:* If a prescribed course is not offered or is unavailable for other reasons, arrangements must be made with the dean of the college for acceptable substitutes.)

3. *Language Group.* Of the electives allowed, in all curricula, at least 8 hours must be either in English literature or in a foreign language, but prescribed courses in either of these subjects may be counted in meeting this requirement. *To secure any credit in a beginning course in any foreign language, a full year's work must be completed.*

4. *Social Science Group.* Twelve hours of the electives allowed must be chosen from the following group of subjects: *history, political science, philosophy, psychology,* and *sociology,* provided that *not fewer than six hours in any one subject may be counted in fulfilling this requirement;* but prescribed courses in any of these subjects may be counted in meeting the requirement.

This requirement (4) applies to Curricula in:

General Business
Banking and Finance
Insurance
Accountancy
General Railway Administration
Commerce and Law
Trade and Civic Secretarial Service

This requirement (4) does *not* apply to Curricula in:

Railway Transportation
Commercial Teaching
Foreign Commerce
Industrial Administration
Public Utilities

5. *Science Group.* In all curricula *ten hours* of the electives allowed must be chosen from the following groups of subjects: *chemistry, mathematics* (except Math. 22 and 23), and *physics,* provided that *not fewer than 5 hours* in any *one subject may be counted in fulfilling this requirement;* but prescribed courses in any of these subjects may be counted.

6. *Free Electives Group.* Free electives sufficient to make the 130 hours required for graduation may be selected from any department in the College of Commerce, the College of Liberal Arts and Sciences, or the Library School. *All other electives must have the approval of the dean of the college at the time of registration.*

7. *Laboratory Science.* In any curriculum in which fewer than fifteen hours of laboratory science are required, a student who enters without at least one unit of laboratory science shall be required to substitute five hours of a laboratory science for five hours of free electives in the requirements for graduation.

THE CURRICULA

The curricula in Commerce and Business Administration are: general business, trade and civic secretarial service, banking and finance, insurance, accountancy, general railway administration, railway transportation, commercial teaching, foreign commerce, industrial administration, public utilities, and commerce and law. The subjects prescribed for graduation in each curriculum are listed in the following outlines. These subjects are in general arranged in sequence and should be taken in the order given.

Prerequisites are indicated in parentheses.

In addition to the prescribed subjects sufficient electives must be taken each semester to make up a minimum of 15 hours, but not to exceed a maximum of 18 hours of work. In choosing electives the attention of students is called to provisions 3, 4, and 5 of the above statement of the requirements for graduation. It is required that a sufficient number of hours from the subjects enumerated in groups 3 and 5 above be taken during each semester of the first two years to make up, together with the prescribed subjects, a schedule of not fewer than 15 hours. Attention is called to the fact that some elementary courses carry only part credit for seniors.

General Business Curriculum

FIRST YEAR

FIRST SEMESTER *Required Subjects*	Hours[1]	SECOND SEMESTER *Required Subjects*	Hours[1]
Accy. 1a or 1e—Principles of Accounting[2]	3–2	Accy. 1b (Accy. 1a or 1e)—Accounting Procedure	3
Econ. 22—Economic History of U. S.	3	Econ. 27—Modern Industry	3
Rhet. 1—Rhetoric and Themes	3	Rhet. 2 (Rhet. 1)—Rhetoric and Themes	3
Military Drill and Theory	1	Military Drill and Theory	1
Phys. Ed.—Gymnasium	½	Phys. Ed.—Gymnasium	½
Hyg. 1—Hygiene (men)	½	Hyg. 3	½
Electives	4–8	Electives	4–7
Total	15–18	Total	15–18

[1]Semester hours. For definition, see page 75.

[2]Those students who offer one unit of bookkeeping for entrance credit should take Accy. 1e instead of 1a.

FIRST SEMESTER

Suggested Electives

	Hours[1]
Foreign Language	4
Chem. 1 (no high-school chem.)	5
Chem. 2 (1 unit ent. credit in chem.)	3
Math. 3 (1 unit entrance algebra) (1 unit entrance geometry)	5
Math. 1a (1½ units entrance algebra) (1 unit entrance geometry)	5
Math. 2 (1½ units entrance algebra) (1 unit entrance geometry) *and*	3
Math. 4 (1 unit entrance algebra) (1 unit entrance geometry)	2

SECOND SEMESTER

Suggested Electives

	Hours[1]
Foreign Language (continued)	4
Chem. 6 (Chem. 1 or 2)	5
Math. 1b (Math. 1a)	5
Math. 6 (Math. 2 or 3, and 4)	5
Math. 4 (see first semester)	
Hist. 1b—European	4
Hist. 2b—English	3

SECOND YEAR

Required Subjects

Accy. 2a (Accy. 1b, Registration in Econ. 1)—Element. Cost Accounting	3
Econ. 1 (30 hours)—Principles of Economics	5
Military Drill and Theory	1
Physical Education	½
Electives	5½–8½
Total	15–18

Required Subjects

Accy. 2b (Accy. 2a)—Intermediate Accounting	3
B. O. and O. 1 (Econ. 1, or 2; 45 credit hours)	3
Econ. 3 (Econ. 1 or 2)	3
Rhet. 10 (Rhet. 2)—Business Letters	2
Military Drill and Theory	1
Physical Education	½
Electives	2½–5½
Total	15–18

Suggested Electives

Foreign Language	4
Phys. 7a and 8a (Math. 4)	5
Engl. 1 (30 hours)	3
Pol. Sci. 1 (30 hours)—Nat'l Gov't	3
Philos. 1 (30 hours)—Logic	3
Psych. 1 (30 hours)	4
Hist. 3a (30 hours)—U. S.	3

Suggested Electives

Foreign Language (continued)	4
Phys. 7b and 8b (Phys. 7a and 8a)	5
Engl. 2 (Engl. 1)	3
Pol. Sci. 3 (30 hours)—State Gov't	3
Philos. 2 (30 hours)—Introd. to Philos.	3
Psych. 2 (Psych. 1)	4
Hist. 3b (30 hours)—U. S.	3

THIRD YEAR

Required Subjects

Bus. Law 1a (Accy. 1b and Econ. 1 or 2; Junior)	3
B. O. and O. 2 (Econ. 1 or 2, Junior)	3
Trans. 1 (Econ. 1 or 2, Junior)	3
Electives	6–9
Total	15–18

Required Subjects

Bus. Law 1b (Bus. Law 1a)	3
Econ. 10 (Econ. 1 or 2, 3, and Accy. 1b)	3
Electives	9–12
Total	15–18

Electives for the third and fourth years may be selected from the electives suggested for prior years, but not yet taken, or from other courses where the prerequisites permit, but preferably from those in Economics, Accounting, Business Organization and Operation, and Transportation. (See paragraph 6 of graduation requirements.)

FOURTH YEAR

FIRST SEMESTER

	Hours[1]
B. O. and O. 7 or 8 (B. O. and O. 2)	2–3
Economics (any advanced course open to advanced undergraduates and graduates)	3
Electives	9–13
Total	15–18

SECOND SEMESTER

	Hours[1]
B. O. and O. 7 or 8 (B. O. and O. 2)	2–3
Economics (any advanced course open to advanced undergraduates and graduates)	3
Electives	9–13
Total	15–18

Curriculum in Accountancy

FIRST YEAR

FIRST SEMESTER

	Hours[1]
Math. 1a—Introd. to Coll. Math.	5
or	
Math. 2 or 3—Algebra	3 or 5

SECOND SEMESTER

Hours[1]

Otherwise same as General Business.

[1]Semester hours. For definition, see page 75.

SECOND YEAR

Same as General Business.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Accy. 3a (Accy. 2b, Econ. 3, and average "C" in Accy.)	3	Accy. 3b (Accy. 3a)	3
B. O. and O. 2 (Econ. 1 or 2, Junior)	3	Econ. 10 (Econ. 1 or 2, 3, and Accy. 1b)	3
Electives	9–12	Math. 23 (Math. 2 or 3, or 1a, Junior)	3
		Electives	6–9
Total	15–18	Total	15–18

FOURTH YEAR

Accy. 5a (Accy. 3b)—Problems	3	Accy. 5b (Accy. 5a)—Problems	3
Accy. 4a (Accy. 2b)—Costs	2	Accy. 4b (Accy. 2b, Econ. 3)—Systems	2
Econ. 11 (Econ. 10)—Consolidations	3	Accy. 20 (Accy. 3b, Senior)—Tax	2
Bus. Law 1a (Econ. 1 or 2, Accy. 1b, Junior)	3	Bus. Law 1b (Bus. Law 1a)	3
Electives	4–7	Electives	5–8
Total	15–18	Total	15–18

Curriculum in Banking and Finance

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Math. 1a—Introd. to Coll. Math.	5		
or			
Math. 2 or 3—Algebra	3 or 5		

Otherwise same as General Business.

SECOND YEAR

Same as General Business.

THIRD YEAR

B. O. and O. 2 (Econ. 1 or 2, Junior)	3	Bus. Law 1b (Bus. Law 1a)	3
Bus. Law 1a (Econ. 1 or 2, Accy. 1b, Junior)	3	Econ. 10 (Econ. 1 or 2, 3, and Accy. 1b)	3
Econ. 51 (Econ. 1 or 2, Junior)	3	Math. 23 (Math. 2 or 3, or 1a, Junior)	3
Electives	6–9	Electives	6–9
Total	15–18	Total	15–18

FOURTH YEAR

Econ. 9 (Econ. 1 or 2 and 3, Senior)	3	Econ. 8 (Econ. 1 or 2 and 3, Senior)	3
Bus. Law 10 (Registration or credit in Bus. Law 1b, Senior)	3	Econ. 36 (Econ. 10, Senior)	3
Electives	9–12	Electives	9–12
Total	15–18	Total	15–18

Curriculum for Trade and Civic Secretarial Service

FIRST YEAR

Same as General Business.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Pol. Sci. 1 (30 hours)—Nat'l Gov't.	3	Psych. 2 (Psych. 1)	4
Psych. 1 (30 hours)—Principles	4		

Otherwise same as General Business.

[1]Semester hours. For definition, see page 75.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
B. O. and O. 2 (Econ. 1 or 2, Junior)	3	Econ. 10 (Econ. 1 or 2, 3, and Accy. 1b)	3
Pol. Sci. 4 (Junior)—Municipal	3	Electives	12–15
Sociol. 8 (Soc. 1 and 2 or 4 and Econ. 1 or 5 hours of Hist.)—Charities	3		
Trans. 1 (Econ. 1 or 2, Junior)	3		
Electives	3–6		
Total	15–18	Total	15–18

FOURTH YEAR

Bus. Law 1a (Econ. 1 or 2, Accy. 1b, Junior)	3	Bus. Law 1b (Bus. Law 1a)	3
Econ. (Junior or Senior courses)	3	B. O. and O. 8 (B. O. and O. 2)	3
Land. Arch. 71 (Senior)—City Planning	2	Land. Arch. 72 (Land. Arch. 71)—City Planning	2
Electives	7–10	B. O. and O. 9 (B. O. and O. 2, Senior)	2
		Electives	5–8
Total	15–18	Total	15–18

Curriculum in Insurance

FIRST YEAR

FIRST SEMESTER *Required Subjects*	Hours[1]	SECOND SEMESTER *Required Subjects*	Hours[1]
Math. 1a—Introd. to Coll. Math.	5	Math. 1b—Introd. to Coll. Math.	5
or		*or*	
Math. 2 or 3—Algebra	3 or 5	Math. 6 (Math. 2 and 4)—Analytics	5
and			
Math. 4—Trigonometry	2		

Otherwise same as General Business.

SECOND YEAR

Math. 8a (Math. 6 or 1b)—Calculus	3	Math. 8b (Math. 8a)—Calculus	3

Otherwise same as General Business.

THIRD YEAR

Bus. Law 1a (Econ. 1 or 2, Accy. 1b, Junior)	3	Bus. Law 1b (Bus. Law 1a)	3
B. O. and O. 2 (Econ. 1 or 2, Junior)	3	Econ. 10 (Econ. 1 or 2, 3, and Accy. 1b)	3
Econ. 51 (Econ. 1 or 2, Junior)	3	Math. 23 (Math. 2 or 3, or 1a, Junior)	3
Electives	6–9	Electives	6–9
Total	15–18	Total	15–18

FOURTH YEAR

B. O. and O. 7 or 8 (B. O. and O. 2)	2–3	B. O. and O. 7 or 8 (B. O. and O. 2)	2–3
Econ. 55 (Econ. 1 or 2)—Insurance	3	Econ. 56 (Econ. 1 or 2)—Property Insurance	3
Math. 30 (Math. 7 and 9 or 8a and 8b)	3	Math. 31 (Math. 30)	3
Electives	6–10	Electives	6–10
Total	15–18	Total	15–18

Curriculum in Foreign Commerce

FIRST YEAR

FIRST SEMESTER *Required Subjects*	Hours[1]	SECOND SEMESTER *Required Subjects*	Hours[1]
Foreign Language	4	Foreign Language	4

Otherwise same as General Business.

SECOND YEAR

Foreign Language	3–4	Foreign Language	3–4

Otherwise same as General Business.

[1]Semester hours. For definition, see page 75.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Bus. Law 1a (Econ. 1 or 2, Accy. 1b, Junior)	3	Bus. Law 1b (Bus. Law 1a)	3
Econ. 31 (Econ. 1 or 2, Junior)—Foreign Commerce	3	Econ. 30 (Econ. 1 or 2, Junior)—World Markets	3
Foreign Language	2 or 3	Foreign Language	2 or 3
Trans. 1 (Econ. 1 or 2, Junior)	3	Electives	6–10
Electives	3–7		
Total	15–18	Total	15–18

FOURTH YEAR

Pol. Sci. 6a (Senior)—Internat'l Law	3	Econ. 8 (Econ. 1 or 2 and 3, Senior)	3
Trans. 22 (Trans. 1)—Ocean Shipping	3	Econ. 24 (Econ. 1 or 2, Junior)	3
Electives	9–12	Electives	9–12
Total	15–18	Total	15–18

Curriculum for Commercial Teaching

FIRST YEAR

FIRST SEMESTER *Required Subjects*	Hours[1]	SECOND SEMESTER *Required Subjects*	Hours[1]
Foreign Language	4	Foreign Language	4

Otherwise same as General Business.

SECOND YEAR

Psych. 1 (30 hours)	4	Psych. 2 (Psych. 1)	4

Otherwise same as General Business.

THIRD YEAR

Bus. Law 1a (Econ. 1 or 2, Accy. 1b, Junior)	3	Bus. Law 1b (Bus. Law 1a)	3
B. O. and O. 2 (Econ. 1 or 2, Junior)	3	Econ. 10 (Econ. 1 or 2, 3, and Accy. 1b)	3
Educ. 25 (Psych. 1)—Educ. Psych.	3	Pol. Sci. 3 (30 hours)—State	3
Pol. Sci. 1 (30 hours)—National	3	Educ. 10 (Educ. 25)—Technic	3
Trans. 1 (Econ. 1 or 2, Junior)	3	Electives	3–6
Electives	0–3		
Total	15–18	Total	15–18

FOURTH YEAR

B. O. and O. 7 or 8 (B. O. and O. 2)	2–3	B. O. and O. 7 or 8 (B. O. and O. 2)	2–3
Educ. 6 (Educ. 10 and 25)—Principles	3	Econ. 29[2] (Econ. 1 or 2, Junior)	3
Econ. 31[2] (Econ. 1 or 2, Junior)	3	Educ. (Electives)	6
Electives	6–10	Electives	3–7
Total	15–18	Total	15–18

Curriculum in General Railway Administration

FIRST YEAR

FIRST SEMESTER *Required Subjects*	Hours[1]	SECOND SEMESTER *Required Subjects*	Hours[1]
Math. 1a—Introd. to Coll. Math.	5	Math. 1b—Introd. to Coll. Math.	5
or		*or*	
Math. 2 or 3—Algebra	3 or 5	Math. 6 (Math. 2 and 4)—Analytics	5
and			
Math. 4—Trigonometry	2		

Otherwise same as General Business.

[1]Semester hours. For definition, see page 75.
[2]Only one of these two courses is required.

SECOND YEAR

Same as General Business.

THIRD YEAR

FIRST SEMESTER	Hours[1]
Bus. Law 1a (Accy. 1b, Econ. 1 or 2, Junior)	3
Trans. 1 (Econ. 1 or 2, Junior)	3
Electives	9–12
Total	15–18

SECOND SEMESTER	Hours[1]
Bus. Law 1b (Bus. Law 1a)	3
Econ. 10 (Econ. 1 or 2, 3, and Accy. 1b)	3
Trans. 2 (Trans. 1)	3
Electives	6–9
Total	15–18

FOURTH YEAR

Trans. 22 (Trans. 1)	3
Trans. 7 (Trans. 1)	3
Econ. 41 (Econ. 1 or 2, Junior)	3
Trans. 8 (Trans. 1, Junior)	2
Electives	4–7
Total	15–18

Trans. 16 (Trans. 1, Senior)	3
Econ. 42 (Econ. 1 or 2, Junior)	3
Trans. 26 (Trans. 1)	3
Electives	6–9
Total	15–18

Curriculum in Railway Transportation

FIRST YEAR

FIRST SEMESTER	Hours[1]
Accy. 1a or 1e—Principles of Accounting[2]	3–2
G. E. D. 1—Drawing	4
Math. 1a—Introd. to Coll. Math.	5
or	
Math. 2 (1½ units entrance, etc.)	3
and	
Math. 4 (1½ units entrance, etc.)	2
Rhet. 1—Rhetoric and Themes	3
Military Drill and Theory	1
Phys. Ed.—Gymnasium	½
Hyg. 1—Hygiene (men)	½
Electives	0–2
Total	16–18

SECOND SEMESTER	Hours[1]
Accy. 1b (Accy. 1a or 1e)—Accounting Procedure	3
G. E. D. 2 (G. E. D. 1)	4
Rhet. 2 (Rhet. 1)	3
Math. 1b—Introd. to Coll. Math.	5
or	
Math. 6 (Math. 2 and 4)	5
Military Drill and Theory	1
Phys. Ed.—Gymnasium	½
Hyg. 3	½
Electives	0–1
Total	17–18

SECOND YEAR

Econ. 1 (30 hours)—Principles	5
Math. 8a (Math. 6 or 1b)	3
Rhet. 10 (Rhet. 2)—Business Letters	2
Phys. 1a (Freshman math.)	3
Phys. 3a (Freshman math.)	2
Military Drill and Theory	1
Physical Education	½
Electives	0–1½
Total	16½–18

Econ. 3 (Econ. 1 or 2; 45 credit hours)	3
Phys. 1b (Phys. 1a)	3
Phys. 3b (Phys. 3a; 45 credit hours)	2
Math. 8b (Math. 8a)	3
B. O. and O. 1 (Econ. 1 or 2; 45 credit hours)	3
T. A. M. 1 (Math. 8a and reg. in 8b)	2
Military Drill and Theory	1
Physical Education	½
Electives	0–1½
Total	17½–18

THIRD YEAR

Bus. Law 1a (Econ. 1 or 2, Accy. 1b, Junior)	3
Trans. 1 (Econ. 1 or 2, Junior)	3
Econ. 41 (Econ. 1 or 2, Junior)	3
Electives	6–9
Total	15–18

Bus. Law 1b (Bus. Law 1a)	3
C. E. 16 (Math. 4, G. E. D. 1 or 4)	2
Econ. 10 (Econ. 1 or 2, 3, and Accy. 1b)	3
or	
Econ. 42 (Econ. 1 or 2, Junior)	3
M. E. 2 (Physics 1 and 3, Math. 9 or 8b)	3
Trans. 2 (Trans. 1)	3
Electives	1–4
Total	15–18

[1]Semester hours. For definition, see page 75.
[2]Those students who offer one unit of bookkeeping for entrance credit should take Accy. 1e instead of 1a.

FOURTH YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Trans. 7 (Trans. 1)	3	Trans. 16 (Trans. 1, Senior)	3
Trans. 22 (Trans. 1)	3	E. E. 12 (E. E. 11 and 61, reg. in 62)	3
E. E. 11 (Physics 1 and 3, Math. 8b or 9)	3	E. E. 62 (E. E. 11 and 61, reg. in 12)	1
E. E. 61 (Reg. in E. E. 11)	1	Trans. 26 (Trans. 1)	3
M. E. 61 (M. E. 1, 2, or 3)	2	Electives	5–8
Trans. 8 (Trans. 1, Junior)	2		
Electives	1–4		
Total	15–18	Total	15–18

Curriculum in Public Utilities

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Accy. 1a or 1e—Principles of Accounting[2]	3–2	Accy. 1b (Accy. 1a or 1e)—Accounting Procedure	3
Math. 2—Advanced Algebra	3	Econ. 27—Modern Industry	3
Econ. 22—Economic History of the United States	3	Math. 4—Trigonometry	2
Rhet. 1—Rhetoric and Themes	3	Rhet. 2 (Rhet. 1)—Rhetoric and Themes	3
Military Drill and Theory	1	Military Drill and Theory	1
Phys. Ed.—Gymnasium	½	Phys. Ed.—Gymnasium	½
Hyg. 1	½	Hyg. 3	½
Electives	1–5	Electives	2–5
Total	15–18	Total	15–18

SECOND YEAR

Accy. 2a (Accy. 1b, registration in Econ. 1)—Elem. Cost Accounting	3	Accy. 2b (Accy. 2a)—Intermediate Accounting	3
Econ. 1 (30 hours)—Principles of Economics	5	Econ. 3 (Econ. 1 or 2)—Money and Banking	3
Phys. 7a (Math. 4 or registration therein; reg. in Phys. 8a)—General Phys.	2½	B. O. and O. 1 (Econ. 1 or 2; 45 credit hours)—Industrial Organization and Management	3
Phys. 8a (registration in Phys. 7a)—Laboratory	2½	Phys. 7b (Phys. 7a)—General Physics	2½
Military Drill and Theory	1	Phys. 8b (Phys. 8a)—Laboratory	2½
Physical Education	½	Military Drill and Theory	1
Electives	½–3½	Physical Education	½
		Electives	0–2½
Total	15–18	Total	15½–18

THIRD YEAR

B. O. and O. 2 (Econ. 1 or 2, Junior)—Marketing Org. and Operation	3	Bus. Law 1b (Bus. Law 1a)—General Principles of Business Law	3
Bus. Law 1a (Accy. 1b, Econ. 1 or 2, Junior)—Gen'l Principles of Bus. Law	3	Econ. 10 (Econ. 1 or 2, 3, and Accy. 1b)—Corporation Manag'm't and Finance	3
Trans. 1 (Econ. 1 or 2, Junior)—Principles of Railroad Transportation	3	Rhet. 10 (Rhet. 2)—Business Letters	2
Pol. Sci. 1 (30 hours)—American National Government	3	Pol. Sci. 3 (30 hours)—State and Local Government	3
Econ. 81 (Econ. 1 and 3)—Principles of Public Utilities	3	B. O. and O. 70 (Econ. 81)—Operation of Public Utilities	3
Electives	0–3	Electives	1–4
Total	15–18	Total	15–18

FOURTH YEAR

Pol. Sci. 4 (Junior)—Municipal Gov't	3	Pol. Sci. 34 (Econ. 1 or Pol. Sci. 4)—Municipal Problems	3
Econ. 51 (Econ. 1 or 2, Junior)—Public Finance	3	Econ. 43 (Econ. 1 or 2, Junior)—Personnel Administration	3
Econ. 41 (Econ. 1 or 2, Junior)—Labor Problems	3	Econ. 82 (Econ. 1 or 2, 3, 81)—Regulation of Public Utilities Service	3
B. O. and O. 75 (B. O. and O. 70, Accy. 2a)—Public Utilities Management	3	Econ. 83 (Econ. 81)—Theory and Practice of Rate Making	3
Pol. Sci. 11 (6 hrs. Pol. Sci. or Econ., Junior)—Constitutional Aspects of Social and Industrial Problems	3	Electives	3–6
Electives	0–3		
Total	15–18	Total	15–18

[1]Semester hours. For definition, see page 75.

[2]Those students who offer one unit of bookkeeping for entrance credit should take Accy. 1e instead of 1a.

Curriculum in Industrial Administration

The following curriculum is intended to meet the needs of commerce students planning to enter the administrative or selling departments of industrial plants. To the usual courses in economics, accounting, etc., are added certain groups of technical courses offered by other colleges of the University. Four such groups have been arranged, as follows: Group A, for those interested in the machine industries; Group B, the electrical industries; Group C, the building trades; Group D, the chemical industries. The student who elects one of these groups must take all the courses listed in the chosen group. The student electing the chemical industries group is required to take *Economics 27* and *Economics 22* instead of *General Engineering Drawing 1* and *2* in the first year; and *Chemistry 1* or *2* and *Chemistry 6* instead of *Theoretical and Applied Mechanics 1* and *Rhetoric 10 in the second year; Rhetoric 10* is deferred until the third year; *he should see the assistant dean of the college to plan his program for each of the eight semesters.*

One year of foreign language or English literature must be included among the electives. For Group D, German is desirable.

FIRST YEAR

FIRST SEMESTER	Hours[1]
Accy. 1a or 1e—Principles of Accounting[2]	3–2
G. E. D. 1 or 4—Drawing	4
Math. 1a—Introd. to Coll. Math.	5
or	
Math. 2—Algebra	3
and	
Math. 4—Trigonometry	2
Rhet. 1—Rhetoric and Themes	3
Military Drill and Theory	1
Phys. Ed.—Gymnasium	½
Hyg. 1—Hygiene (men)	½
Electives	0–2
Total	16–18

SECOND SEMESTER	Hours[1]
Accy. 1b (Accy. 1a or 1e)—Accounting Procedure	3
G. E. D. 2 (Solid)—Descriptive Geom.	4
Math. 1b—Introd. to Coll. Math.	5
or	
Math. 6 (Math. 2 and 4)—Analytics	5
Rhet. 2 (Rhet. 1)—Rhetoric and Themes	3
Military Drill and Theory	1
Phys. Ed.—Gymnasium	½
Hyg. 3	½
Electives	0–1
Total	17–18

SECOND YEAR

Econ. 1 (30 hours)—Principles	5
Math. 8a (Math. 6 or 1b)	3
Phys. 1a (Math. 2 and 4, registration in Math. 6 and Physics 3a)	3
Phys. 3a (Reg. in Phys. 1a)	2
Accy. 2a (Accy. 1b, reg. in Econ. 1)	3
Military Drill and Theory	1
Physical Education	½
Electives	0–½
Total	17½–18

Econ. 3 (Econ. 1 or 2)	3
Math. 8b (Math. 8a)	3
Phys. 1b (Phys. 1a)	3
Phys. 3b (Phys. 3a)	2
T. A. M. 1 (Math. 8a, reg. in 8b)	2
B. O. and O. 1 (Econ. 1 or 2, 45 credit hours)	3
Military Drill and Theory	1
Physical Education	½
Electives	0–½
Total	17½–18

THIRD YEAR

B. O. and O. 2 (Econ. 1 or 2, Junior)	3
Bus. Law 1a (Accy. 1b, Econ. 1 or 2, Junior)	3
Trans. 1 (Econ. 1 or 2, Junior)	3
Prescribed Technical Courses, Group A, B, C, or D	6–2
Electives	0–7
Total	15–18

Bus. Law 1b (Bus. Law 1a)	3
Rhet. 10 (Rhet. 2)	2
Prescribed Technical Courses, Group A, B, C, or D	6–2
Electives	4–11
Total	15–18

[1]Semester hours. For definition, see page 75.

[2]Those students who offer one unit of bookkeeping for entrance credit should take Accy. 1e instead of 1a.

FOURTH YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
B. O. and O. 7 or 8 (B. O. and O. 2)	2–3	B. O. and O. 7 or 8 (B. O. and O. 2)	2–3
B. O. and O. 4[2] (B. O. and O. 1)	3	Econ. 43 (Econ. 1 or 2, Junior)	3
Prescribed Technical Courses, Group A, B, C, or D	7–3	Econ. 10 (Econ. 1 or 2, 3, and Accy. 1b)	3
Electives	2–10	Prescribed Technical Courses, Group A, B, C, or D	9–2
		Electives	0–8
Total	15–18	Total	15–18

Optional Groups of Technical Courses

Group A—Machine Industries:

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
M. E. 85 (Soph.)—Pattern and Foundry Laboratory	3	M. E. 87—Machine Laboratory (M. E. 85)	3
T. A. M. 2 (T. A. M. 1)	3	M. E. 2 (Phys. 1 and 3, Math. 8b)—Steam Engineering	3

FOURTH YEAR

M. E. 61 (M. E. 1 or 2 or 3)	2	M. E. 88 (M. E. 87)—Machine Laboratory	3
E. E. 11 (Phys. 1 and 3, Math. 8b or 9)	3	E. E. 12 (E. E. 11 and 61 and reg. in 62)	3
E. E. 61 (Reg. in E. E. 11)	1	E. E. 62 (E. E. 11 and 61 and reg. in E. E. 12)	1

Group B—Electrical Industries:

THIRD YEAR

T. A. M. 2 (T. A. M. 1)	3	M. E. 2 (Phys. 1 and 3, Math 8b)	3

FOURTH YEAR

M. E. 61 (M. E. 1 or 2 or 3)	2	E. E. 12 (E. E. 11 and 61, and reg. in 62)	3
E. E. 11 (Phys. 1 and 3, Math. 8b or 9)	3	E. E. 62 (E. E. 11 and 61 and reg. in E. E. 12)	1
E. E. 61 (Reg. in E. E. 11)	1		
E. E. 90 (Phys. 1 and 3; Junior)—Lighting	1		

Group C—Building Trades:

THIRD YEAR

A. E. 43 (G. E. D. 1, 2)	2	T. A. M. 3 (T. A. M. 1)	3
T. A. M. 2 (T. A. M. 1)	3	T. A. M. 63 (Reg. in T. A. M. 3)	1
T. A. M. 4—Hydraulics	2	A. E. 44 (A. E. 43)	2
T. A. M. 64—Hydraulics Laboratory	1		

FOURTH YEAR

A. E. 45 (T. A. M. 1, reg. or credit in T. A. M. 3 and 63)	3	C. E. 16 (Math. 4, G. E. D. 1 or 4)	2

Group D—Chemical Industries:

THIRD YEAR

Chem. 10 (Chem. 6)	5	Chem. 24 (Chem. 5 or 10 or 4)	5

FOURTH YEAR

Chem. 34a (Chem. 6, 10, and 24)	5	Chem. 92b—Chem. Literature	1
Chem. 92a—Chem. Literature	1	Chem. 42b (Chem. 40)	3
Chem. 40 (Chem. 24, Phys. 1b or 7b, Math. 7 or 8)	3	Chem. 43b (Chem. 40 and 41; registration in 42b)	1
Chem. 41 (Chem. 24, Phys. 1b or 7b, Math. 7 or 8)	1		
Chem. 60a—Chem. Technology	4		

[1]Semester hours. For definition, see page 75.

[2]B. O. and O. 4—Management in Manufacturing—is not required for students pursuing Group C of the Curriculum (Building Trades).

Curriculum in Commerce and Law

(A six-year combined curriculum.)

The following curriculum is provided for students who wish to combine commercial and legal studies and secure both the degree of Bachelor of Science and the degree of Bachelor of Laws or Doctor of Law in six years. Students who elect this curriculum must meet all the requirements for graduation from the College of Commerce and Business Administration, but in exercising their privileges of election are urged to select as many hours as possible from the following subjects: *Hist. 2a-2b,* English History (6); *Econ. 25,* Economic History of England (3); *Hist. 3a-3b,* United States History (6); *Hist. 44a-44b,* English Constitutional History (6); *Pol. Sci. 1,* American Government (3); and *Pol. Sci. 3,* State and Local Government (3). Students expecting to study law should devote at least 12 hours to work in history and political science. A course in English history is regarded as one of the most essential pre-legal subjects. The law courses in the curriculum may be taken only in the fourth year, and are counted for 30 hours' credit towards the degree, instead of hour for hour, provided the full year's work is completed. In their fourth year students will be regularly registered in the College of Law, and *must file copies of their study-lists in the office of the Dean of the College of Commerce and Business Administration at the beginning of each semester.*

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Accy. 1a or 1e—Principles of Accounting[2]	3–2	Accy. 1b (Accy. 1a or 1e)—Accounting Procedure	3
Rhet. 1—Rhetoric and Themes	3	Econ. 27—Economic Resources	3
Econ. 22—Economic Hist. of the U. S.	3	Rhet. 2 (Rhet. 1)—Rhetoric and Themes	3
Military Drill and Theory	1	Military Drill and Theory	1
Phys. Ed.—Gymnasium	½	Phys. Ed.—Gymnasium	½
Hyg. 1—Hygiene (men)	½	Hygiene 3	½
Electives	4–8	Electives	4–7
Total	15–18	Total	15–18

SECOND YEAR

Accy. 2a (Accy. 1b, registration in Econ. 1)—Elementary Cost Accounting	3	Accy. 2b (Accy. 2a)—Intermediate Accounting	3
Econ. 1 (30 hours)—Principles of Economics	5	Econ. 3 (Econ. 1 or 2)—Money and Banking	3
Rhet. 10 (Rhet. 2)—Business Letters	2	Philos. 1 (30 hours)—Logic	3
Military Drill and Theory	1	B. O. and O. 1 (Econ. 1 or 2; 45 credit hours)	3
Physical Education	½	Military Drill and Theory	1
Electives	3½–6½	Physical Education	½
		Electives	1½–4½
Total	15–18	Total	15–18

THIRD YEAR

B. O. and O. 2 (Econ. 1 or 2, Junior)	3	Econ. 10 (Econ. 1 or 2, 3, and Accy. 1b)—Corporation Finance	3
Econ. 51 (Econ. 1 or 2, Junior)—Public Finance	3	Electives	12–15
Electives	9–12		
Total	15–18	Total	15–18

FOURTH YEAR

(Prescribed)

Law 1a—Contracts	3	Law 1b—Contracts	3
Law 2a—Torts	4	Law 2b—Torts	2
Law 4—Procedure I	2	Law 11—Agency	3
Law 5—Criminal Law	3	Law 29—Real Property I	4
Law 3—Personal Property	3	Law 12—Equity I	3
Total	15	Total	15

[1]Semester hours. For definition, see page 75.

[2]Those students who offer one unit of hookkeeping for entrance credit should take Accy. 1e instead of 1a.

THE COLLEGE OF ENGINEERING

Engineering students should read the General Directions for Registration given in paragraphs 1-23 on pages 6-10. They should report for registration to Engineering Hall, where further special directions will be furnished them.

GENERAL ENGINEERING LECTURES FOR FRESHMEN

A general lecture sufficiently popular in character to interest and inspire young students will be given at 10 a.m. on Wednesday of each week in the Auditorium. All freshman students in engineering are required to attend this lecture.

TRIPS OF INSPECTION

An inspection trip is one of the regular requirements in the senior year of the curricula leading to the degree of Bachelor of Science in ceramics and ceramic engineering, civil engineering, electrical engineering, gas engineering, general engineering, mechanical engineering, mining engineering, and railway engineering.

The time required is three or four days, and the plants visited are usually in Chicago or Milwaukee. The trips are taken during term time under the supervision of the University authorities. The expense to each student varies from $25 to $35.

ELECTIVES AND OPTIONS

Non-technical electives.—The non-technical electives for students in the College of Engineering are subject to the following restrictions:

1. They are restricted to courses offered in the College of Liberal Arts and Sciences, the College of Commerce, courses 1 to 16 in the School of Music, Horticulture 37a and 37b, Architecture 11 and 12, and courses in Education, Group A, in the College of Education.
2. Such courses must not be open to freshman students except in the cases of Library Science 12, Mathematics 5, History 1a and 1b, 2a and 2b, Geography 1, Geology 1, Botany 1, and Zoology 1.
3. Students in the College of Engineering electing the third and fourth years' work in the Reserve Officers' Training Corps may substitute the credit thus received for the required non-technical electives.

Technical electives.—Any course in the College of Engineering not prescribed in the curriculum in which the student is registered, excepting only G. E. D. 1 and 2, and including such courses in other colleges as may from time to time be designated as "technical" for certain departments of the College of Engineering.

Approved electives.—Any non-technical or technical electives.

Technical Options.—Courses of a technical character designated by a department as "technical options" in its curricula.

REQUIREMENTS IN RHETORIC

Rhetoric 1 and 2 are prerequisites for junior standing in the College of Engineering, and no student in this College shall be permitted to register in more than eight hours of prescribed junior work without having passed or being registered in Rhetoric 1 or 2.

Any student whose written work shows that he is unable to use good English shall be reported by his instructor to a standing committee which has authority to direct the student to take as a prerequisite for graduation such additional instruction in rhetoric as it may prescribe.

REQUIREMENTS IN FOREIGN LANGUAGE

In curricula where the language requirement is specifically designated, as French or German, any student who has completed in high school one or more years of French or German and has had the same accredited to him as entrance credits by the Registrar, may be excused from language requirements specified in his curriculum to the extent that one year's high-school work shall be considered the equivalent of a semester's work in college, and he may select in lieu thereof any course falling under the designation of non-technical electives in the College of Engineering or technical electives and options outside the required courses in his curriculum. No fractional unit of high-school work may be considered in the application of this regulation. The full equivalent of the eight-hour (twelve in General Engineering) requirement in a single language must be obtained by each student in the fulfillment of graduation requirements in any curriculum where language is specified or in any curriculum in which the student elects to take foreign language.

CURRICULA IN ENGINEERING

Since the curricula in Ceramic, Civil, Electrical, Gas, General, Mechanical, Mining, Railway Engineering, and in Engineering Physics, are identical during the first year, the schedule of courses is printed but once, under Civil Engineering.

CURRICULA IN ARCHITECTURE AND ARCHITECTURAL ENGINEERING

Students who entered the curriculum in Architecture or Architectural Engineering prior to June 1, 1930, or who entered with sophomore standing or above in 1930-31, will finish the curricula as printed at the time of their admission.

Curriculum in Ceramics

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 2 or 3—Inorganic Chemistry	3 or 4	Chem. 6—Inorganic Chemistry	5
Math. 2—College Algebra	3	Math. 6a—Analytical Geometry	4
Math. 4 or 5—Trigonometry	2	French or German	4
French or German	4	Rhet. 2—Rhetoric and Themes	3
Rhet. 1—Rhetoric and Themes	3	Physical Education	½
Physical Education	½	Mil. 2a and 2b, 12a and 12b, 22a and 22b, or 32a and 32b—Military Drill and Theory	1
Hyg. 5—Hygiene (men)	2	Engineering Lecture	0
Mil. 1a and 1b, 11a and 11b, 21a and 21b, or 31a and 31b—Military Drill and Theory	1		
Engineering Lecture	0		
Total	18½ or 19½	Total	17½

SECOND YEAR

Cer. 1—Ceramic Materials	3	Cer. 4—Cer. Materials Lab.	3
Chem. 10—Qualitative Analysis	5	Chem. 24—Elementary Quantitative Analysis	5
Math. 8a—Differential Calculus	3	Math. 8b—Integral Calculus	3
Phys. 1a—Physics Lecture	3	Phys. 1b—Physics Lecture	3
Phys. 3a—Physics Laboratory	2	Phys. 3b—Physics Lab.	2
Physical Education	½	Physical Education	½
Mil. 3a and 3b, 13a and 13b, 23a and 23b, or 33a and 33b—Military Drill and Theory	1	Mil. 4a and 4b, 14a and 14b, 24a and 24b, or 34a and 34b—Military Drill and Theory	1
Total	17½	Total	17½

THIRD YEAR

Cer. 5—Ceramic Bodies	5	Cer. 11—Drying Clay Products	3
Cer. 7—Heavy Clay Products	3	Cer. 14—Glasses and Glazes	3
Cer. 21—Ceramic Pyrometry	1	Cer. 20—Refractories	2
Chem. 73a—Metallurgy	3	Chem. 40—Elementary Physical Chem.	3
Geol. 47—Systematic Mineralogy	3	Chem. 41—Elementary Physical Chem. Lab.	1
Phys. 17a—Light	3	Geol. 49—Optical Mineralogy	5
Total	18	Total	17

[1]Semester hours. For definition, see page 75.

FOURTH YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Cer. 22—Kilns and Burning	3	Cer. 28—Pyrochemical Problems	2
Cer. 97—Thesis	3	Cer. 98—Thesis	3
Cer. 99—Inspection Trip	0	Chem. 33—Elementary Organic Chem.	5
Phys. 44a—Electrical Measurements	3	Phys. 44b—Electrical Measurements	3
Non-technical Elective[2]	3	Non-technical Elective[2]	2
Technical Option[3]	6	Technical Option[3]	3
Total	18	Total	18

Curriculum in Ceramic Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Cer. 1—Ceramic Materials	3	Cer. 4—Cer. Materials Lab.	3
Chem. 24 — Elementary Quantitative Analysis	5	Geol. 43—Engineering Geology	3
Math. 8a—Differential Calculus	3	Math. 8b—Integral Calculus	3
Phys. 1a—Physics Lecture	3	Phys. 1b—Physics Lecture	3
Phys. 3a—Physics Laboratory	2	Phys. 3b—Physics Laboratory	2
Physical Education	½	T.A.M. 1—Analytical Mechanics	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, or 33a and 33b—Military Drill and Theory	1	Physical Education	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, or 34a and 34b—Military Drill and Theory	1
Total	17½	Total	17½

THIRD YEAR

Cer. 5—Ceramic Bodies	5	Cer. 11—Drying Clay Products	3
Cer. 7—Heavy Clay Products	3	Cer. 14—Glasses and Glazes	3
Language[4] or Approved Elective	4	Chem. 40—Elementary Physical Chem.	3
T.A.M. 2—Analytical Mechanics	3	C. E. 16—Surveying	2
T.A.M. 3—Resistance of Materials	3	Language[4] or Approved Elective	4
T.A.M. 63—Resistance of Materials Lab.	1	M.E. 62—Power Measurements	3
Total	19	Total	18

FOURTH YEAR

Cer. 21—Ceramic Pyrometry	1	Cer. 20—Refractories	2
Cer. 22—Kilns and Burning	3	Cer. 24—Ceramic Engr. Design	3
Cer. 23—Dryer and Kiln Design	2	Cer. 28—Pyrochem. Problems	2
Cer. 99—Inspection Trip	0	E.E. 12—Alternating Current Apparatus	3
C.E. 89a—Structural Engineering	3	E.E. 62—Alternating Current Lab.	1
E.E. 11—Direct Current Apparatus	3	Non-technical Elective[2]	3
E.E. 61—Direct Current Laboratory	1	Technical Option[5]	3
Non-technical Elective[2]	2		
Technical Option[5]	2		
Total	17	Total	17

Curriculum in Civil Engineering

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 2 or 3—Inorganic Chem.	3 or 4	Chem. 4—Qualitative Analysis	4
G. E. D. 1 or 4—Elements of Drafting	4	G. E. D. 2—Descriptive Geometry	4
Math. 2—Advanced Algebra	3	Math. 6a—Analytic Geometry	4
Math. 4 or 5—Trigonometry	2	Rhet. 2—Rhetoric and Themes	3
Rhet. 1—Rhetoric and Themes	3	Physical Education	½
Physical Education	½	Hyg. 5—Hygiene (men)	2
Mil. 1a and 1b, 11a and 11b, 21a and 21b, 31a and 31b, or 41a and 41b (E. E. and R. E. E. students only)—Military Drill and Theory	1	Mil. 2a and 2b, 12a and 12b, 22a and 22b, 32a and 32b, or 42a and 42b (E. E. and R. E. E. students only)—Military Drill and Theory	1
Engineering Lecture	0	Engineering Lecture	0
Total	16½–17½	Total	18½

[1]Semester hours. For definition, see page 75.

[2]Any approved non-technical elective. See page 34.

[3]Technical Options: Ceramics 8, 10, 16, 18; Chemistry 42b, 43b, 49a, 60a, 60b, 74b; C. E. 90a; Geol. 43; M. E. 1, 62; T. A. M. 1, 3; Mining 2; Phys. 14a, 14b, 78.

[4]French, German, Spanish, or English.

[5]Technical Options: Ceramics 8, 10, 16, 18; Chem. 73a; Geol. 20; T.A.M. 41, 42; Mining 2.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
C.E. 1—Plane Surveying	3	C.E. 2—Topographic Surveying	3
C.E. 60a—Bridge and Building Construction	3	C.E. 20—Highway Construction	2
Math. 7—Differential Calculus	5	C.E. 35—Plain Concrete	2
Phys. 1a—Physics Lecture	3	Math. 9—Integral Calculus	3
Phys. 3a—Physical Measurements	2	Phys. 1b—Physics Lecture	3
Physical Education	½	Phys. 3b—Physical Measurements	2
Military	1	T.A.M. 1—Analytical Mechanics	2
		Physical Education	½
		Military	1
Total	17½	Total	18½

THIRD YEAR

C.E. 21—Highway Construction	2	C.E. 3—Railway and Highway Surveying	4
C.E. 30a—Highway Materials Lab.	1	C.E. 62—Elementary Structural Design	3
C.E. 61a—Structural Stresses	4	C.E. 63a—Theory of Reinforced Concrete	2
M.E. 1—Steam and Air Machinery	3	Geol. 43—Engineering Geology[2]	3
T.A.M. 2—Analytical Mechanics	3	E.E. 2—Elem. Electrical Eng. or Approved Elective	3
T.A.M. 3—Resistance of Materials	3	T.A.M. 4—Hydraulics	2
T.A.M. 63—Resistance of Materials Lab.	1	T.A.M. 64—Hydraulic Laboratory	1
Total	17	Total	18

THIRD YEAR

**City Planning Option*

C.E. 21—Highway Construction	2	C.E. 3—Railway and Highway Surveying	4
C.E. 30a—Highway Materials Lab.	1	C.E. 62—Elementary Structural Design	3
C.E. 61a—Structural Stresses	4	C.E. 63a—Theory of Reinforced Concrete	2
T.A.M. 2—Analytical Mechanics	3	T.A.M. 4—Hydraulics	2
T.A.M. 3—Resistance of Materials	3	T.A.M. 64—Hydraulic Laboratory	1
Hort. 37a—City Planning	2	Hort. 37b—City Planning	2
Architectural Design	3	Architectural Design	3
Total	18	Total	17

FOURTH YEAR

All Options

C.E. 40a—Water Supply	4	C.E. 41a—Sewerage	3
C.E. 64a—Structural Design	4	C.E. 65—Structural Design	5
C.E. 99—Inspection Trip	0	Options (See below)	10 or 9
Options (See below)	9 or 10		
Total	17 or 18	Total	18 or 17

I. General Option

C.E. 66—Masonry Construction	3	C. E. 90a—Contracts and Specifications	2
Technical Elective	3	Technical Elective	5
Non-technical Elective	3	Approved Elective	3
Total	9	Total	10

II. Highway Option

C.E. 22—Highway Design	4	C.E. 66—Masonry Construction	3
C.E. 50—Hydrology	2	C.E. 90a—Contracts and Specifications	2
Non-technical Elective	3	C.E. 23—Highway Administration	3
		C.E. 31a—Advanced Highway Materials	2
Total	9	Total	10

III. Hydraulic Option

C.E. 66—Masonry Construction	3	C.E. 51—Drainage and Flood Control	3
C.E. 90a—Contracts and Specifications	2	C.E. 55a—Water Power	3
C.E. 50—Hydrology	2	E.E. 2—Elementary Electrical Engineering	3
Non-technical Elective	3		
Total	10	Total	9

[1]Semester hours. For definition, see page 75.

[2]Eight hours of credit in foreign language, French, German, or Spanish, may be substituted for Geology 43, 3 hours, and approved and non-technical electives, 5 hours.

IV. Sanitary Option

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
C.E. 42a—Water Purification	2	C.E. 90a—Contracts and Specifications	2
Bact. 5a—Bacteriology	3	C.E. 66—Masonry Construction	3
Chem. 80a—Chemistry of Water and Sewage	5	C.E. 43—Sewage Treatment and General Sanitation	4
Total	10	Total	9

V. Structural Option

C.E. 90a—Contracts and Specifications	2	C.E. 66—Masonry Construction	3
C.E. 67—Statically Indeterminate Structures	3	C.E. 68—Statically Indeterminate Structures	3
C.E. 91—Estimates and Costs	2	Approved Elective	3
Non-technical Elective	3		
Total	10	Total	9

VI. City Planning Option

Only students who have taken the special curriculum in the third year may elect this option.

C.E. 66—Masonry Construction	3	C.E. 90a—Contracts and Specifications	2
Hort. 23a—Landscape Design	4	C.E. 29—Municipal Transportation	3
Econ. 2—Elements of Economics	3	Hort. 23b—Landscape Design	4
Total	10	Total	9

Curriculum in Electrical Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Language[2] or Approved Elective	4	Language[2] or Approved Elective	4
Math. 7—Differential Calculus	5	Math. 9—Integral Calculus	3
M. E. 85—Pattern and Foundry Lab. or M. E. 87—Machine Laboratory	3	M. E. 87—Machine Lab., or M.E. 85—Pattern and Foundry Lab.	3
Phys. 1a—Physics Lectures	3	Phys. 1b—Physics Lectures	3
Phys. 3a—Physics Laboratory	2	Phys. 3b—Physics Laboratory	2
Physical Education	½	T.A.M. 1—Analytical Mechanics	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 43a and 43b—Military Drill and Theory	1	Physical Education	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 44a and 44b—Military Drill and Theory	1
Total	18½	Total	18½

THIRD YEAR

E.E. 25—Direct Current Apparatus	4	E.E. 26—Alternating Currents	4
E.E. 75—Electrical Engineering Laboratory	2	E.E. 76—Electrical Engineering Laboratory	2
M.E. 10—Thermodynamics or Approved Elective	3	Math. 9a—Integral Calculus	2
Phys. 44a—Electrical and Magnetic Measurements	3	M.E. 10—Thermodynamics or Approved Elective	3
T.A.M. 21—Analytical Mechanics	2	Phys. 44b—Electrical and Magnetic Measurements	3
T.A.M. 4—Hydraulics	2	T.A.M. 3—Resistance of Materials	3
T.A.M. 64—Hydraulics Lab.	1	T.A.M. 63—Resistance of Materials Lab.	1
Total	17	Total	18

FOURTH YEAR

E.E. 35—Alternating Current Apparatus	4	E.E. 36—Alternating Current App.	4
E.E. 55—Electrical Design	2	E.E. 56—Electrical Design	4
E.E. 85—Elec. Eng. Laboratory	2	E.E. 86—Electrical Engineering Laboratory	2
E.E. 95—Seminar	1	E.E. 96—Seminar	1
E.E. 99—Inspection Trip	0	E.E. 98—Thesis or Technical Elective	3
M.E. 3—Steam Engineering	3	Approved Elective	3
M.E. 61—Mechanical Engineering Lab.	2		
Non-technical Elective[3]	3		
Total	17	Total	17

[1]Semester hours. For definition, see page 75.
[2]French, German, Spanish, or English.
[3]Any approved non-technical elective. See page 34.

Curriculum in Engineering Physics

(Leading to the Degree of B.S.)

The curriculum in engineering physics is designed as preparation for the investigation of technical problems calling for a knowledge of physics and mathematics or chemistry.

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
German, French, or Approved Elective	4	German, French, or Approved Elective	4
Math. 7—Differential Calculus	5	Math. 9—Integral Calculus	3
Phys. 1a—Physics Lectures	3	M.E. 87—Machine Laboratory	3
Phys. 3a—Physics Laboratory	2	Phys. 1b—Physics Lecture	3
Physical Education	½	Phys. 3b—Physics Laboratory	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, or 33a and 33b—Military Drill and Theory	1	T.A.M. 1—Analytical Mechanics	2
Approved Elective[2]	3	Physical Education	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, or 34a and 34b—Military Drill and Theory	1
Total	18½	Total	18½

THIRD YEAR

E.E. 25—Direct Current Apparatus	4	E.E. 26—Alternating Currents	4
E.E. 75—Electrical Engineering Lab.	2	E.E. 76—Electrical Engineering Lab.	2
German, French, or Approved Elective[2]	4	Math. 9a—Advanced Calculus	2
Phys. 44a—Electrical and Magnetic Measurements	3	German, French or Approved Elective[2]	4
Phys. 14a—Dynamics	3	Phys. 44b.—Electrical and Magnetic Measurements	2
Approved Elective[2]	2	Phys. 14b—Dynamics	3
Total	18	Total	17

FOURTH YEAR

Math. 16—Advanced Calculus and Diff. Equations	3	Math. 17—Differential Equations	3
M.E. 13—Thermodynamics (M.E. 10 or Phys. 16 may be substituted)	3	Phys. 30—Introduction to Theoretical Electricity	3
Phys. 126—Colloquium	0	Phys. 126—Colloquium	0
Technical Option[3] with at least 4 in Phys.	11	Technical Option[3] with at least 3 in Physics	10
Total	17	Total	16

Curriculum in Gas Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Language[4] or Approved Elective	4	Language[4] or Approved Elective	4
Chem. 24—Quantitative Analysis	5	Chem. 32—Organic Chemistry	3
Math. 8a—Differential Calculus	3	Math. 8b—Integral Calculus	3
Phys. 1a—Physics Lecture	3	Phys. 1b—Physics Lecture	3
Phys. 3a—Physics Laboratory	2	Phys. 3b—Physics Laboratory	2
Physical Education	½	T.A.M. 1—Analytical Mech.	2
Military Drill and Theory	1	Physical Education	½
		Military Drill and Theory	1
Total	18½	Total	18½

[1]Semester hours. For definition, see page 75.

[2]Any course of sophomore grade (except foreign languages) in the Colleges of Engineering, Liberal Arts and Sciences, or Commerce, Accountancy 1a and 1b, and other freshman courses listed under non-technical electives, page 34.

[3]Technical Options: Chemistry 40, 41, 42b, 43b, 44a, 44b; Math. 10, 20, 22; M.E. 10; Physics 16, 20a, 20b, 22a, 22b, 23a, 25, 33, 36, 45, 46a, 46b, 78, 97, 98; T.A.M. 3, 63. Chem. 40 must be elected at some time. Only high grade students are allowed to elect a thesis.

[4]French, German, or Spanish.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Cer. 21—Pyrometry	1	Chem. 40—Physical Chemistry	3
Chem. 73a—Metallurgy	3	Chem. 41—Physical Chemistry Lab.	1
Econ. 2—Elements of Economics	3	Econ. 3—Money, Credit and Banking	3
Min. 13—Utilization of Fuels	3	M.E. 10—Thermodynamics	3
T.A.M. 2—Analytical Mechanics	3	Min. 10—Electrical Engineering	3
T.A.M. 3—Resistance of Materials	3	T.A.M. 4—Hydraulics	2
T.A.M. 63—Resistance of Materials Lab.	1	T.A.M. 64—Hydraulics Laboratory	1
		Non-technical Elective[2]	2
Total	17	Total	18

FOURTH YEAR

Econ. 81—Principles of Public Utilities	3	Cer. 20—Refractories	2
Gas E. 41—Design	3	Econ. 83—Public Utility Rates	3
Gas E. 51—Manufacture of Gas	2	Gas E. 42—Design	2
M.E. 3—Steam Engineering	3	Gas E. 52—Utilization and Distribution	4
Min. 9—Coal Preparation	3	M.E. 64—Mechanical Engineering Lab.	3
Non-technical Elective[2]	3	Min. 64—Mining Lab.	3
Gas E. 99—Inspection Trip	0		
Total	17	Total	17

Curriculum in General Engineering

This curriculum is intended for students who do not wish to pursue the more specialized engineering curricula, but who wish to secure training in engineering principles and their application. Fifteen hours of work in Economics, Corporations, Business Law, etc., are required and sixteen hours of free electives are allowed. The degree of Bachelor of Science in General Engineering is awarded on completion of the curriculum.

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Econ. 2—Principles of Economics	3	Econ. 3—Money and Banking	3
Math. 7.—Differential Calculus	5	Math. 9—Integral Calculus	3
M.E. 85—Pattern and Foundry Lab. or C.E. 15, Plane and Topographic Surveying	3	C.E. 15—Plane and Topographic Surveying or M.E. 85, Pattern and Foundry Laboratory	3
Phys. 1a—Physics Lectures	3	Phys. 1b—Physics Lectures	3
Phys. 3a—Physics Laboratory	2	Phys. 3b—Physics Laboratory	2
Physical Education	½	T.A.M. 1—Analytical Mechanics	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, or 33a and 33b—Military Drill and Theory	1	Physical Education	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, or 34a and 34b—Military Drill and Theory	1
Total	17½	Total	17½

THIRD YEAR

Econ. 35—Corporations	3	C.E. 61a—Structural Stresses	4
E.E. 11—Direct Current Apparatus	3	E.E. 12—Alternating Current Apparatus	3
E.E. 61—Direct Current Laboratory	1	E.E. 62—Alternating Current Lab.	1
M.E. 87—Machine Laboratory	3	Approved Elective[3]	4
T.A.M. 3—Resistance of Materials	3	M.E. 10—Thermodynamics	3
T.A.M. 63—Resistance of Materials Lab.	1	T.A.M. 4—Hydraulics	2
T.A.M. 2—Analytical Mechanics	3	T.A.M. 64—Hydraulics Laboratory	1
Total	17	Total	18

FOURTH YEAR

Chem. 73a—Metallurgy	3	Bus. Law 3—Contracts, etc.	3
C.E. 86—Structural Design	4	C.E. 87a—Structural Design	4
Econ. 41—Labor Problems	3	Geol. 43—Engineering Geology	3
Approved Elective[3]	5	M.E. 64—Mechanical Engineering Lab.	3
M.E. 3—Steam Engineering	3	Approved Elective[3]	5
G.E. 99—Inspection Trip	0		
Total	18	Total	18

[1]Semester hours. For definition, see page 75.
[2]Any approved non-technical elective. See page 34.
[3]Twelve hours of French, German, or Spanish may be substituted for 12 hours of approved elective.

Curriculum in Mechanical Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]
Language[2] or Approved Elective	4
Math. 7—Differential Calculus	5
Approved Elective	3
Phys. 1a—Physics Lectures	3
Phys. 3a—Physics Laboratory	2
Physical Education	½
Mil. 3a and 3b, 13a and 13b, 23a and 23b, or 33a and 33b—Military Drill and Theory	1
Total	18½

SECOND SEMESTER	Hours[1]
Language[2] or Approved Elective	4
Math. 9—Integral Calculus	3
M.E. 85—Pattern and Foundry Lab.	3
Phys. 1b—Physics Lectures	3
Phys. 3b—Physics Laboratory	2
T.A.M. 20—Analytical Mechanics	2
Physical Education	½
Mil. 4a and 4b, 14a and 14b, 24a and 24b, or 34a and 34b—Military Drill and Theory	1
Total	18½

THIRD YEAR

M.E. 13—Thermodynamics	3
M.E. 31—Mechanics of Machinery	5
M.E. 87—Machine Laboratory	3
T.A.M. 21—Analytical Mechanics	2
T.A.M. 3—Resistance of Materials	3
T.A.M. 63—Resistance of Materials Lab.	1
Total	17

M.E. 6—Steam Engineering	4
M.E. 16—Thermodynamics	2
M.E. 40—Mechanical Eng. Design	3
M.E. 64—Mechanical Engineering Lab.	3
M.E. 88—Machine Laboratory	3
Non-technical Elective[3]	3
Total	18

FOURTH YEAR

E.E. 11—Direct Current Apparatus	3
E.E. 61—Direct Current Lab.	1
M.E. 41—M. E. Design	4
M.E. 65—Mechanical Engineering Lab.	3
M.E. 89—Heat Treatment of Metals or Non-technical Elective[3]	3
Technical Option	3
M.E. 99—Inspection Trip	0
Total	17

E.E. 12—A.C. Apparatus	3
E.E. 62—A.C. Laboratory	1
M.E. 28—Heating and Ventilation	4
M.E. 52—Power Plant Design	3
M.E. 89—Heat Treatment of Metals or Non-technical Elective[3]	3
Technical Option	3
Total	17

Technical Options

M.E. 7—Int. Comb. Engines
M.E. 17—Refrigeration
M.E. 33—Aeronautical Engineering
T.A.M. 41—Advanced Mechanics of Materials
C.E. 89a—Structural Engineering

M.E. 15—Heat Engineering
M.E. 17—Refrigeration
M.E. 34—Aeronautical Engineering
T.A.M. 42—Properties of Engineering Materials
T.A.M. 44—Laboratory Work in Testing Materials

Curriculum in Mining Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]
Language[2] or Approved Elective	4
Math. 7—Differential Calculus	5
Min. 61—Elem. Mine Surveying	3
Phys. 1a—Physics Lectures	3
Phys. 3a—Phys. Laboratory	2
Physical Education	½
Mil. 3a and 3b, 13a and 13b, 23a and 23b, or 33a and 33b—Military Drill and Theory	1
Total	18½

SECOND SEMESTER	Hours[1]
Language[2] or Approved Elective	4
Math. 9—Integral Calculus	3
Min. 62—Mine Surveying	3
Phys. 1b—Physics Lectures	3
Phys. 3b—Physics Laboratory	2
T.A.M. 1—Analytical Mechanics	2
Physical Education	½
Mil. 4a and 4b, 14a and 14b, 24a and 24b, or 34a and 34b—Military Drill and Theory	1
Total	18½

[1]Semester hours. For definition, see page 75.
[2]French, German, Spanish, or English.
[3]Any approved non-technical elective. See page 34.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 24—Elem. Quantitative Anal.	5	C.E. 88a—Mine Structures	2
Geol. 20—Mineralogy	3	Geol. 43—Engineering Geology	3
Min. 1—Elements of Mining	3	M.E. 62—Mechanical Engineering Lab.	3
T.A.M. 2—Analytical Mechanics	3	Min. 4—Mining Methods	3
T.A.M. 3—Resistance of Materials	3	Min. 10—Electrical Eng. of Mines	3
T.A.M. 63—Resistance of Materials Lab.	1	T.A.M. 4—Hydraulics	2
		T.A.M. 64—Hydraulics Laboratory	1
Total	18	Total	17

FOURTH YEAR

Coal Mining Option

Chem. 73a—Metallurgy	3	Min. 15—Mine Ventilation	2
Min. 8—Mine Administration	3	Min. 20—Mine Ventilation Lab.	2
Min. 9—Coal and Ore Preparation	3	Min. 21—Examination, Valuation, and Reports	3
Min. 13—Utilization of Fuels	3	Min. 42—Mine and Met. Design	2
Min. 41—Mine and Metallurgical Design	3	Min. 64—Coal and Ore Preparation Laboratory	3
Min. 99—Inspection Trip	0	Non-technical Elective[2]	4
Min. 6—Mech. Eng. of Mines	3	Min. 90—Mining and Met. Reports	1
Total	18	Total	17

Ore Mining Option

Chem. 73a—Metallurgy	3	Geol. 96—Economic Geology	3
Min. 8—Mine Administration	3	Min. 15—Mine Ventilation	2
Min. 9—Coal and Ore Preparation	3	Min. 21—Examination, Valuation, and Reports	3
Min. 41—Mine and Met. Design	3	Min. 42—Mine and Met. Design	2
Min. 69—Fire Assaying	2	Min. 64—Coal and Ore Preparation Laboratory	3
Min. 99—Inspection Trip	0	Non-technical Elective[2]	4
Min. 6—Mech. Eng. of Mines	3	Min. 90—Mining and Met. Reports	1
Total	17	Total	18

Metallurgical Option

Chem. 73a—Metallurgy	3	Min. 16—Non-Ferrous Ore Treatment	5
Min. 8—Mine Administration	3	Min. 18—Metallurgical Problems	2
Min. 9—Coal and Ore Preparation	3	Min. 42—Mine and Metallurgical Design	2
Min. 41—Mine and Metallurgical Design	3	Min. 64 — Coal and Ore Preparation Laboratory	3
Min. 69—Fire Assaying	2	Non-technical Elective[2]	5
Min. 13—Utilization of Fuels	3	Min. 90—Mining and Met. Reports	1
Min. 99—Inspection Trip	0		
Total	17	Total	18

Curriculum in Railway Civil Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
C.E. 1—Plane Surveying	3	C.E. 2—Topographic Surveying	3
Math. 7—Differential Calculus	5	C.E. 95—Plain Concrete	2
Phys. 1a—Physics Lectures	3	Math. 9—Integral Calculus	3
Phys. 3a—Physics Laboratory	2	Phys. 1b—Physics Lectures	3
R.E. 25—Railway Development	2	Phys. 3b—Physics Laboratory	2
Physical Education	½	T.A.M. 1—Statics	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, or 33a and 33b—Military Drill and Theory	1	Physical Education	½
Non-technical Elective	2	Mil. 4a and 4b, 14a and 14b, 24a and 24b, or 34a and 34b—Military Drill and Theory	1
		Non-technical Elective	2
Total	18½	Total	18½

[1]Semester hours. For definition, see page 75.
[2]Any approved non-technical elective. See page 34.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
C.E. 61a—Structural Stresses	4	C.E. 3—Railway and Highway Surveying	4
Language, or Approved Elective	4	C.E. 62—Elementary Structural Design	3
R.E. 32—Railway Construction	3	C.E. 63a—Theory of Reinforced Concrete	2
T.A.M. 2—Kinematics and Kinetics	3	Language, or Approved Elective	4
T.A.M. 3—Strength of Materials	3	R.E. 36—Railway Maintenance	3
T.A.M. 63—Strength of Materials Lab.	1	R.E. 51—Seminar	1
Total	18	Total	17

FOURTH YEAR

C.E. 66—Masonry Construction	3	C.E. 65—Structural Design	5
C.E. 90a—Contracts and Specifications	2	E.E. 2—Elementary Electrical Engineering, or Technical Elective	3
C.E. 64a—Structural Design	4	R.E. 33—Railway Location	4
M.E. 1—Steam and Air Machinery	3	R.E. 37—Railway Design Problems	2
R.E. 31—Railway Yards and Terminals	3	T.A.M. 4—Hydraulics	2
R.E. 35—Railway Signaling	2	T.A.M. 64—Hydraulic Laboratory	1
R.E. 99—Inspection Trip	0		
Total	17	Total	17

Curriculum in Railway Electrical Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Language, or Approved Elective	4	Language, or Approved Elective	4
Math. 7—Differential Calculus	5	Math. 9—Integral Calculus	3
Phys. 1a—Physics Lectures	3	M.E. 85—Pattern and Foundry Lab.	3
Phys. 3a—Physics Laboratory	2	Phys. 1b—Physics Lectures	3
R.E. 25—Railway Development	2	Phys. 3b—Physics Laboratory	2
Physical Education	½	T.A.M. 1—Statics	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, or 33a and 33b—Military Drill and Theory	1	Physical Education	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, or 34a and 34b—Military Drill and Theory	1
Total	17½	Total	18½

THIRD YEAR

E.E. 25—Direct Current Apparatus	4	E.E. 26—Alternating Current	4
E.E. 75—Electrical Laboratory	2	E.E. 76—Electrical Laboratory	2
M.E. 87—Machine Laboratory	3	M.E. 10—Thermodynamics	3
Phys. 44a—Electrical and Magnetic Measurements	3	Phys. 44b—Electrical and Magnetic Measurements	3
R.E. 59—Electrical Railway Principles	2	R.E. 60—Electric Railway Principles	2
T.A.M. 2—Kinematics and Kinetics	3	T.A.M. 3—Strength of Materials	3
		T.A.M. 63—Strength of Materials Lab.	1
Total	17	Total	18

FOURTH YEAR

E.E. 35—Alternating Current Apparatus	4	C.E. 80—Contracts and Specifications	2
E.E. 85—Electrical Engineering Lab.	2	E.E. 36—Alternating Current Apparatus	4
M.E. 3—Steam Engineering	3	E.E. 86—Electrical Engineering Lab.	2
M.E. 61—Mechanical Engineering Lab.	2	R.E. 67—Seminar	1
R.E. 35—Railway Signaling	2	R.E. 70—Electric Railway Design	2
R.E. 62—Electric Railway Laboratory	2	R.E. 74—Electric Railway Economics	3
R.E. 64—Electric Railway Practice	3	Non-technical Elective	3
R.E. 99—Inspection Trip	0		
Total	18	Total	17

Curriculum in Railway Mechanical Engineering

FIRST YEAR

For the first year's work, see Curriculum in Civil Engineering.

[1]Semester hours. For definition, see page 75.

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Language, or Approved Elective	4	Language, or Approved Elective	4
Math. 7—Differential Calculus	5	Math. 9—Integral Calculus	3
Phys. 1a—Physics Lectures	3	M.E. 85—Pattern and Foundry Laboratory	3
Phys. 3a—Physics Laboratory	2	Phys. 1b—Physics Lectures	3
R.E. 25—Railway Development	2	Phys. 3b—Physics Laboratory	2
Physical Education	½	T.A.M. 1—Statics	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, 33a and 33b, or 43a and 43b—Military Drill and Theory	1	Physical Education	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, 34a and 34b, or 44a and 44b—Military Drill and Theory	1
Total	17½	Total	18½

THIRD YEAR

M.E. 13—Thermodynamics	3	M.E. 6—Steam Engineering	4
M.E. 87—Machine Laboratory	3	M.E. 16—Thermodynamics	2
R.E. 3—Locomotives	2	M.E. 40—Mechanical Engineering Design	3
T.A.M. 2—Kinematics and Kinetics	3	M.E. 64—Mechanical Eng. Lab.	3
T.A.M. 3—Strength of Materials	3	M.E. 88—Machine Laboratory	3
T.A.M. 63—Strength of Materials Lab.	1	R.E. 4—Locomotives	3
Elective	3		
Total	18	Total	18

FOURTH YEAR

E.E. 11—Direct Current Apparatus	3	C.E. 80—Contracts and Specifications	2
E.E. 61—Direct Current Laboratory	1	E.E. 12—Alternating Current Apparatus	3
M.E. 89—Heat Treatment of Metals	3	E.E. 62—Alternating Current Lab.	1
R.E. 2—Locomotive Design	3	R.E. 7—Locomotive and Car Design	3
R.E. 5—Railway Laboratory	3	R.E. 8—Railway Laboratory	2
R.E. 9—Seminar	1	R.E. 61—Electric Traction	3
R.E. 99—Inspection Trip	0	Non-technical Elective	3
Non-technical Elective	3		
Total	17	Total	17

[1]Semester hours. For definition, see page 75.

THE COLLEGE OF AGRICULTURE

DIRECTIONS FOR REGISTRATION

Read the first paragraph of the General Directions for Registration on page 6 and follow carefully the instructions given therein.

Obtain your study-list: (1) if you already have a permit to register, at room 105 New Agricultural Building, Home Economics students at Home Economics Department, Woman's Building; (2) if you have not yet secured a permit to register, go to the Registrar's Office, 100-A Administration Building; (3) follow *point by point* the directions on the first coupon on the study-list.

Students will secure their own study-lists and proceed to their advisers' rooms.

Advisers

Freshmen.....221 New Agricultural Building
Sophomores and Juniors....Reading Room, Library, New Agricultural Building
Seniors.....214 New Agricultural Building
Unclassified.....Go to room according to class
Home Economics.....113 Woman's Building
Floriculture.....Reading Room, Library, New Agricultural Building

Sectional Courses

Sectional courses will be checked in 200 New Agricultural Building. These include chemistry, rhetoric, English, botany, bacteriology, economics, entomology, geology, and physical education.

Registrar's Checking Clerks

Registrar's checking clerks, also clerks for assignment of fees, issue of class cards, and new study-lists, will be found in the lobby of the Library.

Studies for Freshmen

The schedules of courses for freshmen will be made out and distributed to advisers in 221 New Agricultural Building.

Transfer Students

Committee on excess hours and transfers will be in 104 New Agricultural Building.

REQUIREMENTS FOR GRADUATION

Students who have satisfied the University requirements as to registration, residence, and diploma fee, and who have maintained throughout their course a satisfactory record of scholarship and moral character, will, on completion of the studies of the prescribed list and sufficient electives to make a total of 130 semester hours, be graduated with the degree of Bachelor of Science.

A thesis is not required for graduation, but any student who has completed not fewer than 90 hours of credit may elect a thesis course in any department, provided that he has done at least 20 hours' work in courses pertinent to the thesis problem, subject to the approval of the head of the department.

Graduates of approved colleges may secure a degree in agriculture from the University on completion of the technical and scientific requirements. This will ordinarily require two years of residence work; a minimum of one year is required.

Not more than five semester hours of physical education and hygiene are accepted toward graduation for men, nor more than seven for women.

Curriculum in Agriculture

Required for the Degree of Bachelor of Science in Agriculture

All students except those in the special curricula in home economics and floriculture are required to take the same work during the freshman year and part of the sophomore, junior, and senior years. This work gives the student a conception of farm practices and an insight into the technical branches of agriculture, such as animal and dairy husbandry, horticulture, farm crops, soils, farm mechanics, and buildings, and leaves a large part of the junior and senior years open for elective studies.

One hundred thirty semester hours are required for graduation, as follows:

Prescribed Subjects

	Hours[1]
Accountancy 1a	3
Agr. Extension 4	½
Agronomy 25, 28	8
An. Husb. 1, 21	5
Bacteriology 5a	3
Botany 5	3
Chemistry 1 (or 2), 5, 32	13 or 11
Dairy Husb. 24a or 24b	3
Economics 1 or 2	5 or 3
Entomology 1	3
Farm Mechanics 1	3
Farm Management 1	3
Geology 44	3
Horticulture 1a, 1b	4
Hygiene 5	2
Landscape Arch. 62	2
Military Drill and Theory	4
Phys. Education	2
Rhetoric 1, 2	6
Zoology 15	3
	74½ to 78½

Agricultural courses prescribed	26½ hours	
Agricultural courses prescribed, as electives, Group A	20½ hours	
Total agricultural semester hours required		47 hours
Non-agricultural courses prescribed	48 to 52 hours	
Non-agricultural courses to be elected from Group B	8 hours	
Non-agricultural courses to be elected from Group C	6 hours	
Total non-agricultural semester hours required		62 to 66 hours
Free electives		17 to 21 hours
Total		130 hours

FIRST YEAR

FIRST SEMESTER

	Hours[1]
Agr. Ext. 4—Elementary Lecture	½
Bot. 5—General Botany *or* Entom. 1—Introductory Entomology	3
Chem. 1 or 2—Inorganic Chemistry	5 or 3
Hyg. 5—Hygiene	2
Military Drill and Theory	1
Phys. Ed.—Gymnasium	½
Rhet. 1—Rhetoric and Themes	3
Total	13 or 15

Select from the following prescribed courses to make 15 to 18 hours:

An. Husb. 1	2
D. H. 24a[2]—Production *or* D. H. 24b[2]—Manufacturing	3
Hort. 1a—Elements of Horticulture	2

SECOND SEMESTER

	Hours[1]
Chem. 5—Inorganic Chemistry and Qualitative Analysis	5
Entom. 1—Introductory Entomology *or* Bot. 5—General Botany	3
Military Drill and Theory	1
Phys. Ed.—Gymnasium	½
Rhet. 2—Rhetoric and Themes	3
Total	12½

Select from the following prescribed courses to make 15 to 18 hours:

Agron. 25—Farm Crops	3
An. Husb. 1	2
D. H. 24a[2]—Production *or* D. H. 24b[2]—Manufacturing	3
Farm Mech. 1—Elementary Farm Mechanics	3
Hort. 1b—Elements of Horticulture	2

[1]Semester hours. For definition, see page 75.
[2]Students may choose Dairy Husbandry 24a, Production, or Dairy Husbandry 24b, Manufacturing.

SECOND YEAR

FIRST SEMESTER

	Hours[1]
Military Drill and Theory	1
Physical Education	½
Total	1½
Select from the following prescribed subjects to make 15 to 18 hours:	
An. Husb. 21—Principles of Feeding	3
Chem. 32—Organic	3
D. H. 24a[2]—Production *or* D. H. 24b[2]—Manufacturing	3
Econ. 1 or 2[3]	5 or 3
Farm Mech. 1—Elementary Farm Mechanics	3
Geol. 44—Agricultural Geology	3
Hort. 1a—Elements of Horticulture	2
Agron. 25—Farm Crops	3

SECOND SEMESTER

	Hours[1]
Military Drill and Theory	1
Physical Education	½
Total	1½
Select from the following prescribed subjects to make 15 to 18 hours:	
Accy. 1a—Principles of Accounting	3
Agron. 28—Soils	5
An. Husb. 21—Principles of Feeding	3
Chem. 32—Organic	3
Econ. 1 or 2[3]	5 or 3
Farm Mech. 1—Elementary Farm Mechanics	3
Geol. 44—Agricultural Geology	3
Hort. 1b—Elements of Horticulture	2

THIRD YEAR

Zool. 15—Genetics	3
Select from the following prescribed and elective courses to make 15 to 18 hours:	
Accy. 1a—Principles of Accounting	3
Agron. 28—Soils	5
Bact. 5a—Introductory Bacteriology and Sanitary Science	3
Farm Man. 1—Elementary Farm Management	3

Landscape 62—Rural Improvement	2
Select from the following prescribed and elective courses to make 15 to 18 hours:	
Bact. 5a—Introductory Bacteriology and Sanitary Science	3
Farm Man. 1—Elementary Farm Management	3

FOURTH YEAR

Electives to make ..... 15 to 18

Electives to make ..... 15 to 18

Group A—Minimum 20½ hours

All courses offered by the College of Agriculture other than those prescribed.

Group B—Minimum 8 hours

Selected from courses offered in Bacteriology, Botany, Business Organization and Operation, Chemistry, Economics, Entomology, Geology, Mathematics, Physics, Political Science, Psychology, and Zoology.[4]

Desirable beginning courses:

	Hours[1]
Botany 7 or 3	3 or 5
Business Law 2	3
Chemistry 24	5
Economics 13, 14, or 15	3, 2, or 3
Entomology 8a or 8b	3 or 5
Geology 95	3
Mathematics 3, 2, or 4	5, 3, or 2
Physics 7a and 8a	5
Political Science 1 or 3	3
Psychology 1	4
Zoology 1	5

Group C—Minimum 6 hours

Selected from courses offered in Education, English, French, Geography, German, History, Journalism, Philosophy, Public Speaking, Rhetoric, and Sociology.[4]

Desirable beginning courses:

	Hours[1]
American History 3b	3
Education 25	3
English 20a or 12	4 or 5
French 1a and 1b	8
Geography 14	3
German 1 and 2	8
Journalism 24 or 3	2
Philosophy 1 or 2	3
Public Speaking 1	3
Rhetoric 10	2
Sociology 1	3

[1]Semester hours. For definition, see page 75.

[2]Students may choose Dairy Husbandry 24a, Production, or Dairy Husbandry 24b, Manufacturing.

[3]Students specializing in agricultural economics should take Econ. 1.

[4]Provided that in those subjects in which a course or courses are prescribed in Agriculture, work taken to fulfill the requirements in Groups B and C must be in courses other than those open only to freshmen.

Those students expecting to take graduate work in agriculture should make their selection of electives primarily with this purpose in view. It should be realized that the prescribed courses in the general curriculum in agriculture will not afford an adequate training for major work in any department of the college in the Graduate School. For adequate undergraduate preparation in his chosen field of major study the student should elect advanced courses in this and in related fields under the guidance of the department within which his major is to be taken, and he should also make a judicious selection of non-agricultural courses in order to afford a broad scientific and cultural foundation for his specialized training.

A thorough training in the general principles of biology is highly desirable in all fields of agriculture and essential in most, the nature of the proposed major field determining whether this training will be pursued mainly along botanical or zoological lines. For specialization in farm organization and management and in other phases of agricultural economics, economics rather than biology is the basic science.

An introductory course in physics is necessary to a well-balanced knowledge of the natural sciences and will prove of value for advanced study in all lines of technical agriculture, while in some lines it is an essential prerequisite.

Mathematics, including college algebra, trigonometry, analytical geometry, and the calculus has a wide field of usefulness, particularly in preparing the prospective research student for a thorough understanding of statistical methods, essential to the interpretation of experimental data.

A reading knowledge of some of the foreign languages, particularly German and French, is essential to a study of the original contributions to any major field of graduate study. The prospective graduate student would do well to elect a year's work in either German or French.

The advisability of choosing other non-agricultural courses, such as those in advanced economics, accountancy, quantitative chemical analysis, physical chemistry, physiological chemistry, education, bacteriology, physiology, and entomology, will depend upon the nature of his proposed major and minors in the Graduate School.

Curriculum in Floriculture

Required for the Degree of Bachelor of Science in Floriculture

The object of the floriculture curriculum is to fit men and women for the profession of floriculture. The laboratory exercises in the technical subjects consist of practical work in the greenhouses and gardens and give the students a working knowledge of the best methods now in use.

Of the 130 semester hours required for graduation, 107½-109½ are provided for in the prescribed list. The other 20½-22½ hours of credit necessary for graduation are electives.

Students registered in floriculture will be required to make at least one inspection trip before graduation. The annual trip costs about $25.

FIRST YEAR

FIRST SEMESTER *Prescribed Subjects*	Hours[1]	SECOND SEMESTER *Prescribed Subjects*	Hours[1]
Chem. 1 or 2—Inorganic Chemistry	5 or 3	Chem. 5—Inorganic Chemistry and Qualitative Analysis	5
Hort. 5—Plant Propagation	3	Hort. 4—Plant Houses	3
Rhet. 1—Rhetoric and Themes	3	Rhet. 2—Rhetoric and Themes	3
Ent. 1—Introductory Entomology	3	Bot. 5	3
Phys. Ed.—Gymnasium	½	Phys. Ed.—Gymnasium	½
Hyg. 5—Hygiene (men)	2	Military Drill and Theory	1
Military Drill and Theory	1		
Total	15½-17½	Total	15½

SECOND YEAR

Bot. 3—Plant Physiology	5	Agron. 28—Soils	5
Econ. 1—Principles of Economics	5	Hort. 15a—Greenhouse Management	3
Geol. 44—Agricultural Geology	3	Land. Arch. 52—Trees and Shrubs	3
Land. Arch. 51—Trees and Shrubs	3	Hort. 31—Garden Flowers	3
Physical Education	½	Physical Education	½
Military Drill and Theory	1	Military Drill and Theory	1
Total	17½	Total	15½

THIRD YEAR

Accy. 1a	3	Accy. 1b	3
Bot. 7—Plant Pathology	3	Hort. 7[2]—Spraying	3
Hort. 15b—Commercial Crops	3	Hort. 15c—Commercial Crops	3
		Land. Arch. 64—Landscape Design	3
Total	9	Total	12

[1]Semester hours. For definition, see page 75.
[2]Students may choose between Hort. 7 (Spraying) and Entom. 20 (Insect Control).

FOURTH YEAR

FIRST SEMESTER *Prescribed Subjects*	Hours[1]	SECOND SEMESTER *Prescribed Subjects*	Hours[1]
B. O. and O. 2	3	Hort. 30—Tender Bedding Plants	3
Hort. 32a—Floral Decoration	3	Hort. 32b—Floral Decoration	3
Hort. 43—Greenhouse Fertilizers	3	Hort. 45—Plant Nutrition	3
Entom. 20[2]—Insect Control	4		
Total	13	Total	9

Additional Requirements

A minimum of 4 hours from Group C in the Curriculum in Agriculture.

HOME ECONOMICS

Students who hold scholarships in home economics must take each semester at least four hours in home economics or in subjects required for admission to courses in home economics.

To satisfy the requirements for graduation, students transferring home economics credits from other institutions must take five hours in residence from the following: Home Economics 20, 28, 31, 33, 39a, 39b, 41, 43a, 43b, 47, 48, 50, 51, 55.

One hundred thirty credit hours are required for graduation.

Students may choose the general curriculum in home economics or the curriculum in nutrition and dietetics as suggested below.

Curriculum in General Home Economics

Prescribed Subjects

Required for the Degree of Bachelor of Science in Home Economics

	Hours[1]
Art 13a, 13b	4
Bacteriology 5a, 5b	5
Botany 1 or Zoology 1	5
Chemistry 1 or 2, 5	10 or 8
Chemistry 33	5
Economics 1 or 2	5 or 3
English Literature (2 semesters)	6 or 8
Home Economics 1 and 6 (or 44), 2, 5, 7, 10, 29	25 or 20
Hygiene 2, 4	1
Physiology 4	5
Physical Education (women)	4
Rhetoric 1, 2	6
Sociology 1	3
List A—a minimum of	6
List B—a minimum of	10
	91 to 102
Open Electives	39 to 28
Total	130

Electives

List A (a minimum of 6 hours)
- History 1a, 1b, 3a, 3b
- Sociology 2, 3, 7, 8
- Economics 3, 41, 44
- Psychology 1

List B—a minimum of 10 hours from home economics courses in addition to those prescribed above and excluding Home Economics 11, 11a, 13, and 34.

Suggested Sequence of Courses in General Home Economics

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Art 13a—Design	2	Art 13b—Design	2
Chem. 1 or 2—Inorganic Chemistry	5–3	Chem. 5—Qualitative Analysis	5
Rhet. 1—Rhetoric and Themes	3	Rhet. 2—Rhetoric and Themes	3
Home Econ. 7—Textiles	3	Bot. 1 or Zool. 1—General Course	5
Hyg. 2—Hygiene	½	Hyg. 4—Hygiene	½
Physical Education (women)	1	Physical Education (women)	1
Electives	1–3		
Total	15½	Total	16½

[1]Semester hours. For definition, see page 75.
[2]Students may choose between Hort. 7 (Spraying) and Entom. 20 (Insect Control).

SECOND YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Engl. Lit.	3 or 4	Engl. Lit.	3 or 4
Home Econ. 1—Foods	4	Home Econ. 2—Home Architecture	3
Chem. 33—Organic Chemistry	5	Home Econ. 6—Foods	4
Home Econ. 29—Clothing	4	Physiol. 4—Physiology of Digestion	5
Physical Education (women)	1	Physical Education (women)	1
Total	17 or 18	Total	16 or 17

THIRD YEAR

Bact. 5a, 5b—Introductory Bacteriology	5	Home Econ. 10—Home Management	3
Home Econ. 5—Dietetics	4	Sociol. 1—Principles of Sociology	3
Econ. 1—Principles of Economics	5	Electives	10–11
Electives	2–3		
Total	16–17	Total	16–17

FOURTH YEAR

During the third and fourth years, students will complete the requirements for the degree of Bachelor of Science in the College of Agriculture. Electives will be chosen in accord with the special interests of the student.

1. Textiles, clothing, and costume design: Home Economics 19, 30, 31, 42, 43a, 43b, 50, 51.

2. Institutional management and hospital dietetics: Home Economics 20, 33, 46, 47, 48, 55.

3. Household management: Home Economics 14, 28, 57a, 57b, and additional courses in economics.

4. House planning and furnishing: Art 16a, 16b; Architecture 11, 12; Home Economics 3, 43a, 43b, and additional courses in art and history.

5. Nutrition: Chemistry 24, 50a; Zoology 1; Home Economics 20, 33, 39a, 39b, 41, 45.

6. Teaching of home economics: Home Economics 11, 13, 34, 45; Education 6, 10, 25.

Curriculum in Nutrition and Dietetics

Prescribed Subjects

Required for the Degree of Bachelor of Science in Home Economics

	Hours[1]
Bacteriology 5a, 5b	5
Chemistry 1 or 2, 5, 24, 33, 50a	25 or 23
Economics 1 or 2	5 or 3
English Literature (2 semesters)	6 or 8
Home Economics 1 and 6 (or 44), 5, 20, 33, 39a, 39b, 41	24 or 19
Hygiene 2, 4	1
Physical Education (women)	4
Physiology 4	5
Rhetoric 1, 2	6
Sociology 1	3
Zoology 1	5
List A, a minimum of	6
	97 to 86
Open Electives	33 to 44
Total	130

Electives

List A (a minimum of 6 hours)
- History 1a, 1b, 3a, 3b
- Sociology 2, 3, 7, 8
- Economics 3, 41, 44
- Psychology 1

Suggested Electives

- Bacteriology 8, 26
- Chemistry 51b, 97a
- Home Economics 45, 46, 47, 48
- General Hygiene 10
- French or German

[1]Semester hours. For definition, see page 75.

Suggested Sequence of Courses in Nutrition and Dietetics

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Chem. 1 or 2—Inorganic Chemistry	5 or 3	Chem. 5—Qualitative Analysis	5
Rhet. 1—Rhetoric and Themes	3	Rhet. 2—Rhetoric and Themes	3
Physical Education (women)	1	Hyg. 4—Hygiene	½
Hyg. 2—Hygiene	½	Physical Education (women)	1
Zool. 1—General Zoology	5	Electives	6
Electives	1–3		
Total	15½	Total	15½

SECOND YEAR

Chem. 33—Organic Chemistry	5	Bact. 5a, 5b—Introductory Bacteriology	5
Home Econ. 1—Foods	4	Home Econ. 6—Foods	4
Physiol. 4—Physiol. of Digestion	5	Econ. 1 or 2—Principles of Econ.	5 or 3
Physical Education (women)	1	Physical Education (women)	1
		Electives	2 or 4
Total	15	Total	17

THIRD YEAR

Engl. Lit.	4 or 3	Chem. 24—Quantitative Analysis	5
Home Econ. 5—Dietetics	4	Engl. Lit.	4 or 3
Sociol. 1—Principles of Sociology	3	Home Econ. 46—Quantity Cookery	3
Electives	6 or 7	Electives	5 or 6
Total	17	Total	17

FOURTH YEAR

Chem. 50a—Physiological Chemistry	5	Home Econ. 33—Diet in Disease	3
Home Econ. 20—Infant Nutrition	2	Home Econ. 39b—Nutrition	1
Home Econ. 39a—Nutrition	1	Home Econ. 41—Problems in Nutrition	5
Home Econ. 47—Institutional Management	3	Electives	8
Electives	6		
Total	17	Total	17

[1]Semester hours. For definition, see page 75.

THE COLLEGE OF EDUCATION

DIRECTIONS FOR REGISTRATION

Read the General Directions for Registration beginning on page 6 and follow carefully the instructions given therein.

Obtain your study-list: (1) if you already have a permit to register, in the College of Education, in Room 104 Administration; (2) if you have not yet secured a permit to register in the College of Education, at the Registrar's Office, 100-A Administration. Students with junior standing in one of the undergraduate colleges who wish to transfer to the College of Education as candidates for the degree of Bachelor of Science in Education should follow the procedure outlined in paragraph 6 on page 7.

Advisers

For candidates for the degree of Bachelor of Science in Education—Dean Benner, College of Education, 104 Administration.

For students in the Curriculum in Agricultural Education—Professor Nolan, 116 Agricultural Building.

For students in the Curriculum in Industrial Education—Professor Mays, 310 Administration.

For students in the Curriculum in Home Economics Education—Miss Robinson, 105 Woman's Building.

For students in the Curriculum in Physical Education—Director Huff, 210 Men's New Gymnasium.

For students in the Curriculum in Music Education—Director Stiven, 100 Smith Memorial Hall.

Sectional Courses

Students in the College of Education will have their sections approved in the Library, to which they should proceed after securing their adviser's signature on Coupon 2 of the study-list.

Class cards may be obtained at the loan desk in the Library.

Registrar's Checking Clerks

Having secured approval of their sections, students in education should go to the Lobby of the Auditorium, where they will find the Registrar's checking clerks and fee clerks representing the Business Office.

REQUIREMENTS FOR ADMISSION

In general, a student must complete two years (60 hours exclusive of military) of a curriculum in the College of Agriculture, Commerce and Business Administration, Engineering, or Liberal Arts and Sciences, or the School of Music before being admitted to the College of Education. The exceptions to this are Athletic Coaching and Physical Education, and Industrial Education. To the former, admission is granted on admission to the University and the passing of a medical and physical examination; to the latter admission is granted on admission to the University.

Juniors entering the College of Education through the College of Liberal Arts and Sciences should have completed the prescribed subjects and the first five group requirements for the degree of Bachelor of Arts. (See pages 12, 16.

Juniors entering through the other colleges should select some curriculum in the college chosen, and complete the first two years.

Juniors entering from other institutions must present 60 hours of a curriculum pursued in that institution.

Students who enter with more than 60 hours of credit will be given advanced standing in the College of Education to the amount which the credit in excess of 60 hours.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

The requirements for graduation are as follows:

1. Admission to the College of Education.

2. A curriculum of 70 hours, except in Athletic Coaching and Physical Education, in which 136 hours are required, and in Industrial Education, in which 130 hours are required.

3. A major of 20 hours in education except in Athletic Coaching and Physical Education, in which 25 hours are required, including the following courses: educational psychology, 3 hours; technic of teaching, 3 hours; a teacher's course in the subject of specialization, 2-3 hours; principles of secondary education, 3 hours; and educational practice, 3-5 hours.

4. Students must specialize in two subjects commonly taught in high schools. In the first of these subjects twenty hours of approved courses must be completed (except that in Agricultural Education 49 hours, Home Economics Education 36 hours, Athletic Coaching and Physical Education 41 hours, and Industrial Education 25 hours must be completed). In the other subject of specialization the student must complete 16 hours of approved courses. In computing the hours in the subjects of specialization, courses taken in other colleges prior to admission may be counted.

5. The remainder of the curriculum may be elected from a list of courses approved by the faculty of the College of Education.

SUBJECTS OF SPECIALIZATION FOR STUDENTS IN GENERAL EDUCATION

Agriculture

(Includes all courses in Agronomy, Animal Husbandry, Dairy Husbandry, Horticulture, Farm Mechanics, Farm Organization and Management.)

Art

(Includes Free Hand Drawing, Architecture 21, 23, 25, 27.)

Biology

(A well-balanced program selected from Zoology, Physiology, Entomology, Botany, Bacteriology. Twenty-five to thirty hours are required for a first subject of specialization; eighteen to twenty-two hours are required for a second subject of specialization.)

Botany

(Includes Bacteriology.)

Chemistry

Civics

(Includes Political Science, Sociology and History 44a and b.)

Commercial Subjects

(Include Accountancy, Business Organization and Operation, Business Law, Business Letter Writing, Transportation.)

Economics

English

(Includes all courses in English Literature, Rhetoric, and Public Speaking.)

General Science

(About 30 to 35 hours of beginning sciences for a first subject of specialization. About 20 to 25 hours for a second subject. The total should include at least one year of work in the physical sciences and one year in the biological sciences.)

Geography

(Includes Geology.)

German

History

Home Economics
Journalism
Latin
Law
Library
Industrial Education—Manual Training
Mathematics
Music
Physics
(Includes courses in Theoretical and Applied Mechanics.)
Physiology
(Includes Anatomy and Hygiene 10, sometimes Athletic Coaching 70.)
Physical Education (Boys)
Physical Education (Girls)
Public Speaking
(Must have thirteen hours of Public Speaking. The remainder may be English Literature.)
Spanish
Zoology
(Includes Physiology and Entomology.)

SELECTION OF SUBJECTS FOR SPECIALIZATION

In selecting subjects for specialization students are advised to give consideration to the combinations that are desired in high schools. The following are the most frequent subject combinations in Illinois high schools in 1929-30. The major teaching subject is named first followed by the minor teaching subjects in decreasing order of frequency.

Agriculture	Biology	P. E. (boys)	Gen. Science
Biology	Gen. Science	P. E. (boys)	History
Chemistry	Physics	Biology	Gen. Science
Commercial	Mathematics	History	English
English	Latin	History	Music
French	Latin	English	History
Gen. Science	Biology	Physics	Home Economics
History	English	Latin	Civics
Home Economics	English	Gen. Science	History
Latin	English	History	Mathematics
Library	English	Music	History
Manual Tr.	P. E. (boys)	Mathematics	Physics
Mathematics	P. E. (boys)	Physics	History
Music	English	History	Latin
Physics	Mathematics	Chemistry	Gen. Science
P. E. (boys)	Mathematics	History	Manual Tr.
P. E. (girls)	English	History	Home Economics
Spanish	French	English	Latin

CURRICULA

Because of the variety of curricula which the student may offer for admission to the College of Education none is presented in any department except Agricultural Education, Home Economics Education, Industrial Education, Athletic Coaching, Physical Education, Music Education. Students preparing to teach other subjects should follow the requirements stated under "Requirements for the Degree."

Suggested Curriculum in Agricultural Education

Meeting the requirements for the B.S. degree in Agricultural Education and for teacher-training under the Smith-Hughes Act.

1. *Prerequisite:*—In general two years (60 hours, exclusive of military) of a curriculum in another college.

   (See requirements for admission to the College of Education)

2. *Required courses:*

   (a) Students expecting to meet the requirements for teaching vocational agriculture should use the curriculum for General Agriculture set up by the College of Agriculture as a guide with reference to prescribed courses other than education and consult with the adviser in Agricultural Education as to desirable modifications and electives.

(b) *Technical Agriculture:*—required total.....49 hours
(Including the prescribed courses in technical agriculture required for the B.S. degree in Agriculture)

(c) *Education:*—required total.....20 hours
Including:
Education 25—Educational Psychology.
Education 10—Technic of Teaching.
Education 6—Principles of Secondary Education.
Agr. Educ. 50—Practice Teaching in Agriculture.
Agr. Educ. 51—Methods in Teaching Agriculture.
(According to the provisions of the Smith-Hughes Act, 13 hours of education are the minimum required for teachers of vocational agriculture in Illinois.)

3. *Elective courses:*—to make 130 hours.

Elective Courses Recommended

(a) *Agricultural courses:*
Agronomy 7, 8
Dairy Husbandry 2
Horticulture 8a, 2
Farm Mechanics 21, 3
Farm Organization and Management 5
Animal Husbandry 3, 6, 37

(b) *Non-agricultural courses:*
Agricultural Education 1
Agricultural Education 90
Psychology 1
Botany 7
Economics 13
Economics 16
Public Speaking, 1, 2
Zoology 1
Sociology 7
Journalism 24

Required Curriculum in Physical Education and Athletic Coaching

(Leading to degree of Bachelor of Science in Physical Education.)

In any curriculum in which fewer than 15 hours of laboratory science are required, a student who enters without at least one unit of laboratory science shall be required to substitute 5 hours of a laboratory science for 5 hours of free electives in the requirements for graduation.

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Group A[2]		Group A[2]	
A. C. 30—Football	2	A. C. 2—Calisthenics, Dancing, Tumbling, and Marching	4
A. C. 40—Basketball	2	*or*	
or		Group B[2]	
Group B[2]		A. C. 40—Basketball	2
A. C. 2—Calisthenics, Dancing, Tumbling, and Marching	4	A. C. 30—Football	2
with		*with*	
Anatomy 1	3	Anatomy 2	3
Rhet. 1—Rhetoric and Themes	3	Physiol. 1—General Physiology	2
Mil. 1a and 1b—Military Drill and Theory (or equivalent)	1	Mil. 2a and 2b—Military Drill and Theory (or equivalent)	1
Electives (Academic)	6–7	Rhetoric 12	5
		Electives (Academic)	2–3
Total	17–18	Total	17–18

SECOND YEAR

Group A[2]		Group A[2]	
A. C. 31—Football	2	A. C. 50—Baseball	4
A. C. 7—Boxing and Wrestling	2	*or*	
or		Group B[2]	
Group B[2]		A. C. 7—Boxing and Wrestling	2
A. C. 50—Baseball	4	A. C. 31—Football	2
with		*with*	
Physiol. 2—Physiol. of Physical Exercise	4	Hygiene 10	3
Ed. 28—Psychology of Athletics	3	Pub. Spk. 2—Business and Professional Speaking	2[3]
Pub. Spk. 1—Oral Expression	3	Journ. 8—Sports Writing	3[3]
Journ. 7—Sports Writing	3	Mil. 4a and 4b—Military Drill and Theory (or equivalent)	1
Mil. 3a and 3b—Military Drill and Theory (or equivalent)	1	Electives (Academic)	4–5
Total	18	Total	17–18

[1]Semester hours. For definition, see page 75.
[2]Students who take Group A first semester, must take Group A second semester. Students who take Group B first semester, must take Group B second semester.
[3]Suggested, but not required.

THIRD YEAR

FIRST SEMESTER	Hours[1]
Group A[2]	
A. C. 41—Basketball	2
A. C. 15—Recreational Activities	2
A. C. 70—Health Education and Corrective Gymnastics	4
or	
Group B[2]	
A. C. 20—Track	4
with	
Ed. 25—Educational Psychology	3
Ed. Prac. 1—Practice Teaching	2
Electives (Academic)	4–9
Total	17–18

SECOND SEMESTER	Hours[1]
Group A[2]	
A. C. 20—Track	4
or	
Group B[2]	
A. C. 41—Basketball	2
A. C. 15—Recreational Activities	2
A. C. 70—Health Education and Corrective Gymnastics	4
with	
A. C. 32—Football	2
Ed. 10—Technic of Teaching	3
Ed. Prac. 2—Practice Teaching	2
Electives (Academic)	6–3
Total	17–18

FOURTH YEAR

Group A[2]	
A. C. 4—Apparatus and Tumbling Stunts	4
A. C. 17—Org. and Adm.	3
A. C. 16—Training	2
or	
Group B[2]	
Ed. 8—Hist., Sys., and Theories of P. E.	2
Ed. 7 — School Programs of P. E.	3
A. C. 60—Swimming	2
with	
Ed. 6—Prin. of Secondary Educ.	3
Ed. Prac. 3—Practice Teaching	2
Ed. 48—Experimental Methods in Athletics	3[3]
Electives (Academic)	0–3
Total	17–18

Group A[2]	
A. C. 60—Swimming	2
Ed. 8—Hist., Sys., and Theories of P. E.	2
Ed. 7 — School Programs of P. E.	3
or	
Group B[2]	
A. C. 17—Org. and Adm.	3
A. C. 16—Training	2
A. C. 4—Apparatus and Tumbling Stunts	4
with	
Ed. 43—Physical and Mental Tests	3[3]
Ed. Prac. 4—Practice Teaching	2
Electives (Academic)	5–4
Total	17–18

Suggested Curriculum in Physical Education for Women

FIRST YEAR

Registration in the College of Liberal Arts and Sciences.

FIRST SEMESTER	Hours[1]
Rhetoric 1	3
Language	4
History or Mathematics	3–4
Physiology 1	2
Hygiene 2	½
P. E. 40a	1
Electives	2–3
Total	15½–17½

SECOND SEMESTER	Hours[1]
Rhetoric 2	3
Language	4
Chemistry	3–5
Electives	4
Hygiene 4	½
P. E. 40b	1
Total	15½–17½

SECOND YEAR

English 1 or Language	3–4
Zoology 1	5
Physiology 2	4
P. E. 41a	1
Electives	3
Total	16–17

English 2 or Language	3–4
Psychology 1	4
Zoology 2	5
P. E. 41b	1
Electives	3
Total	16–17

[1]Semester hours. For definition, see page 75.
[2]Students who take Group A first semester, must take Group A second semester. Students who take Group B first semester, must take Group B second semester.
[3]Suggested, but not required.

THIRD YEAR

Registration in the College of Education Junior and Senior Years, for the degree of B.S. in Education.[2]

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Education 25	3	Education 10	3
P. E. 15a—Methods	3	P. E. 15b—Methods	3
P. E. 16—Kinesiology	3	P. E. 18—Theory of Correctives	3
Public Speaking 1	3	P. E. 11b—First Aid	1
Electives[3]	5	Anatomy 2a	3
		Electives	3
Total	17	Total	16

FOURTH YEAR

P. E. 10a—History of P. E.	1	P. E. 10b—Organization and Adm.	1
P. E. 17a—Educational Practice	3	P. E. 17b—Educational Practice	3
Sociology 1	3	P. E. 19—Physical Diagnosis	2
Education 6	3	Electives in Education	6
Electives	7	Electives	5
Total	17	Total	17

Suggested Curriculum in Industrial Education

In any curriculum in which fewer than 15 hours of laboratory science are required, a student who enters without at least one unit of laboratory science shall be required to substitute 5 hours of a laboratory science for 5 hours of free electives in the requirements for graduation.

I. Curriculum for Supervisors and Directors of Industrial Education, for Heads of Departments, and High School Teachers of Manual Arts.

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
G. E. D. 1—Elements of Drafting	4	Econ. 27—Modern Industry	3
Rhet. 1—Rhetoric and Themes	3	Art 1—Freehand Drawing	3
Indus. Ed. 1—Manual Arts, 1st Course	4	Math. 4—Trigonometry	2
Phys. Ed.—Gymnasium	½	Rhet. 2—Rhetoric and Themes	3
Hyg. 1—Hygiene	½	Indus. Ed. 2—Adv. Manual Arts	4
Military Drill and Theory	1	Phys. Ed.—Gymnasium	½
Electives	2–5	Hyg. 3—Hygiene	½
		Military Drill and Theory	1
		Electives	1
Total	15–18	Total	18

SECOND YEAR

Ed. 3—Survey of Modern Educational Problems	3	Indus. Ed. 2a—Advanced Manual Arts	4
M. E. 85—Pattern and Foundry	3	Psych. 1—Introduction to Psychology	4
Journ. 9a—Printing	3	Econ. 1—Principles of Economics	5
Phys. Ed.	½	Military Drill and Theory	1
Military Drill and Theory	1	Phys. Ed.	½
Electives	4–6	Electives	1–4
Total	14½–16½	Total	15½–18½

THIRD YEAR

Econ. 41—Introduction to Labor Prob.	3	Ed. 10—Technic of Teaching	3
Ed. 25—Educational Psychology	3	Econ. 24—Economic Develop. of Mod. Europe	3
Indus. Ed. 50—Problems of Indus. Ed.	3	M. E 88—Machine Laboratory	3
M. E. 87—Machine Laboratory	3	B. O. and O. 1—Indus. Organization and Management	3
Electives	3–6	Electives	3–6
Total	15–18	Total	15–18

[1]Semester hours. For definition, see page 75.
[2]All transfer students from Colleges or Normal Schools must have necessary prerequisites in order to major in Physical Education.
[3]Students who have not had Engl. 1 and 2 or 10 and 11 are required to take Engl. 20a.

FOURTH YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Ed. 6—Prin. of Secondary Ed.	3	Indus. Ed. 62—History and Organization of Indus. Arts	3
Ed. 41—Problems of Vocational Ed.	3	Ed. 55—Problems of Vocational Guidance	3
Indus. Ed. 57—Organization of Shop-work	3	Ed. Prac. 16—Supervised Teaching	3–5
Sociol. 1—Principles of Sociology	3	Electives	6–9
Electives	3–6		
Total	15–18	Total	15–18

II. Curriculum for Teachers of Related Subjects and General Continuation Teachers. Same as I. Electives to be chosen with advice of instructor.

III. Two-year Curriculum for Teachers of Related Subjects and General Continuation Subjects.

Students over 21 years of age who are graduates of accredited high schools may, with the approval of the dean of the college and the head of the department, select two years of work from the Curriculum under I. Students over 25 are not required to take Physical Education or Military Training.

IV. Curriculum for Teachers of Shop Work in Vocational Schools and Classes Operating under the State Board for Vocational Education.

FIRST YEAR

First Semester

Psychological basis of trade teaching. Analysis of teaching material in trades. Lesson planning. Observation of trade teaching. Reports on observations. (Such study of mathematics, science, drawing, and English as may be needed by shop teachers will be included.)

Second Semester

Further work in trade analysis and observation of teaching. Special study of evening school problems. Analysis of the evening school student. Intensive study of methods of teaching Organization of teaching material. Organization of related subjects. Course-planning. Practice teaching.

SECOND YEAR

First Semester

History of trade and industrial education. Place of industrial education. Types of industrial schools and classes. Problems of administration of industrial education.

Second Semester

Early American legislation on vocational education. The Smith-Hughes law. Other modern laws and movements. State vocational education laws. The Illinois plan. Observation and practice teaching.

HOME ECONOMICS EDUCATION

Required for the Degree of Bachelor of Science

(Home Economics Education)

Prescribed Subjects

	Hours[1]
Home Economics 1 and 6 (or 44), 2, 5, 7, 10, 29	20 or 25
Art 13a and 13b	4
Chemistry 1 or 2, 5	10 or 8
Chemistry 33	5
Economics 1 or 2	5 or 3
Physiology 4	5
List A, a minimum of	13

List A (a minimum of 13 hours)

Home Economics 3, 14, 19, 20, 28, 30, 31, 33, 39a, 39b, 41, 43a, 43b, 46, 47, 55.

[1]Semester hours. For definition, see page 75.

Required for the Degree of Bachelor of Science

(Home Economics Education—Smith-Hughes)

Students expecting to meet the requirements for teacher-training under the Smith-Hughes Act should include the following subjects in their four-year curriculum.

	Hours[1]
Art 13a—Design	2
Art 13b—Design	2
Bacteriology 5a, 5b—Introductory Bacteriology	5
Chemistry 1 or 2—Inorganic Chemistry	5 or 3
Chemistry 5—Inorganic and Qualitative Analysis	5
Chemistry 33—Organic Chemistry	5
Economics 2—Principles of Economics	3
Education 6—Principles of Secondary Education	3
Education 10—Technic of Teaching	3
Education 14—Home Economics Education	5
Education 25—Educational Psychology	3
English Literature	6 or 8
Home Economics 1[2]—Foods	4
Home Economics 2—Home Architecture	3
Home Economics 3—Home Decoration	3
Home Economics 5—Dietetics	4
Home Economics 6[2]—Foods	4
Home Economics 7—Textiles	3
Home Economics 10—Household Organization and Management	3
Home Economics 11—Teachers' Course	3
Home Economics 13—Home Economics in Education	3
Home Economics 14—Practice House	3
Home Economics 19—Costume Design	3
Home Economics 29—Clothing	4
Home Economics 30—Clothing	3
Hygiene 2, 4—Essentials of Hygiene and Sanitation	1
Physical Education (women)—Gymnasium	4
Physiology 4—Physiology of Digestion	5
Psychology 1—Introduction to Psychology	4
Rhetoric 1, 2—Rhetoric and Themes	6
Sociology 1—Principles of Sociology	3
Electives[2]	15 or 19
Total	130

Curriculum in Public School Music Education

The first and second years follow the curriculum of the same years in the School of Music. One of the applied-music subjects must be Piano during these two years.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Music 25a (Public School Methods)	3	Music 25b (Public School Methods)	3
Music 52a, 62a, 72a, or 92a[3]	2	Music 52b, 62b, 72b, or 92b	2
Music 62a, or 92a (different)	2	Music 62a or 92a (different)	2
Music 13 (Appreciation)	2	Music 14 (Appreciation)	2
Music 15 (Instrumentation)	1	Music 16 (Instrumentation)	1
Psychology 1	4	Education 25	3
Electives[4]	3–4	Electives	3–5
Total	17–18	Total	16–18

FOURTH YEAR

Music 26a (Public School Methods	3	Music 26b (Public School Methods)	3
Education 10 (Technic of Teaching)	3	Education 6 (Principles of Secondary Education)	3
Educational Practice 20	3–4	Educational Practice 20	3–4
Electives	4–5	Electives	4–5
Total	13–15	Total	13–15

[1]Semester hours. For definition, see page 75.

[2]Suggested Electives: Home Economics 1 and 6 or Home Economics 44.

[3]If Voice has been taken as a *major* or a *minor* subject during the first two years, two semesters of an orchestral instrument are required during the junior year. Otherwise two semesters of Voice are required during the junior year.

[4]Electives suggested: Counterpoint; English or American literature. Electives to be selected only after conference with adviser.

THE COLLEGE OF LAW

Law students should read the General Directions given in paragraphs 1-23 on pages 6-10. Having secured their study-lists they should report at the Dean's Office in 301 Law Building. *Law students are also advised to study carefully the special announcement of the College of Law which may be obtained at the office of the Dean.*

Each student should follow, *point by point,* the directions given on the first coupon of his study-list.

The College of Law offers a three-year curriculum in law leading to the degrees of Bachelor of Laws (LL.B.) and Doctor of Law (J.D.) The degree of Doctor of Law (J.D.) is open to students who fulfil the conditions specified on pages 163-166 of the 1930-31 University Register.

Admission as a Regular Student

The following persons only will be admitted as candidates for law degrees:

1. Graduates of colleges and universities of approved standing.

2. Students in the University of Illinois of senior standing[1] having at least an average grade of C (3.) who are permitted to elect courses in law for the degree of Bachelor of Arts or for the degree of Bachelor of Science.

Six-year Combined Curricula

Thirty hours of law may be credited toward the degree of Bachelor of Arts in the College of Liberal Arts and Sciences or toward the degree of Bachelor of Science in the College of Commerce and Business Administration. In this manner students may secure in six years both a degree in arts or commerce and a degree in law. (See p. 99 of the 1930-1931 register for statement of electives in law in the College of Liberal Arts and Sciences and pp. 115-116 for curriculum in Commerce and Law.) A candidate for both degrees must in his fourth year register in the College of Law, and also register or file a copy of his study-list in his other college, as that college may reqiure.

Students in Other Colleges Electing Law Courses

A student registered in another college of the University who has an average grade of C (3.) and who otherwise is eligible to enrollment in the College of Law may elect courses in law provided that not less than two courses amounting to at least five hours are taken per semester, under the advice of the dean of the College of Law as to the course to be taken, and provided, further, that if any such student desires to take more than six hours of law work, he must register in the College of Law and thus become subject to the regulations of that College.

Prescribed and Suggested Courses
Pre-Legal

Students are advised to plan their pre-legal college work with great care and to consult members of the law faculty in regard to their plans.

Students taking the combined curriculum of either the College of Liberal Arts and Sciences or the College of Commerce and Business Administration and the College of Law must exercise care to comply with the group, major, and minor requirements of the college in which their pre-legal work is taken. Such students are urged to complete all of these requirements and at least one hundred hours of credit before entering the College of Law in order that they may devote their entire fourth year to the first year of the law curriculum.

[1]To obtain senior standing in the University of Illinois a student must have 94 hours of university credit.

The prospective law student is advised to choose his work, beyond those subjects prescribed in the college in which he is registered, from among the following courses: Accountancy; Economics: Principles of Economics, Money and Banking, Corporation Management and Finance, Labor Problems, Public Finance and Taxation; Political Science: American Government, State Government, Municipal Government, International Law and Principles of Jurisprudence; Philosophy: Logic, Introduction to Philosophy and Political and Social Ethics; History: English History, History of the United States, Constitutional History of England, and Constitutional History of the United States; Latin; Psychology; Sociology; English; Rhetoric; Public Speaking.

Professional

Fifteen hours of law work should be enough to occupy a student's full time; he cannot register for more without special permission.

FIRST YEAR

(Prescribed)

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Law 1a—Contracts	3	Law 1b—Contracts	3
Law 2a—Torts	4	Law 2b—Torts	2
Law 3—Personal Property	3	Law 11—Agency	3
Law 4—Procedure I	2	Law 12—Equity I	3
Law 5—Criminal Law	3	Law 29—Real Property I	4
Total	15	Total	15

The courses of the second and third years are elective.

Specialization in Certain Fields of the Law

The program of courses is so arranged that a student may enter upon a measure of specialization in some fields. This is accomplished through giving substantial primary courses open to all students and designed to meet the needs of those who desire to prepare themselves only for general practice, and through offering to others, who wish further training in these fields, the opportunity to elect in them separate and advance courses.

[1]Semester hours. For definition, see page 75.

THE SCHOOL OF JOURNALISM

DIRECTIONS FOR REGISTRATION

The General Directions for Registration apply to journalism and pre-journalism students. (See pages 6-10). Students who have been admitted to the School of Journalism may secure their study-lists at the office of the Director, 101 University Hall.

Pre-journalism freshmen and sophomores may register "pre-journalism" within the College of Liberal Arts and Sciences and follow the routine prescribed for registration in that college. Juniors, with or without journalism credit, may register in the School of Journalism with junior standing if they present the required work in rhetoric, science, and social sciences. Seniors in the University may register in the School of Journalism with advanced standing

ADVISERS

Junior and Senior in the School of Journalism—Professor Murphy, 101 University Hall.

(Sections will be approved at the University Library).

Graduate students taking work in journalism—Professor Murphy, 101 University Hall.

GENERAL STATEMENT

The School of Journalism offers a two-year curriculum in journalism, based o an entrance requirement of two years of college work (60 semester hours, ex clusive of physical education, military science, and hygiene), leading to the de gree of Bachelor of Science in Journalism.

REQUIREMENTS IN DETAIL

Bachelor of Science in Journalism

Admission: For admission to the School of Journalism as a candidate for degree a student must be able to matriculate in one of the undergraduate co leges and must offer in addition *60 semester hours* of college work of acceptab grade, exclusive of physical education, hygiene, and military; but inclusive the following prescribed subjects:

Rhetoric and Composition, 6 hours (Rhetoric 1 and 2, or a proficiency e amination equivalent to an examination in Rhetoric 2).

Science, 10 hours in any two of the following subjects: zoology, botan chemistry, physics, geology. (Attention is called to the University requireme that a student who enters the University without at least one unit of high-scho work in laboratory science must substitute five hours of a laboratory science f five hours of free electives in the requirements for graduation).

History, political science, economics, and sociology, 8 hours.

As desirable electives the following subjects are suggested: English lite ature, 6 hours; accountancy, 3 hours; newspaper reporting, 6 hours; printi and publishing, 4 hours; introduction to journalism, 2 hours; foreign languag 8 hours.

Graduation requirements are as follows:

(1) Registration in the School of Journalism.

(2) Completion of a total of 130 hours, including the 60 hours required f admission.

(3) Completion of the following work as a part of the 130 hours requir for graduation:

a. At least 30 hours in journalism including: reporting, 6 hours; copyreading, 6 hou printing and publishing, 2 hours; newspaper advertising or business problems, 2 hours; hist of journalism, 3 hours; ethics of journalism, 3 hours; special problems or thesis, 2-4 hou

b. At least 20 hours chosen from the following subjects, with one or more courses n any four of them: history, economics, sociology, political science, business organization d operation.

c. At least 12 hours in literature. (The work in literature may be done in any language. In foreign languages, only courses that are based on two years of college work, or their equivalent, in the given language, may be counted toward these twelve hours.)
d. A course in rhetoric beyond 1 and 2.
e. Three hours in philosophy.

SCHOOL OF JOURNALISM PROGRAM

A Normal Program for Bachelor of Science in Journalism

No. 1. For students from the pre-journalism curriculum.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
History of Journalism	3	Ethics of Journalism	3
Social Sciences, etc.	3–6	Social Sciences, etc.	3–6
Copyreading	3	Copyreading	3
Literature or Philosophy	3–4	Literature or Adv. Rhet.	2–4
Electives	4–2	Electives	6–2
Total	16–18	Total	17–18

FOURTH YEAR

Editorial Writing	2	Advertising or Business Problems	2
Special Problems or Thesis	2	Special Problems or Thesis	2
Social Sciences	3–6	Social Sciences	3–6
Literature or Philosophy	3–4	Literature or Adv. Rhet.	3–4
Electives	6–4	Electives	6–4
Total	16–18	Total	16–18

No. 2. For students from various courses in other colleges.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Reporting	3	Reporting	3
Printing and Publishing	2	Journalism Elective	2
History of Journalism	3	Ethics of Journalism	3
Literature or Philosophy	3–4	Literature or Adv. Rhet.	2–4
Social Sciences	3–4	Social Sciences	3–4
Electives	3–2	Electives	4–2
Total	17–18	Total	17–18

FOURTH YEAR

Copyreading	3	Copyreading	3
Editorial Writing	2	Advertising or Business Problems	2
Special Problems or Thesis	2	Special Problems or Thesis	2
Literature or Philosophy	3–4	Literature or Adv. Rhet.	3–4
Social Sciences	3–4	Social Sciences	3–4
Electives	4–3	Electives	4–3
Total	17–18	Total	17–18

[1]Semester hours. For definition, see page 75.

THE LIBRARY SCHOOL

First year Library students should present themselves in Room 300 Library Building, where both their admission and their registration may be completed. Second year students follow directions for registration in the Graduate School.

CURRICULUM IN LIBRARY SCIENCE

The curriculum is two years in length. For graduation a student must receive credit for all courses listed in the curriculum on page 175 of the *Annual Register* except those marked with an asterisk (*), which are elective. The degree of Bachelor of Science in Library Science is conferred on a student when he has completed the required work in the first year's curriculum, and has received credit in courses amounting to 30 hours. Second year students register in the Graduate School as candidates for the Master's degree.

RECOMMENDED PRELIMINARY CURRICULUM

Undergraduates who intend, on the completion of their college work, to apply for admission to the Library School, should select their courses so as to conform in general to the following recommended program of studies preparatory to library work.

English literature, 10[1]; rhetoric, 6.
Latin, 4, in addition to four years of high-school Latin.
German, 12, in addition to two years of high-school German.
French, 8, in addition to two years of high-school French.
German and French begun in college instead of in the high school should be continued for a longer period.
Medieval and modern European history, 6; history of England, 6; history of the United States, 6.
Economics, 6; political science, 4; sociology, 6.
Philosophy, 4; general psychology, 4; education, 6.
Zoology, 6; botany, 4; chemistry or physics, 6.
The total of this work is 104 semester hours, leaving the equivalent of one-half year of a four-year course free for work in other subjects or for more work in the subjects named.

PREPARATION FOR SPECIAL LIBRARIES

Advanced students who desire to prepare themselves for work in special libraries (e.g., normal school, historical, business, agricultural) may, with the approval of the faculty, substitute certain advanced courses in other colleges and schools of the University for certain Library School courses.

LIBRARY VISITS

Each year all the students in the Library School are required to visit the libraries and certain of the book binderies, book stores, and printing establishments of either Chicago and vicinity or St. Louis and vicinity. During this visit, which occupies one week, the students are accompanied by members of the faculty. The expense of this week is about $30 per student.

[1]The figure after each subject denotes the minimum number of semester hours which the student should devote to that subject.

THE GRADUATE SCHOOL

ADMISSION

Admission to the Graduate School may be granted to graduates of institutions whose requirements for the bachelor's degree are equivalent to those of the University of Illinois, and to applicants from other institutions approved by the Executive Faculty. *Admission to the Graduate School does not, however, imply admission to candidacy for an advanced degree, and gives no right or claim to be so admitted. Such candidacy is determined by the Faculty after the student has demonstrated by his work here, for from two to five months, that he has the ability to do major work of graduate character. A mere accumulation of "credits" or "grades" is not sufficient.*

Admission to graduate courses may be granted only to those who have had the requisite undergraduate work in those courses. But a student of mature age who satisfies the Dean and the department concerned of his ability to pursue graduate work in a given line may be enrolled in particular graduate courses, and permitted to carry on such study or investigation under the direction of a department of the University as the department shall recommend and the Dean approve.

REGISTRATION

A candidate for admission to the Graduate School should proceed first to the Registrar's Office, 100-A Administration Building, taking with him his official statement of credits from the college of which he is a graduate.

At the Registrar's Office he will be asked to fill out in duplicate an "application for admission" and file therewith his statement of credits.

A candidate from a college or university of recognized standing will receive: (1) permit to enter; (2) a memorandum of prerequisites to be made up (a blank to be used by his advisers in indicating whether or not he is fully ready to enter upon graduate study in his major and minor subjects); and (3) a study-list.

The candidate should obtain a copy of the circular of the Graduate School, and should note the requirements and regulations explained therein, particularly those under the headings "Registration and Program of Study" and "Degrees." He should then proceed with his registration in accordance with these requirements and regulations and with the "Directions for Registration" given on the first coupon of his study-list.

COURSES OF STUDY

Courses of study open to graduate students are of three classes: (1) graduate courses proper, which are numbered from 100 upwards, in the various departments; (2) courses for graduates and advanced undergraduates, which are an intermediate group of advanced courses open to seniors, and occasionally to juniors, as well as to graduate students; (3) miscellaneous courses which include any course in the University not in the two preceding groups. Miscellaneous courses are not accepted for credit towards a degree, and students are permitted to take them only under certain restrictions.

THE COLLEGE OF FINE AND APPLIED ARTS

DIRECTIONS FOR REGISTRATION

(1) Read the General Directions for Registration, pages 6-10.

(2) Obtain your study-list; (A) if you already have a permit to register in the College of Fine and Applied Arts at the Hall of Casts, Architectural Building.

(B) If you have *not* yet secured a permit to register in the College of Fine and Applied Arts, at the Registrar's Office, 100-A Administration Building.

(3) Follow *point by point,* the directions printed on the first coupon of the study-list, finding your advisers as follows:

Architecture.....210 Architecture Building
Art.....105 Architecture Building
Landscape Architecture.....203 New Agricultural Building
Music.....100-102 Smith Memorial Hall

(4) Each student must secure the approval of his Registration Adviser for the studies he has chosen. This approval must be indicated by officer's signature on the study-list. Each student must then report first to the Library to secure approval of sections in courses other than professional, and afterwards to the Auditorium to make out class cards, and to pay fees. New study-lists will be found in the lobby of the Library.

REQUIREMENTS FOR ADMISSION

Until further notice the requirements for entrance to the various departments of the College of Fine and Applied Arts are as follows:

Architecture—same as the requirements for admission to the College of Engineering.

Art—same as the general requirements for admission to the College of Liberal Arts and Sciences.

Landscape Architecture—same as the requirements for admission to the College of Agriculture.

Music—same as the general requirements for admission to the College of Liberal Arts and Sciences except that the student offers two units of music in lieu of two units of electives from List B. (See Requirements for Admission in current *Annual Register.*)

REQUIREMENTS FOR GRADUATION

Students who have satisfied the University requirements as to registration, residence, and diploma fee, and who have maintained throughout their course a satisfactory record of scholarship and moral character, will, on completion of the curricula hereinafter specified, be graduated and appropriate degrees conferred.

Students who entered the Department of Architecture prior to June 1, 1930 or who have entered with sophomore standing or above in 1930-31 will finish the curricula in effect at that time. Other students will enroll in the curricula with the optional requirements.

Candidates for the degree of Bachelor of Music must offer credit for 13 semester hours, including the prescribed subjects named below, one of which must be piano.

All students enrolled in the School of Music are required to attend the recitals and concerts given every Tuesday. These occur at 11 A.M. on the first

and third weeks of the month, and at 7 P.M. on the second, fourth, and fifth. More than three unexcused absences during the semester will affect the grade of the major applied music subject, of which this required attendance is a part.

Performances being also a part of the course of study in the applied music subjects, all students are required to participate in a program when sufficiently prepared.

TRIPS OF INSPECTION

An inspection trip is one of the regular requirements in the senior year of the curricula leading to the degrees of Bachelor of Science in Architecture and Architectural Engineering. The time required is three or four days, and the places visited are usually in Chicago. The trips are taken during term time under the supervision of the University authorities. The expense to each student varies from $25 to $35.

ELECTIVES AND OPTIONS

Non-technical electives—The non-technical electives for students in the various options in Architecture are subject to the following restrictions:

1. They are restricted to courses offered in the College of Liberal Arts and Sciences, the College of Commerce, courses 1 to 16 in the School of Music, Landscape Architecture 71 and 72, and courses in Education, Group A, in the College of Education.
2. Such courses must not be open to freshman students except in the cases of Library Science 12, Mathematics 5, History 1a and 1b, 2a and 2b, Geography 1, Geology 1, Botany 1, and Zoology 1.
3. Students in Architecture electing the third and fourth years' work in the Reserve Officers' Training Corps may substitute the credit thus received for the required non-technical electives.

Technical electives—Any course in the College of Engineering not prescribed in the curriculum in which the student is registered, excepting only General Engineering Drawing 1 and 2, and courses in the College of Fine and Applied Arts approved by the head of the Department.

REQUIREMENTS IN RHETORIC AND FOREIGN LANGUAGE FOR STUDENTS IN ARCHITECTURE

For the year 1931-32 the definitions and requirements for Rhetoric and foreign language as printed on pages 34-35 under the College of Engineering will prevail.

DIRECTIONS FOR STUDENTS IN THE SCHOOL OF MUSIC

Practice pianos may be secured at the rate of $3 a semester for one hour a day. Six practice organs are installed for the use of organ students at a reasonable fee.

A student matriculated in the School of Music takes throughout his course two applied subjects, one a major (piano, voice, etc.) in which two half-hour lessons a week are taken, and the other a minor, in which two twenty-minute lessons a week are taken.

The University Choral Society, the University Orchestra, and the Glee Clubs are open to qualified persons from any college.

Students from other colleges desiring to take courses in applied music (i.e., piano, voice, etc.) who have not been previously registered for courses, must pass an entrance examination. For particulars consult the Director of the School of Music.

The Course in Public School Music

Candidates for the degree of Bachelor of Science in Music Education will enter the College of Education at the beginning of the third year. For curriculum see page 59.

Curriculum in Architecture
(Classes 1932-1933)

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Arch. 15—History of Architecture	2	Arch. 16—History of Architecture	2
Arch. 25—Freehand Drawing	2	Arch. 26—Freehand Drawing	2
Arch. 35—Design	5	Arch. 36—Design	5
Arch. 45—Graphic Statics	3	Arch. 46—Roofs	3
Arch. 65—Theory of Architecture	1	Arch. 55—Building Sanitation	1
E. E. 90—Building Illumination	1	Arch. 66—Theory of Architecture	1
French or German	4	French or German	4
Total	18	Total	18

FOURTH YEAR

Arch. 27—Freehand Drawing	2	Arch. 18—History of Architecture	2
Arch. 37—Design	7	Arch. 28—Freehand Drawing	2
Arch. 68—Specifications	3	Arch. 38—Advanced Design or Thesis	7
Arch. 99—Inspection Trip	0	Arch. 60A—Special Lectures	2
M. E. 25—Heating and Ventilation	2	Arch. 67—Theory of Form and Color	2
Non-technical Elective[2]	3	Non-technical Elective[2]	2
Total	17	Total	17

Curriculum in Architectural Engineering
(Classes 1932-1933)

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Arch. 15—History of Architecture	2	Arch. 16—History of Architecture	2
A. E. 35—Design	3	A. E. 36—Design	3
A. E. 45—Graphic Statics	3	A. E. 46—Graphic Statics	3
Language or Approved Elective	4	Language[3] or Approved Elective	4
T. A. M. 3—Resistance of Materials	3	T. A. M. 2—Analytical Mechanics	3
T. A. M. 63—Resistance of Materials Lab.	1	Approved Elective	2
Non-technical Elective[2]	2		
Total	18	Total	16

FOURTH YEAR

A. E. 47—Architectural Engineering	5	A. E. 48—Architectural Engineering	5
A. E. 57—Fireproof Construction	2	A. E. 58—Fireproof Construction	2
A. E. 99—Inspection Trip	0	A. E. 67—Building Sanitation	2
E. E. 92—Lighting and Wiring	2	A. E. 68—Estimates and Specifications	4
M. E. 23—Mechnical Equipment of Buildings	5	Technical Elective	4
Non-technical Elective[2]	3		
Total	17	Total	17

(For the class of 1934 and for all classes thereafter)

FIRST YEAR
All Options

Arch. 31a—Arch. Design	3	Arch. 32a—Arch. Design	3
Arch. 21—Freehand Drawing	2	Arch. 22—Freehand Drawing	2
G. E. D. 7—Architectural Projections	2	G. E. D. 8—Architectural Projections	2
Math. 2—Advanced Algebra	3	Math. 6a—Analytics	4
Math. 4—Trigonometry	2	Rhet. 2—Rhetoric and Themes	3
Rhet. 1—Rhetoric and Themes	3	Physical Education	
Physical Education	½	Hyg. 3—Hygiene (men)	
Hyg. 1—Hygiene (men)	½	Mil. 2a and 2b, 12a and 12b, 22a and 22b, or 32a and 32b—Military Drill and Theory	1
Mil. 1a and 1b, 11a and 11b, 21a and 21b, or 31a and 31b—Military Drill and Theory	1		
Total	17	Total	16

[1]Semester hours. For definition, see page 75.
[2]Any approved non-technical elective. See page 67.
[3]French, German, Spanish, or English.

SECOND YEAR

General and Design Options

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Arch. 13—History of Architecture	2	Arch. 14—History of Architecture	2
Arch. 23—Freehand Drawing	2	Arch. 24—Freehand Drawing	2
Arch. 33—Architectural Design	3	Arch. 34—Design	3
Arch. 43—Technology of Materials	3	Arch. 44—Technology of Materials	3
Phys. 7a—Physics Lectures	3	Phys. 7b—Physics Lectures	3
Phys. 8a—Physics Laboratory	2	Phys. 8b—Physics Laboratory	2
T. A. M. 17—Elements of Mechanics	3	T. A. M. 18—Strength of Materials	3
Physical Education	½	Physical Education	½
Mil. 3a and 3b, 13a and 13b, 23a and 23b, or 33a and 33b—Military Drill and Theory	1	Mil. 4a and 4b, 14a and 14b, 24a and 24b, or 34a and 34b—Military Drill and Theory	1
Total	19½	Total	19½

Construction Option

(Architectural Engineering)

Arch. 13—History of Architecture	2	Arch. 14—History of Architecture	2
Arch. 23—Freehand Drawing	2	Arch. 24—Freehand Drawing	2
Arch. 33—Arch. Design	3	Arch. 34—Arch. Design	3
Math. 7—Differential Calculus	5	Math. 9—Integral Calculus	3
Phys. 7a—Physics Lectures	3	Phys. 7b—Physics Lectures	3
Phys. 8a—Physics Laboratory	2	Phys. 8b—Physics Laboratory	2
Physical Education	½	T.A.M. 1—Analytical Mechanics (statics)	2
Mil. 3a and 3b, 13a and 13b, 23a and 23b, or 33a and 33b—Military Drill and Theory	1	Physical Education	½
		Mil. 4a and 4b, 14a and 14b, 24a and 24b, or 34a and 34b—Military Drill and Theory	1
Total	18½	Total	18½

THIRD YEAR

General and Design Options

Arch. 15—History of Architecture	2	Arch. 16—History of Architecture	2
Arch. 25—Freehand Drawing	2	Arch. 26—Freehand Drawing	2
Arch. 35—Design	5	Arch. 36—Architectural Design	5
Arch. 45—Graphic Statics	3	Arch. 46—Graphic Statics	3
Arch. 65—Theory of Architecture	1	Arch. 55—Building Sanitation	1
E. E. 90—Theory of Illumination	1	Arch. 66—Theory of Architecture	1
French	4	French	4
Total	18	Total	18

Construction Option

(Architectural Engineering)

Arch. 15—Hist. of Architecture	2	Arch. 16—Hist. of Architecture	2
Arch. 43—Tech. of Materials	3	Arch. 44—Tech. of Materials	3
Arch. 45—Graphic Statics	3	Arch. 46—Graphic Statics	3
T. A. M. 3—Resistance of Materials	3	T. A. M. 2—Analytical Mechanics	3
T. A. M. 63—Resistance of Materials Lab.	1	Language or Approved Elective	4
Language or Approved Elective	4	Non-technical Elective	3
Non-technical Elective	3		
Total	19	Total	18

FOURTH YEAR

General Option

Arch. 17—Hist. of Architecture	2	Arch. 18—Hist. of Architecture	2
Arch. 27—Freehand Drawing	2	Arch. 28—Freehand Drawing	2
Arch. 41—Bldg. Design & Theory	6	Arch. 42—Bldg. Design & Theory	6
Arch. 68—Specifications	3	Arch. 60—Concrete	2
Arch. 99—Inspection Trip	0	Arch. 83—Office Practice	2
M. E. 25—Heating and Ventilating	2	Non-technical Elective	3
Non-technical Elective	3		
Total	17	Total	17

[1]Semester hours. For definition, see page 75.

Design Option

FIRST SEMESTER	Hours[1]
Arch. 17—Hist. of Architecture	2
Arch. 27—Freehand Drawing	2
Arch. 29—Modeling	2
Arch. 37a—Arch. Design & Theory	9
Arch. 69—Specifications	2
Arch. 99—Inspection Trip	0
Total	17

SECOND SEMESTER	Hours[1]
Arch. 18—Hist. of Architecture	2
Arch. 28—Freehand Drawing	2
Arch. 30—Modeling	2
Arch. 38a—Arch. Des. & Theory	9
Arch. 60—Concrete	2
Total	17

Construction Option
(Architectural Engineering)

Arch. 47—Steel Construction	5
Arch. 57—Concrete	3
Arch. 83—Office Practice	2
Arch. 99—Inspection Trip	0
E. E. 92—Lighting & Wiring	2
M. E. 23—Mech. Equip. of Bldgs	5
Total	17

Arch. 48—Steel Construction	5
Arch. 56—Building Sanitation	2
Arch. 58—Concrete	3
Arch. 68—Specifications	3
Technical Elective	5
Total	18

Curriculum in Landscape Architecture

Required for the Degree of Bachelor of Science in Landscape Architecture

The curriculum provides for a four years' course which is intended as prepara tion for the professional practice of Landscape Architecture. Courses are ope to any student in the University having the prerequisites or their equivalent

Of the 130 semester hours required for graduation, 117 hours are provide for in the prescribed list. The other 13 hours necessary for graduation a electives.

FIRST YEAR

FIRST SEMESTER *Prescribed Subjects*	Hours[1]
Arch. 71—Architectural Elements	4
L. A. 11—History of Land. Arch	3
Math. 4—Plane Trigonometry	2
Rhet. 1—Rhetoric and Themes	3
Phys. Ed.—Gymnasium	½
Hyg. 1—Hygiene (men)	½
Hort. 1a—Elements of Horticulture	2
Military Drill and Theory	1
Total	16

SECOND SEMESTER *Prescribed Subjects*	Hou
Arch. 72—Architectural Elements	4
Bot. 5—General Botany	3
Art 2a—Composition and Design	2
Rhet. 2—Rhetoric and Themes	3
Phys. Ed.—Gymnasium	
Hyg. 3—Hygiene (men)	
Hort. 1b—Elements of Horticulture	2
Military Drill and Theory	1
Total	16

[1]Semester hours. For definition, see page 75.
[2]The courses in Landscape Architecture have been renamed and renumbered as follo

Old Name and Number	New Name and Number
Horticulture 10a	Landscape Architecture 62
" 21a	" " 31
" 21b	" " 32
" 23a	" " 33
" 23b	" " 34
" 24a	" " 51
" 24b	" " 52
" 25a	" " 35
" 25b	" " 36N
" 26a	" " 53
" 26b	" " 54
" 27a	" " 43
" 27b	" " 44
" 36	" " 11
" 37a	" " 71
" 37b	" " 72
" 38	" " 46
" 40	" " 55
" 42	" " 64

SECOND YEAR

FIRST SEMESTER
Prescribed Subjects

	Hours[1]
C. E. 17—Surveying	3
L. A. 31—Landscape Design	4
Arch. 75—Frame Constr. Details	3
Arch. 11—History of Architecture	3
Bot. 8—Plant Ecology	3
Military Drill and Theory	1
Physical Education	½
Total	17½

SECOND SEMESTER
Prescribed Subjects

	Hours[1]
C. E. 18—Surveying	3
L. A. 32—Landscape Design	4
Arch. 76—Masonry Constr. Details	3
Arch. 12—History of Architecture	3
Military Drill and Theory	1
Physical Education	½
Total	14½

THIRD YEAR

L. A. 33—Landscape Design	4
L. A. 51—Trees and Shrubs	3
L. A. 43—Landscape Construction	3
Engl. 20a—English Writers of the 19th Century	4
Pub. Spk. 1—Public Speaking	3
Total	17

L. A. 34—Landscape Design	4
L. A. 52—Trees and Shrubs	3
L. A. 44—Landscape Construction	3
Hort. 31—Garden Flowers	3
Total	13

FOURTH YEAR

L. A. 35—Landscape Design	5
L. A. 53—Planting Design	3
L. A. 71—City Planning	2
L. A. 55—Care of Plant Materials	2
Total	12

L. A. 36N—Landscape Design	5
L. A. 54—Planting Design	3
L. A. 72—City Planning	2
L. A. 46—Office Practice	1
Total	11

Required for the Degree of Bachelor of Science in the City Planning Option in Landscape Architecture

The first two years' work to be the same as the present curriculum in landscape architecture, except that French or German is to be substituted for *Architecture 75* and *76* (Frame and Masonry Construction).

THIRD YEAR

FIRST SEMESTER
Prescribed Subjects

	Hours[1]
L. A. 33—Landscape Design	4
L. A. 43—Landscape Construction	3
Engl. 10a—An Introduction to Literature	3
Public Speaking	3
Econ. 2—Elements	3
Journ. 12—Publicity Methods	2
Total	18

SECOND SEMESTER
Prescribed Subjects

	Hours[1]
L. A. 34—Landscape Design	4
L. A. 44—Landscape Construction	3
Engl. 10b—An Introduction to Literature	3
C. E.—Roads and Pavements	3
Geog. or Geol. 1	5
Total	18

FOURTH YEAR

L. A. 35—Landscape Design	5
L. A. 71—City Planning	2
Pol. Sci. 4—Municipal Govt.	3
C. E. 49—Municipal Sanitation	3
Econ. 51—Public Finance	3
Total	16

L. A. 36N—Landscape Design	5
L. A. 72—City Planning	2
Journ. 16—Special and Feature Articles	2
C. E. 29—Municipal Transportation	3
Soc. 1—Principles	3
Pol. Sci. 34—Municipal Problems	3
Total	18

[1]Semester hours. For definition, see page 75.

THE SCHOOL OF MUSIC

Curricula in Music

Bachelor of Music—Instrumental Major

(Piano, Violin, Cello, Organ, or Band and Orchestral Instruments)

FIRST YEAR

FIRST SEMESTER	Hours[1]
Mus. 7—Strict Counterpoint	3
Mus. 21—Ear Training and Sight Singing	1
Mus. 42a, 62a, 72a, 82a, or 92a—Piano, Violin, etc. (Major subject)	4
Mus. 42a, 52a, 62a, 72a, 82a, or 92a—Piano, Voice, Violin, etc. (Minor subject)	2½
Rhet. 1—Rhetoric and Themes	3
Phys. Ed.—Gymnasium (Women)	1
Hyg. 2—Hygiene (Women)	½
Hyg. 1—Hygiene (Men)	½
Phys. Ed.—Gymnasium (Men)	½
Mil. 1a and 1b, 11a and 11b, 21a and 21b, or 51a and 51b—Military Drill and Theory	1
Total, Men	15½
Total, Women	15

SECOND SEMESTER	Hours[1]
Mus. 8—Strict Counterpoint	3
Mus. 22—Ear Training and Sight Singing	1
Mus. 42b, 62b, 72b, 82b, or 92b—Piano, Violin, etc. (Major subject)	4
Mus. 42b, 52b, 62b, 72b, 82b, or 92b—Piano, Voice, Violin, etc. (Minor subject)	2½
Rhet. 2—Rhetoric and Themes	3
Phys. Ed.—Gymnasium (Women)	1
Hyg. 4—Hygiene (Women)	½
Hyg. 3—Hygiene (Men)	½
Phys. Ed.—Gymnasium (Men)	½
Mil. 2a and 2b, 12a and 12b, 22a and 22b, or 52a and 52b—Military Drill and Theory	1
Total, Men	15½
Total, Women	15

SECOND YEAR

Mus. 1—History of Music	2
Mus. 3—Harmony	3
Mus. 23—Ear Training and Sight Singing	1
Mus. 43a, 63a, 73a, 83a, or 93a—Piano, Violin, etc. (Major subject)	4
Mus. 43a, 53a, 63a, 73a, 83a, or 93a—Piano, Voice, Violin, etc. (Minor subject)	2½
Foreign Language—French or German	4
Phys. Ed.—(Women)	1
Phys. Ed.—(Men)	½
Mil. 3a and 3b, 13a and 13b, 23a and 23b, or 53a and 53b—Military Drill and Theory	1
Total, Men	18
Total, Women	17½

Mus. 2—History of Music	2
Mus. 4—Harmony	3
Mus. 24—Ear Training and Sight Singing	1
Mus. 43b, 63b, 73b, 83b, or 93b—Piano, Violin, etc. (Major subject)	4
Mus. 43b, 53b, 63b, 73b, 83b, or 93b—Piano, Voice, Violin, etc. (Minor subject)	2½
Foreign Language—French or German	4
Phys. Ed.—(Women)	1
Phys. Ed.—(Men)	½
Mil. 4a and 4b, 14a and 14b, 24a and 24b, or 54a and 54b—Military Drill and Theory	1
Total, Men	18
Total, Women	17½

THIRD YEAR

Mus. 32—Advanced History of Music	1
Mus. 5—Advanced Harmony	3
Mus. 44a, 64a, 74a, 84a, or 94a—Piano, Violin, etc. (Major subject)	4–5
Mus. 44a, 54a, 64a, 74a, 84a, or 94a—Piano, Voice, Violin, etc. (Minor subject)[2]	2½
Mus. 15—Instrumentation	1–2
Mus. 30a—Accompanying and Ensemble	½–1
Restricted Electives (Non-technical)[3]	3–4
Total	15–18½

Mus. 33—Advanced History of Music	1
Mus. 6—Free Counterpoint, Canon, and Fugue	3
Mus. 44b, 64b, 74b, 84b, or 94b—Piano, Violin, etc. (Major subject)	4–5
Mus. 44b, 54b, 64b, 74b, 84b, or 94b—Piano, Voice, Violin, etc. (Minor subject)[2]	2½
Mus. 16—Instrumentation	1–2
Mus. 30b—Accompanying and Ensemble	½–
Restricted Elective (Non-technical)[3]	3–
Total	15–18½

[1]Semester hours. For definition, see page 75.

[2]Voice to be taken as a minor in Band and Orchestral Instruments major.

[3]At least three hours of the electives must be in English or American Literature. Students preparing to take charge of instrumental organizations in high schools must elect certain courses in Education. Courses in the other departments of the College of Fine and Applied Arts are urged as Electives.

FOURTH YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Mus. 9—Analysis, Musical Form	2	Mus. 10—Analysis, Musical Form	2
Mus. 45a, 65a, 75a, 85a, or 95a—Piano, Violin, etc. (Major subject)	4–5	Mus. 45b, 65b, 75b, 85b, or 95b—Piano, Violin, etc. (Major subject)	4–5
Mus. 45a, 55a, 65a, 75a, 85a, or 95a—Piano, Voice, Violin, etc. (Minor subject)[2]	2½	Mus. 45b, 55b, 65b, 75b, 85b, or 95b—Piano, Voice, Violin, etc. (Minor subject)[2]	2½
Mus. 31a—Accompanying and Ensemble	½–1	Mus. 31b—Accompanying and Ensemble	½–1
Electives	6–7	Electives	2–3
		Mus. 35—Recital	4
Total	15–17½	Total	15–17½

Bachelor of Music—Vocal Major

The first and second years are the same as in the instrumental major curriculum, except that voice is the major applied subject.

At least eight hours each of French, German, and Italian are required for the vocal major. One of the languages is to be taken in the sophomore year, and a *second* language in the junior year. If the student has not presented at least two units of the *third* language, taken in high school, he must elect this language in the senior year. Otherwise, a course in English is advised for this elective.

THIRD YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Mus. 32—Advanced History of Music	1	Mus. 33—Advanced History of Music	1
Mus. 5—Advanced Harmony	3	Mus. 6—Free Counterpoint, Canon, and Fugue	3
Mus. 30a—Accompanying and Ensemble	½–1	Mus. 30b—Accompanying and Ensemble	½–1
Mus. 54a—Voice (Major)	4	Mus. 54b—Voice (Major)	4
Mus. 44a—Piano	2½	Mus. 44b—Piano	2½
Foreign Language	4	Foreign Language	4
Total	15–15½	Total	15–15½

FOURTH YEAR

Mus. 9—Analysis, Musical Form	2	Mus. 10—Analysis, Musical Form	2
Mus. 13—Music Appreciation	2	Mus. 14—Music Appreciation	2
Mus. 55a—Voice (Major)	4	Mus. 55b—Voice (Major)	4
Mus. 45a—Piano	2½	Mus. 45b—Piano	2½
Restricted Electives[3]	5	Restricted Electives[3]	4
		Mus. 36—Recital	3
Total	15½	Total	17½

Bachelor of Music—Theory Major

A student may take a major in Theory of Music only on recommendation of the Director. In addition to the complete theory course offered in the instrumental major, he must complete the courses in Composition (Music 11a-b, and 12a-b), and in Advanced Orchestration (Music 17 and 18). In addition he must present a recital during the senior year of his own compositions and orchestral arrangements. His work in applied music must be equivalent to that of three years of collegiate study. Thesis required.

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[1]Semester hours. For definition, see page 75.

[2]Music 38a and b (Organization and Conducting), 2 hours, required instead of minor subject in Band and Orchestral Instruments major.

[3]Restricted electives (to be taken only when the student has had more than two years of required modern language in High School).

Psychology 4
English 2–4

Curriculum in Painting

FIRST YEAR

FIRST SEMESTER	Hours[1]	SECOND SEMESTER	Hours[1]
Art 1a—Cast and Still Life	4	Art 1b—Cast and Modeling	3
Art 2a—Composition and Design	2	Art 2b—Composition and Design	3
Art 3a—Anatomy and Sketch	2	Art 3b—Anatomy and Sketch	2
Foreign Language	4	Foreign Language	4
Rhet. 1—Rhetoric and Themes	3	Rhet. 2—Rhetoric and Themes	3
Physical Education	½	Physical Education	½
Hygiene 1 (Men)	½	Hyg. 3 (Men)	½
Military Drill and Theory	1	Military Drill and Theory	1
Total	17	Total	17

SECOND YEAR

Art 5a—Life Drawing	3	Art 5b—Life Drawing	3
Art 6a—Portrait	2	Art 6b—Portrait	2
Art 2c—Composition	2	Art 2d—Composition	2
Art 7a—Still Life	2	Art 7b—Still Life	2
Art 16a—History of Fine Arts	2	Art 16b—History of Fine Arts	2
Military Drill and Theory	1	Military Drill and Theory	1
Physical Education	½	Physical Education	½
Academic Elective[2]	4	Academic Elective	4
Total	16½	Total	16½

THIRD YEAR

Art 5c—Life Drawing	3	Art 5d—Life Drawing	3
Art 6c—Portrait	2	Art 6d—Portrait	2
Art 2e—Composition and Illustration	2	Art 2f—Composition and Illustration	2
Art 9a—Commercial Art; 4c, Modeling; or 10a, Landscape	2	Art 9b—Poster; 4d, Modeling; or 10b, Landscape	2
Art 16c—History of Fine Arts	2	Art 16d—History of Fine Arts	2
Art 8a—Sketch	1	Art 8b—Sketch	1
Academic Elective	3	Academic Elective	3
Technical Elective	2	Technical Elective	2
or Academic Elective	5	or Academic Elective	5
Total	17	Total	17

FOURTH YEAR

Art 5e—Life Painting	3	Art 5f—Life Painting	3
Art 6e—Portrait or Technical Elective	3	Art 6f—Portrait or Technical Elective	3
Art 2g—Composition (Mural) or 10c, Landscape	3	Art 2h—Composition (Mural) or 10d, Landscape	3
Art 17—Aesthetics	2	Art 18—Technical Elective	2
Academic Elective	5	Academic Elective	5
Total	16	Total	16

[1]Semester hours. For definition, see page 75.
[2]A minimum of three hours of English or American Literature is required.

DESCRIPTION OF COURSES AND TIME TABLE

EXPLANATION

The arrangement of subjects in the following Time Table is alphabetical. The connections of allied departments are indicated by cross references.

Following the description of each course of instruction will be found the requirements, if any, for admission to that particular course. The sequence indicated by these prerequisites must be followed. For instance, under Art 14b, Applied Design, the prerequisite given is Art 14a. This course must be completed before Course 14b may be taken.

If a course not required for graduation is selected by fewer than five students it may be withdrawn for the semester.

Graduate courses are numbered upwards from 100.

Credit is reckoned, *for undergraduate students*, in *semester hours*, or simply *hours*. An *hour* is one class period a week for one semester or the equivalent in laboratory, shop, or drawing room.

The number of hours for which the course counts is shown in the parentheses after each course, except where the course, credits, sections, etc., are tabulated, thus: (2).

Credit for first-year graduate students, candidates for the master's degree, is counted in units. A unit course is one which requires ten hours of time per week through one semester, irrespective of the distribution of that time in class work, laboratory work, and private study; four such courses or their equivalent constitute a full minimum program for one semester. The unit values of graduate courses (numbered 100 and upwards) are indicated in the following pages. Courses of the intermediate groups "for graduates and advanced undergraduates" are in general (unless otherwise specified by the department concerned) evaluated as follows for graduate credit: (a) courses open only to students having at least senior standing, 1 unit for a 4-hour or a 5-hour course, ½ unit for a 1-hour, 2-hour, or 3-hour course; (b) courses open to juniors, ½ unit for a 4-hour or 5-hour course, ¼ unit for a 1-hour, 2-hour, or 3-hour course.

For second-year graduate students, candidates for the doctor's degree, no record of units is kept.

The various University buildings are designated by the following abbreviations:

Administration	Adm.
Agricultural Building	Agr.
Animal Pathology Laboratory	An. Path. L.
Applied Mechanics Laboratory	L. A. M.
Architectural Building	Arch.
Armory	Arm.
Art and Design Annex	A. D. Annex
Astronomical Observatory	Obs.
Botany Annex	Bot. Annex
Ceramics Laboratory	Cer.
Chemistry Annex	Chem. Annex
Chemistry Building	Chem.
Civil Engineering Surveying Building	C.E.S.B.
Commerce Building	Com.
Dairy Manufactures Building	D. Mfrs.
Electrical Engineering Laboratory	E. E. L.
Engineering Hall	E. H.
Entomology Building	Entom.
Farm Mechanics Building	F. M.
Floricultural Greenhouses	F. G.
Genetics Building	Gen. Bldg.
Gymnasium Annex	Gym. Annex
Highway Laboratory	H. L.
Horticultural Building	H. B.
Horticultural Field Laboratory	H. F. Lab.
Law Building	Law
Library	Lib.
Lincoln Hall	L. H.
Materials Testing Laboratory	M. T. L.
Mathematics Building	Math.
Mechanical Engineering Laboratory	M. E. L.
Men's New Gymnasium	New Gym.
Men's Old Gymnasium	Old Gym.
Metal Shop	M. S.
Mining Engineering Laboratory	Min. L.
Morrow Hall	M. H.
Natural History Hall	N. H.
New Agricultural Building	New Agr.
Physics Laboratory	P. L.
Smith Memorial Hall	S. M. H.
Stock Judging Pavilion	S. P.
Transportation Building	T. B.
University Hall	U. H.
University High School	U. H. S
Vegetable Greenhouse	V. G.
Vivarium Building	Viv.
Woman's Building	W. B
Woman's Gymnasium	Woman's Gym.
Wood Shops	W. S.

ACCOUNTANCY

(See Business Organization and Operation.)

AGRICULTURAL COLLEGE EXTENSION

4. **Agricultural Extension.**—Freshman Lectures. (½). 3 M; 103 New Agr. Assistant Dean RANKIN, Mr. YOUNG, and others.
(Credit is given to agricultural freshmen only.)

AGRICULTURAL EDUCATION

(See Education.)

AGRONOMY

Courses for Undergraduates

Note: Certain courses in this department require laboratory fees varying from $1 to $4.

18a-j. **Investigation with Thesis.**—(This course is continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to thesis problem, and the approval of the head of the department. (5). Arrange.
(a) **Soil Fertility.**—Professor DETURK.
(c) **Soil Physics.**—Professor R. S. SMITH.
(e) **Soil Biology.**—Associate Professor SEARS.
(g) **Plant Breeding.**—Professor WOODWORTH.
(j) **Field Crops.**—Professor BURLISON, Associate Professor DUNGAN.

25. **Farm Crops.**—*Prerequisite:* Bot. 5.

Subject	Credits	Section	Hours	Days	Room	Instructor
Agron. 25	3	Lect.	3	MW	205 Agr.	PIEPER
		A Lab.	1, 2	T	600 Agr.	
		B Lab.	10, 11	Th	600 Agr.	
		Quiz	3	F	205 Agr.	

28. **Soils.**—*Prerequisite:* Chem. 5, Geol. 44. (Local field trip, cost not to exceed $1.)

Agron. 28	5	A Lect.[1]	8	MWF	205 Agr.	WIMER, CRANE, and STAUFFER
		A1 Quiz	8	TT	205 Agr.	
		A2 Quiz	8	TT	302 Agr.	
		B Lect.[1]	10	MWF	205 Agr.	
		B1 Quiz	10	TT	205 Agr.	
		B2 Quiz	10	TT	302 Agr.	
		A Lab.	1, 2, 3	Th	650 Agr.	
		B Lab.	1, 2, 3	F	650 Agr.	
		C Lab.	8, 9, 10	S	650 Agr.	

34. **Crop Materials.**—Collection, preservation, identification, and classification of crop plant materials; seed analysis and germination. Crop inspection, certification, and verification. Corn seedling vigor and disease study. Grain judging; and study of crop damage by disease, insects, weeds, and various causes. *Prerequisite:* Bot. 5. (3). 10, 11 MWF; 600 Agr. Associate Professor PIEPER, Mr. BUCKARDT.

Courses for Advanced Undergraduates and Graduates

7. **Advanced Crop Production.**—*Prerequisite:* Agron. 25, junior standing. (3). Lect., 8 MWF; 302 Agr. Professor BURLISON, Associate Professor DUNGAN.

29. **Field Plot Technic.**—*Prerequisite:* Senior standing. (3). Lect., 10 MWF; 110 Agr. Professor WOODWORTH.

30. **Metabolism of Soil Microorganisms.**—Chemistry and bacteriology of the nitrogen cycle; nitrogen fixation, nitrification, nitrate assimilation, denitrification and synthesis of nitrogen compounds by microorganisms; relation of nitrogen to other cycles. *Prerequisite:* Bact. 5a and 5b (or 20); Chem. 32, junior standing. (3). 11 MWF; 302 Agr. Associate Professor SEARS.

33. **Chemical Methods of Soil Investigation.**—Application of chemical methods to the solution of soil problems from the standpoints of soil formation and properties; availability of nutrients for crop growth; reactions of soils with fertilizers and other soil amendments. (Given 1931-32 and alternate years thereafter). *Prerequisite:* Agron. 28, junior standing. (3). Lect., 1 M, 302 Agr.; Lab. 1, 2, 3 WF, 218 Agr. Professor DETURK and assistant.

Courses for Graduates

101. **Soil Investigations.**—(1 unit). Twice a week. Arrange. 306 Agr. Professor DETURK.

104. **Seminar in Agronomy.**—(¼ unit). Once a week. Arrange. 301 Agr. The staff.

111. **Soil Biology.**—(½-1 unit).* Once a week. Arrange. Professor DETURK.

112. **Advanced Plant Breeding.**—(1 unit). Twice a week. Arrange. Professor WOODWORTH.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Corresponding sections in lecture and quiz should be scheduled.

118. Research.—(½-4 units).* Arrange.
(a) **Soil Fertility.**—Professor DeTurk.
(b) **Soil Physics.**—Professor R. S. Smith.
(c) **Soil Biology.**—Professor DeTurk.
(d) **Plant Breeding.**—Professor Woodworth.
(e) **Field Crops.**—Professor Burlison, Associate Professor Dungan.

ANATOMY

(See Zoology.)

ANIMAL HUSBANDRY

Courses for Undergraduates

Note: Certain courses in this department require laboratory fees varying from $1 to $5.

1. Introduction to Animal Husbandry.—Required of students not having had livestock judging in high school. (No credit in this course allowed to juniors and seniors.) (2). 3, 4 TT; S. P. Mr. Crawford.

3. Livestock Judging.—*Prerequisite:* An. Husb. 1 or equivalent. (5). 10, 11 MTWTF; S. P. Associate Professor Snapp.

9a-u. Investigation with Thesis.—(This course is continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work, including 20 hours pertinent to the thesis problem; and the approval of the head of the department. (5). Time to be arranged.
(a) **Beef Cattle.**—Professor Rusk, Associate Professor Snapp.
(c) **Horses.**—Professor Edmonds.
(e) **Sheep.**—Assistant Professor Kammlade.
(g) **Swine.**—Professor Carroll.
(j) **Poultry.**—Professor Card.
(l) **Animal Nutrition.**—Professor Mitchell.
(n) **Animal Breeding.**—Associate Professor Roberts.
(q) **Animal Pathology.**—Professor Graham.
(s) **Meats.**—Associate Professor Bull.
(u) **Marketing.**—Associate Professor Ashby.

12. Special Problems.—*Prerequisite:* 90 hours of university work; approval of the head of the department. (5). Time to be arranged. Members of the department.

21. Principles of Feeding.—*Prerequisite:* Chem. 5; An. Husb. 1.

Subject	Credits	Section	Hours	Days	Room	Instructor
An. Husb. 21	3	Lect.	2	W	553 Agr.	Bull
		A Quiz	2	MF	302 Agr.	
		B Quiz	2	MF	553 Agr.	
		C Quiz	2	MF	Meat Lab.	

34. Anatomy and Physiology, and Non-Contagious and Parasitic Diseases of Farm Animals.—*Prerequisite:* An. Husb. 21. (3). 1 MWF; An. Path. L. Professor Graham.

36. Meat.—(2). 9 TT; 127 Agr. Associate Professor Bull.

38. Poultry Breeds and Judging.—*Prerequisite:* An. Husb. 37. (3). 3-4:30 MTWTF; Poul. Plant. (This course is concluded at the beginning of the Christmas recess). Dr. Sloan.
From the students taking or having had this course will be chosen the team to represent the University in the Annual Mid-West Intercollegiate Student Poultry Judging Contest. The class will visit a near-by poultry show. The cost of the trip will be from $10 to $15.

Courses for Advanced Undergraduates and Graduates

7. Principles of Animal Nutrition.—*Prerequisite:* 90 hours of university work, including An. Husb. 21; Chem. 32. (5). 11 MTWTF; 553 Agr. Mr. Hamilton.

22. Advanced Stock Judging.—*Prerequisite:* An. Husb. 3. (3). 3 MTWTF; S. P. Heads of divisions.
From the students in this class will be chosen the team to represent the University in the Annual Intercollegiate Student Judging Contest.

24. Meat.—*Prerequisite:* An. Husb. 10. (2-5).* Arrange. Associate Professor Bull.

25. Beef Production.—*Prerequisite:* An. Husb. 3 and 6. (3). 2 MWF; 316 New Agr. Professor Rusk, Associate Professor Snapp.

26. Pork Production.—*Prerequisite:* An. Husb. 3 and 6. (3). 9 MWF; 316 New Agr. Professor Carroll.

40. Economics of Poultry Keeping.—*Prerequisite:* 90 hours of university work, including An. Husb. 37. (3). 8 MWF; 331 New Agr. Professor Card.

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Courses for Graduates

112a-f. Research.—Time to be arranged. One to three times a week. (½-2 units).*
(a) **Economic Factors Involved in Meat Production.**—Professor RUSK.
(b) **Systems of Livestock Farming.**—Associate Professor CASE.
(c) **The Valuation of Pedigrees.**—Professor RUSK.
(d) **Animal Nutrition.**—Professor MITCHELL.
(e) **Animal Breeding.**—Associate Professor ROBERTS.
(f) **Poultry Husbandry.**—Professor CARD.

117. Animal Breeding.—(1 unit). One to three times a week. Time to be arranged. Associate Professor ROBERTS.

118. Animal Nutrition Seminar.—(½ unit). Two hours a week. Time to be arranged. Professor MITCHELL.

119. Laboratory Methods in Animal Nutrition.—(½-1 unit).* Two to five times a week. Time to be arranged. Professor MITCHELL.

120. Laboratory Methods in the Diagnosis of Animal Diseases. —(½-1 unit).* Two to five times a week. Time to be arranged. Professor GRAHAM.

121. Laboratory Methods in Animal Breeding.—(½-1 unit).* Two to five times a week. Time to be arranged. Associate Professor ROBERTS.

ARCHITECTURE

11. History of Architecture.—*Prerequisite:* Sophomore standing. Not open to students expecting a degree in Architecture. (3). 3 MWF; 120 Arch.

13. History of Architecture.—*Prerequisite:* Arch. 31a and 32a or sophomore standing in Architecture. (2). 11 MW; 120 Arch.

15. History of Architecture.—*Prerequisite:* Arch. 14. (2). 11 TT; 120 Arch.

21. Freehand Drawing.—

Subject	Credits	Section	Hours	Days	Room	Instructor
Arch. 21	2	A	8-10	TT	410-A Arch.	
		B	10-12	TT	410-A Arch.	
		C	10-12	MF	410-A Arch.	
		D	8-10	W	410-A Arch.	
			2-4	F	410-A Arch.	

23. Freehand Drawing.—*Prerequisite:* Arch. 22.

Arch. 23	2	A	1-4	W	410-B Arch.
			8-11	S	410-B Arch.
		B	1-4	MF	410-B Arch.
		C	1-4	TT	410-A Arch.
		D	2-5	MW	410-A Arch.

25. Freehand Drawing.—*Prerequisite:* Arch. 24.

Arch. 25	2	A	1-4	TT	410-B Arch.
		B	9-12	MW	410-B Arch.

27. Freehand Drawing.—*Prerequisite:* Arch. 26. (2). 8-11 TT; 410-B Arch.

31a. Architectural Design.—

Arch. 31a	3	Lect.	2	W	120 Arch.
		A	1-4	TT	210 Arch.
		B	8-11	MF	210 Arch.
		C	1-4	MF	210 Arch.
		D	8-11	TT	210 Arch.

33. Architectural Design.—*Prerequisite:* Arch. 32a.

Arch. 33	3	A	8-11	TT	210 Arch.
			1-4	F	210 Arch.
		B	1-4	TT	210 Arch.
			8-11	S	210 Arch.
		C	1-4	MWF	210 Arch.
		D	8-11	MWF	210 Arch.

35. Architectural Design.—*Prerequisite:* Arch. 34 and registration in Arch. 65.

Arch. 35	5	A	9-12	M	200 Arch.
			1-4	MWF	200 Arch.
		B	1-4	TT	200 Arch.
			9-12	FS	200 Arch.

37. Architectural Design.—*Prerequisite:* Arch. 36 and senior standing in Architecture. (7). Sec. A, 8-11 S, 1-4 MTWTF; 200 Arch.

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43. Technology of Materials.—*Prerequisite:* Arch. 31a and 32a.

Subject	Credits	Section	Hours	Days	Room	Instructor
Arch. 43	3	A	1-4	TT	310 Arch.	
			11	F	302 Arch.	
		B	8-11	TT	310 Arch.	
			11	F	302 Arch.	

45. Graphic Statics.—*Prerequisite:* T. A. M. 18 and Arch. 44.

Arch. 45	3	A	9-12	WF	310 Arch.
			9	T	302 Arch.
		B	1-4	MW	310 Arch.
			9	T	302 Arch.

65. Theory of Architecture.—*Prerequisite:* Arch. 34 and registration in Arch. 35. (1). 9 Th; 120 Arch.

68. Specifications.—*Prerequisite:* Senior standing in Architecture. (3). 11 MWF; 301 Arch.

71. Architectural Elements.—Not open to students expecting a degree in Architecture.

Arch. 71	4	A	1-4	TT	210 Arch.
			8-10	MF	410-A Arch.
			2	W	301 Arch.

75. Frame Construction Details.—*Prerequisite:* Consent of instructor. Not open to students expecting a degree in Architecture or Architectural Engineering.

Arch. 75	3	A	1	TT	302 Arch.
			2-5	TT	300 Arch.

99. Inspection Trip.—*Prerequisite:* Senior standing in Architecture. Required for graduation. No credit.

ARCHITECTURAL ENGINEERING

35. Architectural Design.—*Prerequisite:* A. E. 34.

A. E. 35	3	C	1-4	MWF	210 Arch.
		D	8-11	MWF	210 Arch.

45. Graphic Statics.—*Prerequisite:* T. A. M. 1 and registration in T. A. M. 3 and 63, and A. E. 44.

A. E. 45	3	C	1-4	TT	310 Arch.
			11	M	302 Arch.
		D	8-11	TT	310 Arch.
			11	M	302 Arch.

47. Architectural Engineering.—*Prerequisite:* A. E. 46 and registration in A. E. 57. (5). Sec. C, 9-11 TT; 1-4 MWF; 300 Arch.

57. Fireproof Construction.—*Prerequisite:* A. E. 46 and registration in A. E. 47. (2). 2 TT; 301 Arch.

99. Inspection Trip.—*Prerequisite:* Senior standing in Architectural Engineering. Required for graduation. No credit.

Courses for Graduates

101. Architectural Construction.—(½-1 unit).* Professors PROVINE, PALMER.

103. Advanced Architectural Graphics.—(1-2 units).* Professors PROVINE, PALMER.

104. Architectural Design.—(1-4 units).* Professor DEAM.

105. Architectural Practice.—(¼-½ units).* Professor PROVINE.

106. Architectural History.—(½-2 units).* Professor NEWCOMB.

ART

1a. Cast and Still Life Drawing.

Art 1	4	A[1]	9-12	MWF	403 Arch.	DONOVAN
	3	B	9-12	TT	403 Arch.	DONOVAN
	3	C	3-5	MWF	403 Arch.	NEARPASS
	3	D	1-3	MWF	403 Arch.	NEARPASS

2a. Composition and Design.—*Prerequisite:* Art 1a must precede or accompany this course. (2). 3 T; 302 Arch.; 8 F; 300 Arch. Associate Professor LAKE.

2c. Composition.—*Prerequisite:* Art 2b. (2). 9-12 F; 300 Arch. Assistant Professor NEARPASS.

2e. Composition and Illustration.—*Prerequisite:* Art 2d. (2). 9-12 F; 300 Arch. Assistant Professor NEARPASS.

2g. Composition (Mural).—*Prerequisite:* Art 2f. (3). 9-12 F; 300 Arch. Assistant Professor NEARPASS.

3a. Anatomy and Sketch.—*Prerequisite:* Art 1a must precede or accompany this course. (2). 9-12 S; 403 Arch. Assistant Professor NEARPASS.

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[1]For Fine Arts students only.

4a. Modeling.—*Prerequisite:* Art 1a. (2). 1-4 TT; 20 Arch. Associate Professor LAKE.

4c. Modeling.—*Prerequisite:* Art 4b. (2). 1-4 TT; 20 Arch. Associate Professor LAKE.

5a. Life Drawing.—*Prerequisite:* Art 1b. (3). 1-4 MWF; 403-B Arch. Associate Professor BRADBURY.

5c. Life Drawing.—*Prerequisite:* Art 5b. (3). 1-4 MWF; 403-B Arch. Associate Professor BRADBURY.

5e. Life Painting.—*Prerequisite:* Art 5d. (3). 1-4 MWF; 403-B Arch. Associate Professor BRADBURY.

6a. Portrait.—*Prerequisite:* Art 1b. (2). 9-12 MW; 403-B Arch. Associate Professor BRADBURY.

6c. Portrait.—*Prerequisite:* Art 6b. (2). 9-12 MW; 403-B Arch. Associate Professor BRADBURY.

6e. Portrait.—*Prerequisite:* Art 6d. (3). 9-12 MWF; 403-B Arch. Associate Professor BRADBURY.

7a. Still Life (Oil).—*Prerequisite:* Art 1a. (2). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

8a. Sketch.—*Prerequisite:* Art 5a. (1). 1-4 T; 403-B Arch. Associate Professor BRADBURY.

8c. Sketch.—*Prerequisite:* Art 8b. (1). 1-4 T; 403-B Arch. Associate Professor BRADBURY.

9a. Commercial Art.—*Prerequisite:* Art 2b and 5a. (2). 9-12 S; 403 Arch. Assistant Professor DONOVAN.

10a. Landscape.—*Prerequisite:* Art 7a. (2). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

10c. Landscape.—*Prerequisite:* Art 10b. (3). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

11a. Water Color.—*Prerequisite:* Art 1a. (2). 9-12 Th; 403 Arch. Assistant Professor NEARPASS.

11c. Water Color.—*Prerequisite:* Art. 11b. (2). 9-12 Th; 403 Arch. Assistant Professor NEARPASS.

13a. Design.[1]

Subject	Credits	Section	Hours	Days	Room	Instructor
Art 13a	2	A	10-12	MW	342 L. H.	ANDERSON
	2	B	1-3	MW	342 L. H.	ANDERSON
	2	C	10-12	TT	342 L. H.	ANDERSON
	2	D	3-5	TT	342 L. H.	ANDERSON

13b. Design.—*Prerequisite:* Art 13a. (2). 1-3 TT; 342 L. H. Miss ANDERSON.

14a. Applied Design.—*Prerequisite:* Art 13b. (2). 10-12 FS; 342 L. H. Miss ANDERSON.

15a. Course for Teachers.—*Prerequisite:* Art 2a. (3). 9 MWF; 342 L. H. Miss ANDERSON.

16a. History of Fine Arts.—*Prerequisite:* Sophomore standing. (2). 9 TT; 120 Arch. Associate Professor LAKE.

16c. History of Fine Arts.—*Prerequisite:* Art 16b. (2). 10 TT; 120 Arch. Assistant Professor NICHOLSON.

16e. History of Italian Art.—*Prerequisite:* Junior standing. (3). 10 MWF; 120 Arch. Assistant Professor NICHOLSON.

16g. History of Ancient Art.—*Prerequisite:* Junior standing. (3). 9 MWF; 120 Arch. Assistant Professor NICHOLSON.

18. Technical Elective.—*Prerequisite:* For senior Art students only. (2). Hours to be arranged.

ASTRONOMY

Course for Undergraduates

1. Descriptive Astronomy.—*Prerequisite:* Sophomore standing. (3). 11 MWF; 229 N. H. One hour Wednesday evening; Obs. Assistant Professor MERRILL.

Course for Advanced Undergraduates and Graduates

15. Geodetic Astronomy.—*Prerequisite:* Consent of instructor. (3). 11 TTS. Arrange. Assistant Professor MERRILL.

Course for Graduates

101. Seminar.—(1 unit). 1 MWF; Obs. Assistant Professor MERRILL.

ATHLETIC COACHING

(See Education.)

BACTERIOLOGY

For students entering prior to September, 1929

Major: 20 hours chosen from the courses offered by this department. Five hours may be chosen from the following courses offered by other departments: Dairy bacteriology (Dairy Husbandry).

Minors: 20 hours chosen from one or two of the following: Chemistry, botany, zoology, physiology.

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[1]Sections A, B, C, D, for Home Economic students. Sections A and C open to Fine Arts students.

For students entering after September 1, 1929

Major: 20 hours chosen from the courses offered by this department. Dairy Husbandry 10 (advanced Dairy Bacteriology) may be offered in partial satisfaction of this requirement. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects and taken after the freshman year: Chemistry and botany. At least eight hours must be offered in each subject if two are chosen.

Courses for Undergraduates

Note: Certain courses in this department require laboratory fees varying from $2.50 to $8.

5a. Introductory Bacteriology.—*Prerequisite:* Sophomore standing and one semester of chemistry or consent of the instructor.

Subject	Credits	Section	Hours	Days	Room	Instructor
Bact. 5a	3	Lecture-Quiz				
		A	9	MWF	214 U. H.	WHEATON
		B	10	MWF	301 Chem.	REHM
		C[1]	11	MWF	308 Chem. Annex	CLARK
		D[1]	2	MWF	301 Chem.	CLARK
		E	3	MWF	301 Chem.	REHM
		F	9	TTS	303 Chem.	WHEATON
		G	10	TTS	163 Chem.	CLARK

5b. Introductory Bacteriology Laboratory.—*Prerequisite:* Bact. 5a, or concurrent registration in it: Chem. 6, 5, 10, or 4.

Bact. 5b	2	A Lab.	8, 9	MW	367 Chem.	CLARK
		B Lab.	10, 11	MW	367 Chem.	WHEATON
		C Lab.	1, 2	MW	367 Chem.	REHM
		D Lab.	10, 11	TT	367 Chem.	

Courses for Advanced Undergraduates and Graduates

7a. Thesis and Special Problems.—*Prerequisite:* Junior standing; Bact. 5a and 5b (or 20); and Bact. 26 or 8; consent of the instructor. Hours and credit to be arranged before registration. (3-5).* Professor TANNER and Dr. WALLACE.

10. Epidemiology.—*Prerequisite:* Bact. 5a and 5b (or 20); junior standing and the consent of the instructor. (2). Lect., 11 TT; 301 Chem. Dr. WALLACE.

20. General Bacteriology.—*Prerequisite:* Two years of college chemistry; senior standing; consent of the instructor. Students with credit in Bact. 5a and 5b will not be allowed credit for Bact. 20. (5). Lect., 1 MW, 100 Chem.; Lab., 1, 2, 3 TT, 367 Chem. Dr. WALLACE.

26. Pathological Bacteriology.—*Prerequisite:* Bact. 5a and 5b (or 20); junior standing. (5). Lect., 8 MW; 204 Chem.; Lab., 8, 9 TTS, 367 Chem. Dr. WALLACE.

Courses for Graduates

103. Physiology of Bacteria.—(1 unit). Lect., 8 MW; 163 Chem. Professor TANNER.

107. Research in Bacteriology.—(1-4 units).* Lab., arrange; 365 Chem. Professor TANNER.

118a. Current Literature.—Required of all students majoring in Bacteriology. *Prerequisite:* Graduate standing and the consent of the instructor; 10 hours of bacteriology. (¼ unit). 1 T; 366 Chem. Dr. WALLACE.

BANDS

(See Military Bands.)

BANKING

(See Economics.)

BIOLOGY

(See Bacteriology, Botany, Entomology, Physiology, and Zoology.)

BOTANY

For students entering prior to September, 1929

Major: 20 hours of botany exclusive of courses 1, 5, and 11.

Minors: 20 hours chosen in consultation with the head of the department from not more than three subjects in the following list: Agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least 8 hours must be offered in one subject.

Credit for seniors who take Botany 1 or 5 will be reduced one hour.

For students entering after September 1, 1929

Major: 20 hours of botany exclusive of courses 1 and 5 and all courses taken during the freshman year, and inclusive of courses 2a or 2b, 3, and at least 5 hours in courses listed for advanced undergraduates and graduates.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]For advanced students in science.

Botany

Minors: 20 hours, exclusive of courses taken during the freshman year, in one or two departments chosen in consultation with the head of the department from the following list: Agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least eight hours must be offered in each department, if two are chosen.

Courses for Undergraduates

Note: Certain courses in this department require laboratory fees varying from $1 to $3 (per unit in graduate courses).

1. **General Botany.**—*Note:* Seniors will receive 4 hours' credit only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Bot. 1	5	Lect.	9	TT	228 N. H.	HOTTES, STEVENS, BUCHHOLZ, and VESTAL
		A Lab.	8, 9	MWF	258 N. H.	MOINAT and assistants
		B Lab.	10, 11	MWF	258 N. H.	
		C Lab.	1, 2	MWF	258 N. H.	
		1 Disc.	8	T	258 N. H.	HAGUE
		2 Disc.	8	T	258 N. H.	BUCHHOLZ
		3 Disc.	8	Th	258 N. H.	HOTTES
		4 Disc.	8	Th	258 N. H.	MOINAT
		5 Disc.	10	T	258 N. H.	VESTAL
		6 Disc.	10	Th	258 N. H.	MOINAT
		7 Disc.	10	Th	258 N. H.	VESTAL
		8 Disc.	11	T	258 N. H.	HAGUE
		9 Disc.	11	Th	258 N. H.	BURK
		10 Disc.	1	T	258 N. H.	MOINAT
		11 Disc.	1	Th	258 N. H.	HAGUE
		12 Disc.	2	T	258 N. H.	YARBROUGH

2a. **Morphology.**—*Prerequisite:* Bot. 1 or 5. (3). 1, 2 MWF; 204 Entom. Dr. HAGUE.

3. **Physiology.**—*Prerequisite:* Bot. 1 or 5.

Bot. 3	5	Lect.	11	TT	229 N. H.	HOTTES and assistants
		A Lab.	8, 9	MWF	153 N. H.	
		B Lab.	10, 11	MWF	154 N. H.	

5. **Botany for Students in Agriculture.**—(*Note:* Seniors will receive 2 hours' credit only.)

Bot. 5	3	Lect.	9	Th	229 N. H.	HOTTES, STEVENS, BUCHHOLZ, VESTAL, MOINAT, and assistants
		A Lab.	10, 11	TT	259 N. H.	
		B Lab.	1, 2	TT	259 N. H.	

7. **Plant Pathology.**—*Prerequisite:* Bot. 1 or 5.

Bot. 7	3	Lect.	9	M	349 N. H.	STEVENS
		A Lab.	8, 9	WF	349 N. H.	
		B Lab.	10, 11	WF	349 N. H.	

8. **Ecology.**—*Prerequisite:* Bot. 1 or 5. (3). Lect., 8 TT; 229 N. H. Field study Saturday morning (occasionally all day) during first half of semester. Cost about $12.00. Associate Professor VESTAL.

9. **Plant Parasites.**—Life histories of thallophytic and cormophytic parasites. *Prerequisite:* Bot. 1 or 5. (1). 4 Th; 350 N. H. Visiting Professor PALM.

Courses for Advanced Undergraduates and Graduates

33. **Physiology.**—*Prerequisite:* Bot. 3 and junior standing. (3 or 5).* 1, 2 MWF; 155 N. H. Professor HOTTES and assistant.

45. **Histology, Anatomy, and Technic.**—*Prerequisite:* Junior standing and Bot. 2a or 2b or 15 hours of botany. (3 or 5).* 8, 9 MWF; 206 Entom. Professor BUCHHOLZ.

46. **Heredity and Evolution.**—*Prerequisite:* 10 hours of botany and junior standing.

Bot. 46	3 or 5*	Lect.	10	S	206 Entom.	BUCHHOLZ
		Lab.	10, 11	TT	206 Entom.	

56. **Plant Geography of the World.**—*Prerequisite:* Bot. 8 and junior standing. (3 or 5).* 1, 2 MWF; 216 N. H. Associate Professor VESTAL.

70. **Taxonomy of Pathogenic Fungi.**—*Prerequisite:* Bot. 7 or 42 and junior standing.

Bot. 70	3 or 5*	Lect.	(to be arranged)	304 N. H.	STEVENS
		Lab.	(to be arranged)	304 N. H.	

71. **Ecology of Parasites.**—Analysis of environmental factors on parasites and their hosts. *Prerequisite:* Bot. 7 and junior standing. (2). 9 TT; 350 N. H. Visiting Professor PALM.

90a. **Thesis Course.**—*Prerequisite:* 15 hours of botany and senior standing. (2). Time to be arranged.

91a. **Honors Course.**—*Prerequisite:* 15 hours of botany and senior standing. (2). Time to be arranged.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Courses for Graduates

110. Botanical Discussion.—No credit. Required of all graduate students in Botany and members of the instructional staff. 4 T; 258 N. H.

112. Discussions in Plant Morphology.—(¼ unit). 4 F; 205 Entom. Professor BUCHHOLZ.

113. Discussions in Physiology.—(¼ unit). 4 Th; 155 N. H. Professor HOTTES.

117. Discussions in Pathology and Mycology.—(¼ unit). 4 W; 304 N. H. Professor STEVENS.

118. Discussions in Ecology.—(¼ unit). 4 M; 204 N. H. Associate Professor VESTAL.

Research Courses

120. Embryology of Seed Plants.—(½-2 units).* (Botany 112 to be taken concurrently.) 1 hour on either MWF from 1-3, the rest arrange; 201 Entom. Professor BUCHHOLZ.

122. Experimental Morphology.—(½-2 units).* (Botany 112 to be taken concurrently.) 1 hour on either MWF from 1-3, the rest arrange; 201 Entom. Professor BUCHHOLZ.

130. Physiology.—(½-2 units).* (Botany 113 to be taken concurrently.) 1 hour on either MWF from 1-3, the rest arrange; Bot. Annex. Professor HOTTES.

155. Plant Geography.—(½-2 units).* (Botany 118 to be taken concurrently.) 1 hour on Tuesday 1-3, the rest arrange. Associate Professor VESTAL.

170. Pathology.—(½-2 units).* (Botany 117 to be taken concurrently.) Arrange. 304 N. H. Professor STEVENS.

171. Parasitism.—Anatomic, cytologic, and physiologic relationship between parasite and host. (Not thesis.) (1 unit). Arrange. 350 N. H. Visiting Professor PALM.

177. Mycology.—(½-2 units).* (Botany 117 to be taken concurrently.) Arrange. 304 N. H. Professor STEVENS.

180. Ecology.—(½-2 units).* (Botany 118 to be taken concurrently.) 1 hour on Tuesday 1-3, the rest arrange; 204 N. H. Associate Professor VESTAL.

BUSINESS LAW

(See Business Organization and Operation.)

BUSINESS ORGANIZATION AND OPERATION

(Including Accountancy and Business Law.)

A. ACCOUNTANCY

Courses for Undergraduates

1a. Principles of Accounting.—Beginners' course. Students who present one unit of bookkeeping for entrance will not be allowed credit for 1a and should register in Accountancy 1e.[1]

Subject	Credits	Section	Hours	Days	Room	Instructor
Accy. 1a	3	A1	8	MWF	119 Com.	HACKETT
		A2	8	MWF	125 Com.	GREEN
		A3	8	MWF	123 Com.	NEWCOMER
		J1	8	TTS	125 Com.	BENEDETTO
		J2	8	TTS	326 Com.	FRESE
		B1	9	MWF	125 Com.	GREEN
		B2	9	MWF	123 Com.	NEWCOMER
		K1	9	TTS	123 Com.	NEWCOMER
		K2	9	TTS	326 Com.	FRESE
		K3	9	TTS	125 Com.	BENEDETTO
		C1	10	MWF	329 Com.	DIETERLE
		C2	10	MWF	123 Com.	HACKETT
		C3	10	MWF	326 Com.	FRESE
		L1	10	TTS	101 Com.	DUNHAM
		L2	10	TTS	325 Com.	MOYER
		L3	10	TTS	122 Com.	GREEN
		D1	11	MWF	115 Com.	NEWCOMER
		D2	11	MWF	123 Com.	HACKETT
		D3	11	MWF	125 Com.	GREEN
		M1	11	TTS	328 Com.	
		M2	11	TTS	101 Com.	DUNHAM
		M3	11	TTS	326 Com.	FRESE
		E1	1	MWF	115 Com.	MCMAHAN
		E2	1	MWF	106 Com.	DUNHAM
		F1	2	MWF	325 Com.	DIETERLE
		F2	2	MWF	115 Com.	MCMAHAN
		G1	3	MWF	325 Com.	DIETERLE
		G2	3	MWF	328 Com.	
		G3	3	MWF	322 Com.	MOYER

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Students who have failed in Accountancy 1a are permitted to register in Accountancy 1e and will receive 3 hours' credit if their final grade is C or above.

1b. Accounting Procedure.—*Prerequisite:* Accy. 1a or 1e. Credit is given for 1a without 1b.

Subject	Credits	Section	Hours	Days	Room	Instructor
Accy. 1b	3	A	8	MWF	122 Com.	Karrenbrock
		J	8	TTS	122 Com.	Karrenbrock
		B	9	MWF	122 Com.	Karrenbrock
		K	9	TTS	122 Com.	Karrenbrock
		C	10	MWF	224 Com.	
		D	11	MWF	329 Com.	Anderson
		F	2	MWF	329 Com.	Anderson
		G	3	MWF	329 Com.	Anderson

1e. Principles of Accounting.—Similar to Accy. 1a.[1] Those who have one unit credit in bookkeeping must take this course rather than 1a. *Prerequisite:* One unit entrance credit in bookkeeping.

Accy. 1e	2	K	9	TT	328 Com.	Anderson
		L	10	TT	328 Com.	Anderson
		M	11	TT	222 Com.	Scovill
		N	1	TT	223 Com.	Lukas
		O	2	TT	325 Com.	Huegy
		P	3	TT	325 Com.	Huegy

2a. Elementary Cost Accounting.—*Prerequisite:* Accy. 1b; registration or credit in Economics 1.

Accy. 2a	3	A	8	MWF	219 Com.	Lukas
		B	9	MWF	119 Com.	Baily
		K	9	TTS	223 Com.	Lukas
		C1	10	MWF	119 Com.	Baily
		C2	10	MWF	122 Com.	Theiss
		L1	10	TTS	223 Com.	Lukas
		L2	10	TTS	119 Com.	
		D1	11	MWF	219 Com.	Lukas
		D2	11	MWF	119 Com.	Baily
		M1	11	TTS	122 Com.	Green
		M2	11	TTS	119 Com.	
		E	1	MWF	224 Com.	
		F	2	MWF	122 Com.	Theiss
		G1	3	MWF	122 Com.	Theiss
		G2	3	MWF	224 Com.	

2b. Intermediate Accounting.—*Prerequisite:* Accy. 2a.

Accy. 2b	3	C	10	MWF	310 Com.	Van Arsdell
		L	10	TTS	123 Com.	Newcomer
		D	11	MWF	122 Com.	Karrenbrock
		F	2	MWF	123 Com.	Hackett

Courses for Advanced Undergraduates and Graduates

3a. Advanced Accounting.—*Prerequisite:* Accy. 2a-2b; Econ. 3; an average of "C" or better in Accy. 1 and 2.

Accy. 3a	3	A	8	MWF	328 Com.	Filbey
		B	9	MWF	328 Com.	Filbey
		D	11	MWF	326 Com.	Frese
		F	2	MWF	106 Com.	Littleton

3b. Auditing.—*Prerequisite:* Accy. 3a. (3). 10 MWF; 115 Com. Professor Filbey.

4a. Cost Accounting.—*Prerequisite:* Accy. 2a-2b.

Accy. 4a	2	L	10	TT	219 Com.	Schlatter
		M	11	TT	219 Com.	Schlatter
		O	2	TT	219 Com.	Schlatter

4b. Accounting Systems.—*Prerequisite:* Accy. 2b, Econ. 3.

Accy. 4b	2	J	8	TT	119 Com.	Baily
		K	9	TT	119 Com.	Baily

5a. C. P. A. Problems.—*Prerequisite:* Accy. 3a-3b.

Accy. 5a	3	C	10	MWF	317 Com.	Scovill
		D	11	MWF	317 Com.	Scovill

13. Governmental Accounting.—*Prerequisite:* Accy. 3a. (2). 2 TT; 206 Adm. (E). Professor Morey.

30. Budgets and Accounting Control.—*Prerequisite:* Accy. 2b. (3). 9 MWF; 115 Com. Associate Professor Theiss.

90a. Thesis.—Primarily for candidates for High Honors. *Prerequisite:* Senior standing in accountancy. Credit is not given for 90a or 90b separately. (2). Time to be arranged. Associate Professor Theiss.

Courses for Graduates

103. Advanced Theory.—(1 unit). 3-5 T; 209 Com. Professor Littleton.

104. Accounting Systems.—(1 unit). 3-5 Th; 126 Com. Professor Scovill.

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[1]Students who have failed in Accountancy 1a are permitted to register in Accountancy 1e and will receive 3 hours' credit if their final grade is C or above.

120. Income Tax Development.—(1 unit). Time to be arranged. Professor FILBEY.

129. Thesis.—(1 unit). Time to be arranged. Professor LITTLETON and others.

B. BUSINESS ORGANIZATION AND OPERATION

Courses for Undergraduates

1. Industrial Organization and Management.—*Prerequisite:* Economics 1 or 2; 45 credit hours. Junior and senior engineering students admitted with consent of instructor.

Subject	Credits	Section	Hours	Days	Room	Instructor
B. O. & O. 1	3	A	8	MWF	305 Com.	KRICK
		J	8	TTS	224 Com.	KRICK
		K	9	TTS	224 Com.	MANDEVILLE
		C	10	MWF	306 Com.	ANDERSON
		D	11	MWF	306 Com.	ANDERSON
		F	2	MWF	310 Com.	MANDEVILLE
		G	3	MWF	310 Com.	MANDEVILLE

2. Marketing Organization and Operation.—*Prerequisite:* Economics 1 and junior standing.

B. O. & O. 2	3	Lect. I	8	M	215 Com.	CONVERSE
		Lect. II	10	M	215 Com.	CONVERSE
		Lect. III	2	M	215 Com.	CONVERSE
		A1 Quiz	8	WF	325 Com.	JONES
		A2	8	WF	329 Com.	HESLIP
		A3	8	WF	326 Com.	HUEGY
		C1	10	WF	312 Com.	CONVERSE
		C2	10	WF	222 Com.	KRICK
		C3	10	WF	328 Com.	HUEGY
		D	11	WF	325 Com.	HUEGY
		O1	2	TT	329 Com.	KRICK
		O2	2	TT	326 Com.	HESLIP
		P	3	TT	326 Com.	KRICK
		F1	2	WF	223 Com.	HUEGY

11. Survey Course in Business Organization.—This course is offered exclusively for non-commerce students. *Prerequisite:* 45 credit hours.

B. O. & O. 11	3	C	10	MWF	108 Com.	MANDEVILLE
		D	11	MWF	108 Com.	MANDEVILLE

Courses for Advanced Undergraduates and Graduates

4. Management in Manufacturing.—*Prerequisite:* B. O. & O. 1. (3). 8 MWF; 306 Com. Associate Professor ANDERSON.

7. Salesmanship.—*Prerequisite:* B. O. & O. 2.

B. O. & O. 7	2	J	8	TT	329 Com.	JONES
		K	9	TT	329 Com.	JONES
		M	11	TT	329 Com.	JONES
		C	10	MW	126 Com.	JONES
		D	11	MW	126 Com.	JONES

8. Advertising.—*Prerequisite:* B. O. & O. 2.

B. O. & O. 8	3	Lect. I	9	W	215 Com.	RUSSELL
		Lect. II	2	W	215 Com.	RUSSELL
		B1	9	MF	307 Com.	RUSSELL
		B2	9	MF	326 Com.	SCHENCK
		L	10	TT	326 Com.	SCHENCK
		F1	2	MF	125 Com.	SCHENCK
		F2	2	MF	328 Com.	HESLIP

10. Newspaper Advertising.—For students specializing in journalism (offered first semester only). *Prerequisite:* Journ. 5 and 6. (3). 11 MWF; 215 Com. Professor RUSSELL.

20. Credits and Collections.—*Prerequisite:* B. O. & O. 2. (3). 11 MWF; 307 Com. Professor CONVERSE.

75. Management of Public Utilities.—*Prerequisite:* Econ. 1 and Accy. 2a. (3). 8 MWF; 126 Com. Assistant Professor GRAY.

90a. Thesis.—Primarily for candidates for High Honors. *Prerequisite:* Senior standing in B. O. & O. (2). Credit is not given for 90a or 90b separately. Time to be arranged. Professor CONVERSE.

Courses for Graduates

102. Marketing Policies and Problems.—(1 unit). Arrange. Professor CONVERSE.

104. Scientific Management.—(1 unit). Arrange. Associate Professor ANDERSON.

107. Sales Campaigns.—(1 unit). Arrange. Professor RUSSELL.

129. Thesis.—(1 unit). Time to be arranged. Professor RUSSELL and members of the staff.

C. BUSINESS LAW

Courses for Undergraduates

1a. General Principles of Business Law.—*Prerequisite:* Sixty hours of university credit, including Econ. 1 and Accy. 1a-1b.

Subject	Credits	Section	Hours	Days	Room	Instructor
Bus. Law 1a	3	A1	8	MWF	223 Com.	Asher
		A2	8	MWF	222 Com.	Roberts
		J	8	TTS	219 Com.	Asher
		B	9	MWF	222 Com.	Roberts
		K	9	TTS	219 Com.	Asher
		C	10	MWF	223 Com.	Asher
		L	10	TTS	222 Com.	Curtis
		D1	11	MWF	224 Com.	Dillavou
		D2	11	MWF	222 Com.	Roberts
		E	1	MWF	223 Com.	Asher
		F	2	MWF	219 Com.	Curtis
		G	3	MWF	222 Com.	Roberts

1b. General Principles of Business Law.—*Prerequisite:* Business Law 1a.

Bus. Law 1b	3	B	9	MWF	219 Com.	Curtis
		K	9	TTS	222 Com.	Curtis
		C	10	MWF	219 Com.	Curtis

2. Elementary Law of Business.—This course is offered exclusively for non-commerce students. *Prerequisite:* Junior standing. (3). 2 MWF; 222 Com. Mr. Roberts.

10. Law of Security Relations and Banking.—*Prerequisite:* Senior standing and registration or credit in Business Law 1b.

Bus. Law 10	3	A	8	MWF	224 Com.	Dillavou
		B	9	MWF	224 Com.	Dillavou
		F	2	MWF	224 Com.	Dillavou

CERAMIC ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2 to $7.50.

1. Ceramic Materials.—*Prerequisite:* Chem. 4. (3). Lect., 11 MWF; 214 Cer.

5. Ceramic Bodies.—*Prerequisite:* Cer. 1, 4. (5). 9 MWF, 218 Cer.; 1-4 MF, 2-5 W, 113-114 Cer.

7. Heavy Clay Products.—*Prerequisite:* Cer. 1, 4. (3). Lect. and quiz, 11 TT, 1, W, 218 Cer. Lab., Sec. A, 1-4 T; Sec. B, 1-4 Th; Kiln House.

16. Enamels.—*Prerequisite:* Cer. 14. (3). 10 W, 214 Cer.; 8-11 TT, 102, 113-114 Cer.

18. Ceramic Microscopy.—*Prerequisite:* Chem. 40; Geol. 47 and 49 or equivalent. (3). 1-4 TT, 9-12 S; 312 Cer.

21. Ceramic Pyrometry.—*Prerequisite:* General physics; inorganic chemistry. (1). 4 T; 214 Cer.

22. Kilns and the Burning of Clay Products.—*Prerequisite:* Cer. 5 and 11. (3). 11 MWF; 218 Cer.

23. Dryer and Kiln Design.—*Prerequisite:* Cer. 11; registration in Cer. 22; General Eng. Drawing 1 or 4. (2). 1-4 MF; 212 Cer.

97. Thesis.—(3-5).* Arrange.

99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

101. The Chemistry of the Compounds of Silicon.—*Prerequisite:* Elementary courses in organic and physical chemistry. (1 unit).

102. General Technology of the Clay Industries.—*Prerequisite:* The elements of mineralogy and of physical chemistry. (1 or 2 units).*

CHEMISTRY

For students entering prior to September, 1929

Students in the curricula of chemistry and chemical engineering, majors in chemistry, and all others who desire a thorough training in the fundamentals of chemistry and their applications to modern life, should select courses from the following, and usually in the sequence given: Chemistry 1 or 2, 6, 10, 24, 34a, 36b, 37b, 40, 41, 42b, 43b, 50a, and courses in the industrial, sanitary, and miscellaneous groups. Students in engineering should register for Chemistry 3 or 2, 4, 24. Students who are compelled to meet chemical requirements briefly may register for the following sequence: Chemistry 1 or 2, 5, 24, 32 or 33.

Students who find it impossible to take more than one semester's work are requested to register in Chemistry 1 or 2 in the second semester rather than in the first.

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, and 6 and inclusive of courses in quantitative, analytical, and organic chemistry.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Minors: 20 hours, chosen from not more than three of the following: Bacteriology, botany, geology, mathematics, philosophy, physiology, physics, and zoology.

For students entering after September 1, 1929

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, 6, and all work taken during the freshman year, and inclusive of courses in quantitative, analytical, and organic chemistry. At least five hours must be offered from the advanced group.

Minors: 20 hours, exclusive of courses taken during the freshman year, chosen from not more than two of the following: Bacteriology, botany, geology, mathematics, philosophy, physiology, physics, and zoology. At least eight hours must be offered in each subject if two are chosen.

Courses for Undergraduates

Note: Certain courses in this department require laboratory fees varying from $3 to $18.

1. Inorganic Chemistry.—*Prerequisite:* One unit of entrance credit in physics, or 2½ units of entrance credit in mathematics, or registration in Math. 1a, or 2, or 3.

Note: Students who have received entrance credit for high-school chemistry are given only three hours' credit for Chem. 1. Seniors, 3 hours only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Chem. 1	5	A Lect.[1]	11	TT	100 Chem.	Peirce
		B Lect.[1]	9	TT	100 Chem.	Hopkins
		C Lect.[1]	10	TT	100 Chem.	Reed
		1 Quiz	9	MW	8 Chem. Annex, 201 Chem.	
		Lab.	8-10	TTS	101 Chem. Annex	
		2 Quiz	3	TT	103, 204 Chem.	
		Lab.	3-5	MWF	101 Chem. Annex	
		3 Quiz	3	TT	300 Chem.	
		Lab.	10-12	MWF	101 Chem. Annex	
		4 Quiz	10	TT	103, 116 Chem.	
		Lab.	10-12	MWF	101 Chem. Annex	
		5 Quiz	8	TT	210 Chem. Annex, 103 Chem.	
		Lab.	10-12	MWF	212 Chem. Annex	
		6 Quiz	1	TT	103, 116 Chem.	
		Lab.	2-5	TT	101 Chem. Annex	
		7 Quiz	2	WF	103, 300 Chem.	
		Lab.	1-4	TT	101 Chem. Annex	
		8 Quiz	11	MW	103, 201 Chem.	
		Lab.	1-4	TT	212 Chem. Annex	
		9 Quiz	8	TT	163, 162, 116 Chem.	
		Lab.	8-10	MWF	1 Chem. Annex	
		10 Quiz	1	TT	204 Chem.	
		Lab.	1-3	MWF	101 Chem. Annex	
		11 Quiz	10	TT	301 Chem.	
		Lab.	1-3	MWF	101 Chem. Annex	
For students in the College of Agriculture:						
		12 Quiz	4	MW	8 Chem. Annex	
		Lab.	8-10	TTS	101 Chem. Annex	
		14 Quiz	3	TT	210 Chem. Annex	
		Lab.	10-12	MWF	1 Chem. Annex	
		15 Quiz	10	TT	210 Chem. Annex	
		Lab.	10-12	MWF	201 Chem. Annex	
		16 Quiz	1	TT	308 Chem. Annex	
		Lab.	1-3	MWF	201 Chem. Annex	
		17 Quiz	8	TT	9 Chem. Annex	
		Lab.	1-3	MWF	201 Chem. Annex	
For students majoring in Home Economics:						
		18 Quiz	1	TT	301 Chem.	
		Lab.	1-3	MWF	1 Chem. Annex	
		19 Quiz	8	TT	204 Chem.	
		Lab.	8-10	MWF	1 Chem. Annex	

2. Inorganic Chemistry.—(For all students who have had one year of high-school chemistry.) *Prerequisite:* One unit of entrance credit in chemistry. Students in the curriculum of chemistry or chemical engineering should register in Section 70.

Note: Students whose preparation in chemistry is inadequate are advised to register for Chemistry 1 or 3.

Chem. 2	3[2]	D Lect.[1]	10	F	100 Chem.	Copley
		E Lect.[1]	11	F	100 Chem.	Peirce
		F Lect.[1]	2	F	100 Chem.	Stillwell
		20 Quiz	3	TT	303 Chem.	
		Lab.	10-12	S	1 Chem. Annex	

[1]Students may register for any lecture section, but are required to take the quiz and laboratory in some one section.

[2]Seniors are allowed 2 hours' credit in Chem. 2. Students below the rank of senior receive 5 hours' credit, provided their high-school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.

Subject	Credits	Section	Hours	Days	Room	Instructor
Chem. 2	3	21 Quiz	10	TT	9 Chem. Annex, 300 Chem.	
		Lab.	10-12	S	1 Chem. Annex	
		22 Quiz	3	TT	201 Chem.	
		Lab.	8-10	S	1 Chem. Annex	
		23 Quiz	2	MW	116 Chem.	
		Lab.	8-10	F	201 Chem. Annex	
		24 Quiz	10	TT	303 Chem.	
		Lab.	8-10	Th	1 Chem. Annex	
		25 Quiz	2	MW	201, 204 Chem.	
		Lab.	8-10	T	212 Chem. Annex	
		26 Quiz	10	MW	103, 204 Chem.	
		Lab.	3-5	W	212 Chem. Annex	
		27 Quiz	3	MW	300 Chem.	
		Lab.	3-5	F	212 Chem. Annex	
		28 Quiz	10	MW	201, 300 Chem.	
		Lab.	10-12	Th	212 Chem. Annex	
		29 Quiz	3	WF	8, 9 Chem. Annex	
		Lab.	3-5	M	212 Chem. Annex	
For students in the College of Engineering:						
		31 Quiz	11	TT	201, 303 Chem.	
		Lab.	8-10	Th	212 Chem. Annex	
		32 Quiz	11	TT	300, 204 Chem.	
		Lab.	1-3	Th	201 Chem. Annex	
		33 Quiz	8	TT	300 Chem.	
		Lab.	8-10	S	101 Chem. Annex	
		34 Quiz	9	TT	8, 9 Chem. Annex	
		Lab.	1-3	W	101, 201 Chem. Annex	
		35 Quiz	1	TT	303, 163 Chem.	
		Lab.	8-10	S	1 Chem. Annex	
		36 Quiz	8	WF	210 Chem. Annex, 103, 116 Chem.	
		Lab.	8-10	M	101 Chem. Annex	
		37 Quiz	1	WF	8, 9 Chem. Annex	
		Lab.	2-4	W	1 Chem. Annex	
		38 Quiz	9	MW	9 Chem. Annex, 163 Chem.	
		Lab.	1-3	M	1 Chem. Annex	
For students in the College of Agriculture:						
		60 Quiz	8	TT	303 Chem.	
		Lab.	8-10	S	201 Chem. Annex	
		61 Quiz	3	TT	301 Chem.	
		Lab.	10-12	S	1 Chem. Annex	
		62 Quiz	10	TT	204 Chem.	
		Lab.	8-10	Th	1 Chem. Annex	
For students majoring in Home Economics:						
		65 Quiz	8	TT	161, 301 Chem.	
		Lab.	8-10	M	201 Chem. Annex	
For students in the curricula of Chemistry and Chemical Engineering:						
		70 Quiz	11	MW	300, 301, 303 Chem.	
		Lab.	1-3	T	201 Chem. Annex	
		71 Quiz	10	MW	9, 308 Chem. Annex	
		Lab.	1-3	Th	201 Chem. Annex	

3. **Inorganic Chemistry.**—(For engineering students who have had no chemistry.) *Note:* Students who have credit for high-school chemistry should register for Chemistry 2. Students who have not used their high-school chemistry for entrance credit are allowed 4 hours' credit for Chemistry 3.

Chem. 3	4[1]	A Lect.[2]	11	TT	100 Chem.	PEIRCE
		B Lect.[2]	9	TT	100 Chem.	HOPKINS
		C Lect.[2]	10	TT	100 Chem.	REED
		40 Quiz	11	MW	210 Chem. Annex, 204 Chem.	
		Lab.	1-3	WF	212 Chem. Annex	
		41 Quiz	8	WF	300, 301 Chem.	
		Lab.	1-3	TT	1 Chem. Annex	
		42 Quiz	1	WF	303, 301 Chem.	
		Lab.	8-10	TT	201 Chem. Annex	
		43 Quiz	11	MW	116, 163 Chem.	
		Lab.	8-10	MW	101 Chem. Annex	
		44 Quiz	9	TT	301 Chem.	
		Lab.	3-5	TT	1 Chem. Annex	
		45 Quiz	9	TT	300 Chem.	
		Lab.	3-5	MW	1 Chem. Annex	

4. **Chemistry of the Metallic Elements.**—(For students in engineering.) *Prerequisite:* Chem. 1, 2, or 3.

Chem. 4	4[1]	Lect.	10	MF	112 Chem. Annex	STILLWELL
		80 Quiz	8	MW	201 Chem.	
		Lab.	1-3	MF	1 Chem. Annex	

[1]Seniors are allowed 3 hours' credit.
[2]Students may register for any lecture section, but are required to take the quiz and laboratory in some one section.

Subject	Credits	Section	Hours	Days	Room	Instructor
Chem. 4	4[1]	81 Quiz	1	MW	210 Chem. Annex	
		Lab.	1-3	TT	1 Chem. Annex	
		82 Quiz	10	TT	8 Chem. Annex	
		Lab.	8-10	TT	1 Chem. Annex	

5. Inorganic Chemistry and Qualitative Analysis.—(For students in agriculture, home economics, and pre-medical courses.) *Prerequisite:* Chem. 1, 2, or 3.

Chem. 5	5[1]	Lect.	9	TT	112 Chem. Annex	Bailar
		50 Quiz	8	TT	8, 112 Chem. Annex	
		Lab.	8-10	MWF	201 Chem. Annex	
		51 Quiz	3	TT	9 Chem. Annex	
		Lab.	3-5	MWF	201 Chem. Annex	
		52 Quiz	11	TT	9 Chem. Annex	
		Lab.	10-12	MWF	201 Chem. Annex	
		53 Quiz	1	TT	9 Chem. Annex	
		Lab.	3-5	TT	201 Chem. Annex	
			8-10	S		
		54 Quiz	9	MW	210 Chem. Annex	
		Lab.	1-3	MWF	201 Chem. Annex	
For students in the College of Agriculture:						
		58 Quiz	1	TT	210 Chem. Annex	
		Lab.	3-5	TT	201 Chem. Annex	
			8-10	S		
		59 Quiz	11	TT	210 Chem. Annex	
		Lab.	10-12	MWF	201 Chem. Annex	

6. Inorganic Chemistry.—(For all students except those in agriculture, engineering, home economics, and pre-medical courses.) *Prerequisite:* Chem. 1, 2, or 3.

Chem. 6	5[1]	Lect.	10	TT	112 Chem. Annex	Copley
		75 Quiz	10	MW	8 Chem. Annex	
		Lab.	3-5	MWF	101 Chem. Annex	
		76 Quiz	11	TT	8 Chem. Annex	
		Lab.	10-12	MWF	101 Chem. Annex	
		77 Quiz	1	TT	8 Chem. Annex	
		Lab.	1-3	MWF	101 Chem. Annex	

10. Qualitative Analysis.—(Open to all students; required of those majoring in chemistry or registered in the curricula of chemistry or chemical engineering.) *Prerequisite:* Chem. 6.

Chem. 10	5 or 2[2]	Lect.	8	W	112 Chem. Annex	Reedy
		1 Quiz	8	MF	308 Chem. Annex	
		Lab.	8-11	TTS	310 Chem. Annex	
		2 Quiz	8	MF	8 Chem. Annex	
		Lab.	1-4	MWF	310 Chem. Annex	
		3 Quiz	8	MF	9 Chem. Annex	
		Lab.	1-5:30	TT	310 Chem. Annex	
For students registered for 2 hours only:						
		4 Quiz	8	MF	162 Chem.	

22. Elementary Quantitative Analysis.—*Prerequisite:* Chem. 4 or 5. (For all students who have not followed the sequence Chemistry 1, 2 or 3, 6 and 10.)

Chem. 22	5	Lect.	9	M	112 Chem. Annex	Englis
		A Quiz	9	WF	308 Chem. Annex, 103 Chem.	
		Lab.	1-4	MWF	301 Chem. Annex	
		B Quiz	9	WF	300, 162 Chem.	
		Lab.	1-4	TT	301 Chem. Annex	
			8-11	S		

24. Quantitative Analysis.—*Prerequisite:* Chem. 10.

Chem. 24	5	Lect.	9	F	112 Chem. Annex	Clark
		A Quiz	9	MW	204, 301 Chem.	
		Lab.	1-4	MWF	301 Chem. Annex	
		B Quiz	9	MW	303 Chem.	
		Lab.	1-4	TT	301 Chem. Annex	
			8-11	S		

32. Elementary Organic Chemistry.—(Especially for students in Agriculture.) *Prerequisite:* Chem. 5 or 10.

Chem. 32	3	Lect.	8	ThS	217 Chem.	Fuson and
		Quiz	8	T	201 Chem.	assistants
					241 N. H.	
					423 N. H.	
		A Lab.	1-4	T	250 Chem.	
		B Lab.	9-12	W	250 Chem.	

[1]Seniors are allowed 3 hours' credit.

[2]Students who already have credit for the laboratory work of qualitative analysis may, with the consent of the instructor, register for lecture and quizzes only, and receive a credit of 2 hours. Such students must register in Section 4.

33. Elementary Organic Chemistry.—(For students in home economics and pre-medical courses.) *Prerequisite:* Chem. 10 or 5.

Subject	Credits	Section	Hours	Days	Room	Instructor
Chem. 33	5	Lect.	8	MW	100 Chem.	SHRINER and assistants
		Quiz	8	F	100 Chem.	
					204 Chem.	
Quiz section assignments will be made by the instructor after registration is complete.					163 Chem.	
					217 Chem.	
					303 Chem.	
		Conf.	8	T	217 Chem.	
		Lab.	9-11	T	250 Chem.	
			8-11	Th	250 Chem.	

34a. Organic Chemistry.—(For students majoring in chemistry or for those registered in the curriculum of chemistry or of chemical engineering.) *Prerequisite:* Chem. 6, 10, and 24.

Chem. 34a	5	Lect.	9	MWF	217 Chem.	MARVEL and assistants
		Conf.	1	M	217 Chem.	
		Lab.	2-4	M	250 Chem.	
			1-4	W		

80a. Chemistry of Water and Sewage.—(For students in sanitary engineering.) *Prerequisite:* Chem. 4. (5). Lect., 10 TT, Lab. 9-11, MWF; 60 Chem. Professor BUSWELL.

90a. Thesis.—(Required of seniors in chemistry and chemical engineering.) *Prerequisite:* Chem. 24, 34a, 40, 41, 42b, and 43b, or the consent of the head of the department. (3-5).* A minimum of five hours required for graduation. Professor ADAMS (in charge).

Courses for Advanced Undergraduates and Graduates

15a. Inorganic Chemistry.—*Prerequisite:* Senior standing. (2). 9 MW; 116 Chem. Dr. BAILAR.

16a. Inorganic Chemistry.—(Laboratory.) *Prerequisite:* Senior standing, registration in Chem. 15a. (2). Arrange. Dr. BAILAR.

27. Special Methods and Instruments in Quantitative Analysis.—*Prerequisite:* Chem. 24, 34a, 40 and 41, or registration in 40 and 41.

Chem. 27	3	Lect.	11	T	161 Chem.	SMITH
		A Lab.	1-4	TT	305 Chem.	
		B Lab.	1-4	F	305 Chem.	
			8-11	S	305 Chem.	

38a. Qualitative Organic Analysis.—*Prerequisite:* Chem. 36b and 37b.

Chem. 38a	3	Conf.	1	TT	217 Chem.	SHRINER
		Lab.	2-4	TT	250 Chem.	

40. Elementary Physical Chemistry.—*Prerequisite:* Chem. 24; Physics 1a-1b or 7a-7b; Math. 7 or 8. (3). 10 MWF; 161 Chem. Professor RODEBUSH.

41. Elementary Physical Chemistry.—(Laboratory.) To accompany Chem. 40.

Chem. 41	1	A Lab.	1-4	T	124 Chem.	PHIPPS
		B Lab.	1-4	Th		
		C Lab.	1-4	F		

44a. Advanced Physical Chemistry.—*Prerequisite:* Chem. 40, 41. (2). 10 TT; 161 Chem. Associate Professor PHIPPS.

50a. Physiological Chemistry.—*Prerequisite:* Chem. 24 or 22 and 33 or 34a.

Chem. 50a	5	Lect.	9	TT	116 Chem.	ROSE, DUVIGNEAUD, and assistants
		A Lab.	1-4	TT	450 Chem.	
			8-11	S		
		B Lab.	1-4	MWF	450 Chem.	

60a. Chemical Technology.—*Prerequisite:* Chem. 24, registration in Chem. 34a. (Estimated cost of inspection trip is $30-$35 per student.)

Chem. 60a	4	Lect.	11	MWF	161 Chem.	KISTLER
		A Lab.	1-5	T	50 Chem.	KISTLER
		B Lab.	1-5	Th	50 Chem.	KISTLER
		C Lab.	1-5	F	50 Chem.	KISTLER

61a. Principles of Chemical Engineering.—*Prerequisite:* Chem. 42b, or senior standing.

Chem. 61a	4	Lect.	9	MWF	161 Chem.	KRASE
		A Lab.	1-5	M	50 Chem.	HOWARD
		B Lab.	1-5	W	50 Chem.	HOWARD

62a. Principles of Research and Development.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (2). Lect., 10 MW; 116 Chem. Professor KEYES.

71a. Sampling, Grinding, and Mixing.—*Prerequisite:* Registration in Chem. 60a. (1). Lect. Arrange. Mr. HOWARD.

73a. Metallurgy.—*Prerequisite:* Senior standing in engineering courses only. (3). Lect., 8 MWF; 161 Chem. Mr. HOWARD.

86a. Chemistry of Sanitation.—*Prerequisite:* Chem. 24. Lectures, demonstrations, and field trips. (3). 10 MWF; 162 Chem. Professor BUSWELL.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

92a. Chemical Literature and Reference Work.—(Required of juniors in chemistry and chemical engineering; expected also of juniors taking major work in chemistry.) *Prerequisite:* 18 hours of chemistry, one year of French or German, junior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Chem. 92a	1	A	10	Th	201 Chem.	BARTOW
		B	8	F	201 Chem.	
		K	Arrange		Graduates Only	

95a. History of Science with Particular Reference to Chemistry.—*Prerequisite:* Junior standing and 20 hours of laboratory science. (2). 1 MW; 201 Chem. BARTOW.

Courses for Graduates

101a. Inorganic Chemistry.—(½ unit). (For laboratory work see Chem. 102a.) Twice a week. 8 MW; 303 Chem. Professor HOPKINS.

102a. Inorganic Chemistry.—(Laboratory work to accompany or follow Chem. 101a.) Arrange. (¼-1 unit).* Professor HOPKINS.

105a. Inorganic Seminar and Special Topics.—(¼-1 unit).* Once, twice, or three times per week. Seminar, 11 S; 162 Chem. Special topic: Mechanism of Chemical Reactions. (Dr. Copley). 9 MW; 105 Chem. Annex. Professor HOPKINS.

123a. Qualitative Analysis.—(½ unit). Twice a week. 11 MF; 162 Chem. Laboratory. Arrange. Associate Professor REEDY.

125a. Quantitative Analysis.—(Seminar). (Required of all students taking a major or minor in analytical chemistry.) (¼-1 unit).* 9 S; 217 Chem. Professor CLARK.

126a. Quantitative Instrumental and Chemical Methods of Analysis in Organic Chemical Research.—(Ultimate bomb analysis, gas density, polarimetry, refractometry, spectrophotometry, colorimetry, microscopy, etc.). (½-1¼ units).* Twice a week. 8 TT; 308 Chem. Annex. Laboratory, arrange; 305-A Chem. Assistant Professor ENGLIS.

127a. Modern Applications of Radiation to Chemical and Industrial Problems.—(X-rays, radioactivity and optical spectroscopy). (½-1 unit).* 10 TT; 217 Chem. Professor CLARK.

132a. Organic Chemistry.—(First course). (¾ unit). 11 TT; 217 Chem. Professor ADAMS.

134. Organic Chemistry.—Chiefly laboratory work. (½-1 unit).* Arrange. 219 Chem. Professor MARVEL.

135a. Organic Chemistry.—(Seminar). (¼ unit). Once a week. 10 W; 217 Chem. Professor ADAMS.

136a. Organic Chemistry.—Special Topics. (¾ unit). Twice a week. 11 TT; 103 Chem. Associate Professor FUSON.

145a. Physical Chemistry.—(Seminar). (¾ unit). Twice a week. 10-12 S; 176 Chem. Professor RODEBUSH.

152a. Physiological Chemistry.—Chiefly laboratory. (½-1 unit).* Arrange. 463 Chem. Professor ROSE, Assistant Professor DUVIGNEAUD.

155a. Physiological Chemistry.—(Seminar).[1] (¾ unit). Two hours a week. 9-11 F; 456 Chem. Professor ROSE.

160a. Advanced Chemical Technology and Chemical Engineering.—*Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 1 MW; 162 Chem. Professor KEYES.

161a. Chemical Plant Design.—Calculations and layout of equipment for recently developed processes. *Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 1 TT; 162 Chem. Associate Professor KRASE.

186a. Sanitary Chemistry.—(½-1¼ units).* Arrange. One to five times a week. 60-B Chem. Professor BUSWELL.

190a. Research.—Work may be taken in the following subjects:

Physical and Electrochemistry.—Professors RODEBUSH, CLARK, Associate Professors PHIPPS, REEDY.

Inorganic Chemistry.—Professor HOPKINS; Associate Professor REEDY; Dr. BAILAR, Dr. STILLWELL.

Analytical Chemistry.—Professor CLARK; Assistant Professors SMITH, ENGLIS.

Food Chemistry.—Assistant Professor ENGLIS.

Applied X-rays.—Professor CLARK.

Organic Chemistry.—Professors NOYES, ADAMS, MARVEL; Associate Professors SHRINER, FUSON; Dr. BAILAR.

Zymochemistry.—Professor BUSWELL.

Physiological Chemistry.—Professor ROSE; Assistant Professor DUVIGNEAUD.

Industrial Chemistry.—Professors PARR, KEYES; Associate Professor KRASE.

Ceramic Chemistry.—Professor PARMELEE.

Phyto-Chemistry.—Assistant Professor ENGLIS.

Animal Chemistry (Nutrition).—Professor GRINDLEY.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

[1]Required of all students majoring in physiological chemistry.

CIVIL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $2.50.

1. Plane Surveying.—*Prerequisite:* G. E. D. 1 or 4, Math. 4.

Subject	Credits	Section	Hours	Days	Room	Instructor
C. E. 1	3	E1	8-10	MWF	C. E. S. B.	Dell
		E2	8-10	MWF	C. E. S. B.	Rayner
		F1	10-12	MWF	C. E. S. B.	Dell
		F2	10-12	MWF	C. E. S. B.	Rayner
		G	1-3	MWF	C. E. S. B.	Tippy

3. Railway and Highway Surveying.—*Prerequisite:* C. E. 1 or 15. (4). Sec. E, 9 MW, 208 E. H.; 8-11 TT, 407 E. H. Associate Professor Wiley.

15. General Surveying.—*Prerequisite:* G. E. D. 1 or 4; Math. 4.

C. E. 15	3	D	8-11	MF	C. E. S. B.	Pickels
		E	8-11	MF	C. E. S. B.	Bauer
		F	8-11	TT	C. E. S. B.	Rayner
		G	1-4	MF	C. E. S. B.	Dell
		H	1-4	TT	C. E. S. B.	Wiley

17. Surveying for Landscape Architects.—*Prerequisite:* Math. 4. (3). Sec. E, 1-3 MWF; C. E. S. B. Professor Pickels.

20. Highway Construction.—*Prerequisite:* Credit or registration in C. E. 1 or 15 or 16 or 17. (2). Sec. E, 11 TT; 112 M. T. L. Assistant Professor Bauer.

21. Highway Construction.—*Prerequisite:* C. E. 20.

C. E. 21	2	E	10	TT	101 E. H.	Crandell
		F	11	TT	101 E. H.	Crandell
		G	10	TT	102 E. H.	Wiley
		H	11	TT	102 E. H.	Wiley

22. Highway Design.—*Prerequisite:* C. E. 21. (4). Sec. E, 10 MWF, 101 E. H.; 2-5 Th, 309 E. H. Professor Crandell.

30a. Highway Materials Laboratory.—*Prerequisite:* Junior standing in engineering or landscape architecture.

C. E. 30a	1	E	1-4	Th	201 M. T. L.	Bauer
		F	1-4	T	201 M. T. L.	Bauer
		G	1-4	F	201 M. T. L.	Bauer
		H	1-4	M	201 M. T. L.	Bauer

35. Plain Concrete.—*Prerequisite:* Sophomore standing in engineering. (2). Sec. E, 8-11 Th, 8 T; 112 M. T. L. Mr. Tippy.

40a. Water Supply.—*Prerequisite:* T. A. M. 3 and 4.

C. E. 40a	4	E	10	MWF	208 E. H.	Babbitt
			1-4	T	211 E. H.	Babbitt
		F	11	MWF	208 E. H.	Babbitt
			1-4	T	214 E. H.	Babbitt
		G	11	MWF	102 E. H.	Doland
			1-4	T	309 E. H.	Doland

42a. Water Purification.—*Prerequisite:* Registration or credit in C. E. 40a, Chem. 80a, and Bact. 5a. (2). Sec. E, 9 T, 208 E. H.; 2-5 Th, 214 E. H. Professor Babbitt.

49. Municipal Sanitation.—*Prerequisite:* Junior standing in engineering or landscape architecture. (3). Sec. E, 2 MWF; 102 E. H. Associate Professor Doland.

50. Hydrology.—*Prerequisite:* Senior standing in civil engineering.

C. E. 50	2	E	9	TT	205 E. H.	Pickels
		F	10	TT	208 E. H.	Pickels

60a. Bridge and Building Construction.—*Prerequisite:* Sophomore standing in engineering.

C. E. 60a	3	E1	10	MWF	102 E. H.	Doland
		E2	10	MWF	400 E. H.	Oliver
		F1	1	MWF	101 E. H.	Doland
		F2	1	MWF	400 E. H.	Vawter
		G	8	MWF	319 E. H.	Oliver

61a. Structural Stresses.—*Prerequisite:* Registration in or credit in T. A. M. 3.

C. E. 61a	4	E	8	MWF	405 E. H.	Shedd
			1-4	T	419 E. H.	Shedd
		F	8	MWF	205 E. H.	Vawter
			1-4	Th	419 E. H.	Vawter
		G	9	MWF	405 E. H.	Shedd
			1-4	T	419 E. H.	Shedd
		H	9	MWF	109 E. H.	Vawter
			1-4	Th	419 E. H.	Vawter

64a. Structural Design.—*Prerequisite:* C. E. 62 and 63a.

Subject	Credits	Section	Hours	Days	Room	Instructor
C. E. 64a	4	E	1	Th	405 E. H.	SHEDD
			1-4	MWF	211 E. H.	SHEDD
		F	1	Th	205 E. H.	OLIVER
			1-4	MWF	214 E. H.	OLIVER
		G	1	Th	208 E. H.	STUBBS
			1-4	MWF	309 E. H.	STUBBS

66. Masonry Construction.—*Prerequisite:* C. E. 61a and 63a.

C. E. 66	3	E	8	MWF	101 E. H.	HUNTINGTON
		F	9	MWF	101 E. H.	HUNTINGTON

67. Statically Indeterminate Structures.—*Prerequisite:* Registration or credit in C. E. 64a.

C. E. 67	3	E	9	MWF	205 E. H.	CROSS
		F	10	MWF	205 E. H.	CROSS

86. Steel, Concrete, and Timber Design.—*Prerequisite:* C. E. 61a. (4). Sec. E, 9 MF, 400 E. H.; 8-11 TT, 408 E. H. Assistant Professor STUBBS.

89a. Structural Engineering.—*Prerequisite:* Senior standing in engineering. (3). Sec. E, 9 MWF; 102 E. H. Mr. OLIVER.

90a. Contracts and Specifications.—*Prerequisite:* Senior standing in engineering.

C. E. 90a	2	E	8	TT	205 E. H.	VAWTER
		F	9	TT	101 E. H.	CRANDELL
		G	11	TT	208 E. H.	PICKELS

91. Estimates and Costs.—*Prerequisite:* Senior standing in engineering.

C. E. 91	2	E	8	MW	202 E. H.	STUBBS
		F	11	TT	405 E. H.	STUBBS

97. Thesis.—(2 or 3).* Arrange.

Courses for Graduates

101. Water Supply.—(1 unit). 11 TT; 204 E. H. Professor BABBITT.

103. Highway Engineering.—(1 unit). 11 MW; 308 E. H. Professor CRANDELL.

105. Reinforced Concrete Theory.—(1 unit). 4 MF; 205 E. H. Professor CROSS.

106. Reinforced Concrete Structures.—(1 or 2 units).* 4 TT; 205 E. H. Professor CROSS.

107. Statically Indeterminate Structures and Secondary Stresses.—(1 unit). 3 TT; 101 E. H.

109. Water Purification and General Sanitation.—(1 unit). 3 MF; 204 E. H. Professor BABBITT.

124. Steel Building Design.—(½ unit). 11 F; 405 E. H. Professor HUNTINGTON.

130. Hydrology.—(1 unit). 8 TT; 210 E. H. Professor PICKELS.

140. Research.—(½-2 units).* To be arranged.

THE CLASSICS

For students entering prior to September, 1929

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, 17, and 55.

Minors: 20 hours, chosen from not more than two of the following: Foreign language (Latin being especially recommended), English literature, history, and philosophy.

Latin

Major: 20 hours, excluding Latin 11a-11b, 6, 1a-1b, 13, 20, 56 and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours, chosen from not more than two of the following: Foreign language (Greek being especially recommended), English literature, history, and philosophy.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17, 55, and Latin 11a-11b, 6, 1a-1b, 9, 13, 20, and 56. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours, chosen from not more than two of the following: Foreign language, English literature, history, and philosophy.

For students entering after September 1, 1929

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, 17, and all courses taken during the freshman year.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Minors: 20 hours, exclusive of courses taken during the freshman year, chosen from not more than two of the following: Foreign language (Latin being especially recommended), English literature, history, and philosophy. At least eight hours must be taken in each subject, if two are chosen.

Latin

Major: 20 hours, excluding Latin 11a-11b, 6, 1a-1b, 13, 20, and all courses taken during the freshman year and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours, exclusive of courses taken during the freshman year, chosen from not more than two of the following: Foreign language (Greek being especially recommended), English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17 and Latin 11a-11b, 6, 1a-1b, 9, 13, 20 and all courses taken during the freshman year. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours, exclusive of courses taken during the freshman year, chosen from not more than two of the following: Foreign language, English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

GREEK

Courses for Undergraduates

1a. Elementary Greek.—(4). 8 TWTF; 114 L. H. Dr. Mylonas.

3. Second Year Greek. Plato.—*Prerequisite:* Greek 1a-1b. (3). 11 MWF; 114 L. H. Mr. Dunkin.

Courses for Advanced Undergraduates and Graduates

6. Thucydides and Plato.—*Prerequisite:* Greek 3 and 4 or an equivalent. (3). 9 TTS; 114 L. H. Dr. Mylonas.

Greek Life and History

For courses 15, 16, 18, and History 55 a knowledge of Greek is not presupposed.

15. Greek Athletics.—*Prerequisite:* Sophomore standing. (1). 1 T; 202 L. H. Dr. Mylonas.

16. Life of the Ancient Greeks.—*Prerequisite:* Sophomore standing. (1). 3 Th; 120 L. H. Dr. Mylonas.

18. Greek Archaeology.—*Prerequisite:* Sophomore standing. (2). 2 TT; 120 L. H. Dr. Mylonas.

Greek History.—See History 55. 1 MWF; 202 L. H. Professor Oldfather.

Courses for Graduates

Students desiring to take graduate work in Greek should have had at least three years of college Greek or an equivalent.

110a. See Latin 110a.

106a. Greek Drama, Tragedy.—(1 unit). Twice a week. Arrange. Associate Professor Perry.

LATIN

Courses for Undergraduates

11a. Elementary Latin.—(*Note:* Seniors will receive three hours' credit only.) (4). 8 TWTF; 120 L. H. Mr. Rapp.

6. Cicero.—*Prerequisite:* Two entrance units in Latin or Latin 11a-11b. (4). 2 TWTF; 114 L. H. Mr. Dunkin.

1a. Ovid.—*Prerequisite:* Three entrance units in Latin or Latin 6. (4). 1 TWTF; 114 L. H. Mr. Rapp.

12a. Plautus, Terence, Catullus.—*Prerequisite:* Four entrance units in Latin or Latin 1a-1b. (4). 9 TWTF; 120 L. H. Associate Professor Perry.

3. Lucretius and Horace (Odes).—*Prerequisite:* Latin 12a-12b or an equivalent. (3). 10 MWF; 120 L. H. Professor Canter.

5a. Latin Composition.—*Prerequisite:* Three entrance units in Latin or Latin 6. Required to secure the department's recommendation to teach. (1). 4 Th; 120 L. H. Professor Canter.

Roman Life and History

Course 20 presupposes no knowledge of Latin and is open to all students except freshmen.

20. Mythology of Greece and Rome.—*Prerequisite:* Sophomore standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Latin 20	2	Lect.	2	T	202 L. H.	Perry
		Quiz A	2	Th	202 L. H.	
		Quiz B	3	Th	202 L. H.	

Courses for Advanced Undergraduates and Graduates

21. Tacitus (Annales) and Juvenal.—*Prerequisite:* 12 hours of Latin acceptable for a major. (3). 2 MWF; 120 L. H. Professor Canter.

30a. Honors Course.—Thesis or a special course of study approved by the department. *Prerequisite:* Senior standing and 14 hours of Latin acceptable for a major. (2). Arrange. Professor CANTER.

Courses for Graduates

Students desiring to take graduate work in Latin should have had at least three years of College Latin in addition to the Latin presented to meet entrance requirements.

104. Latin Palaeography.—(1 unit). Twice a week. Arrange. Professor OLDFATHER.

110a. Bibliography and Criticism.—(1 unit). Arrange. Professors OLDFATHER, CANTER, and PERRY.

115. Latin Elegy.—(1 unit). Twice a week. 4-6 T; 120 L. H. Professor CANTER.

118. The Latin Romance.—(1 unit). Twice a week. Arrange. Associate Professor PERRY.

COMMERCIAL LAW

(See Business Organization and Operation.)

COMPARATIVE LITERATURE

(See English 54.)

DAIRY HUSBANDRY

Courses for Undergraduates

Note: Certain courses in this department require laboratory fees varying from $2 to $4.

1. Testing Dairy Products.—*Prerequisite:* Dairy Husb. 24b or 30 hours of university work. (3). 1-4 TT (Lect., Quiz, Lab.); 503 Agr. Assistant Professor OVERMAN, Mr. GARRETT.

6a. Dairy Plant Operations.—*Prerequisite:* Dairy Husb. 1, 11, and 12, or registration therein. (3). Time to be arranged. Associate Professor TRACY, Mr. TUCKEY.

22. Cheese Making.—*Prerequisite:* Dairy Husb. 11, 12, and 24b. (3). 1-5 T; 8 WF; Dairy Mfrs. Bldg. Professor RUEHE.

23a-k. Investigation with Thesis.—(This course is continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work including not less than 20 hours pertinent to thesis problem and approval of head of department. (5). Arrange. 120 Agr.

(a) **Dairy Bacteriology.**—Professor PRUCHA, Assistant Professor BRANNON.
(c) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(e) **Dairy Farming and Economic Milk Production.**—Professor FRASER.
(g) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.
(j) **Dairy Production.**—Professors GAINES, YAPP; Associate Professor NEVENS.

24a. Elementary Dairy Production.—(*Note:* Juniors and seniors allowed 2 hours' credit only.)

Subject	Credits	Section	Hours	Days	Room	Instructor
D. Husb. 24a	3	Lect.	9	M	127 New Agr.	NEVENS,
		Lab.	8, 9	W	S. P.	KUHLMAN, and
		Quiz	9	F	205 Agr.	SHAW

24b. Elementary Testing and Manufacture of Dairy Products.—*Prerequisite:* Credit or registration in Chem. 1 or 2. (*Note:* Juniors and seniors allowed 2 hours' credit only.)

D. Husb. 24b	3	Lect.	2	Th	D. Mfrs.	TUCKEY and
		Lab.	1, 2	T	D. Mfrs.	RAMSEY
		Quiz	1	Th	D. Mfrs.	

Courses for Advanced Undergraduates and Graduates

4. Ice Cream Making.—*Prerequisite:* Dairy Husb. 1, 11, 12; and 60 hours of university work. This course is accompanied by an inspection trip costing from $15 to $20. (5). 1-4 TT, 4 MWF; D. Mfrs. Associate Professor TRACY.

10. Advanced Dairy Bacteriology.—*Prerequisite:* Bact. 5a and 5b; 60 hours of university work. (4). 1-4 MWF; 456 Agr. Professor PRUCHA, Assistant Professor BRANNON.

17. Advanced Study of Dairy Breeds.—*Prerequisite:* Dairy Husb. 2 and 60 hours of university work. (3). 10 MWF; 553 Agr. Professor YAPP.

20. Economic Problems in Dairy Farming.—*Prerequisite:* 60 hours of university work. (3). 9 MWF; 553 Agr. Professor FRASER.

Courses for Graduates

101. Economic Milk Production.—(½-2 units).* Arrange. Professor FRASER.

104. Dairy Bacteriology.—(½-1 unit).* 2 lectures a week. Arrange. Professor PRUCHA.

105. Dairy Manufactures.—(½-2 units).* Arrange. Professor RUEHE, Associate Professor TRACY.

106. Dairy Bacteriology.—(½-2 units).* Arrange. Professor PRUCHA.

107. Dairy Chemistry.—(½-2 units).* Arrange. Assistant Professor OVERMAN.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

108. Physiology of Lactation.—(½-2 units).* Arrange. Professor GAINES.

112a-f. Research.—(1-4 units).* Arrange.

Note: Graduate students writing a thesis should so indicate when registering in Dairy Husbandry 112.

(a) **Dairy Bacteriology.**—Professor PRUCHA.
(b) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(c) **Dairy Cattle Breeding.**—Professor YAPP.
(d) **Dairy Cattle Feeding.**—Associate Professor NEVENS.
(e) **Milk Production.**—Professor GAINES.
(f) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.

DRAWING, GENERAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $1.50.

1. Elements of Drawing.—*Prerequisite:* Plane geometry.

Subject	Credits	Section	Hours	Days	Room	Instructor
G. E. D. 1	4	A	8-11	MF	To be assigned	
			8-10	W	at registration	
		B	1-4	MF		
			1-3	W		
		C	8-11	TT		
			8-10	S		
		D	1-4	TT		
			10-12	S		

2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry.

G. E. D. 2	4	A	8-11	MF	To be assigned	
			8-10	W	at registration	
		B	1-4	MF		
			1-3	W		
		C	8-11	TT		
			8-10	S		
		D	1-4	TT		
			10-12	S		

4. Advanced Drawing.—*Prerequisite:* Three years of work in the better high schools or equivalent in commercial practice necessary basis for consideration. (To be determined by the department at registration time.)

G. E. D. 4	4	B	1-4	MF	303 T. B.	
			1-3	W	303 T. B.	
		C	8-11	TT	303 T. B.	
			8-10	S	303 T. B.	
		D	1-4	TT	303 T. B.	
			10-12	S	303 T. B.	

7. Architectural Projections.—*Prerequisite:* Plane and solid geometry.

G. E. D. 7	2	A	8-11	MF	103 T. B.	
		B	2-5	MF	103 T. B.	
		C	9-12	TT	103 T. B.	
		D	2-5	TT	103 T. B.	

ECONOMICS

(See also Business Organization and Operation, and Public Utilities and Transportation.)

Major: For students in the College of Liberal Arts and Sciences 20 hours made up of Economics 1 and other courses in economics for which it is a prerequisite.

Minors: 20 hours in any one or two of the following subjects: Geography, history, philosophy, political science, and sociology.

Economics 22 and 27 are open only to freshmen, without previous requirements.

Economics 1 is the fundamental course in economics. It is a prerequisite for most of the advanced courses, and students expecting to do advanced work in economics should take it in their sophomore year.

Courses for Undergraduates

1. Principles of Economics.—*Prerequisite:* 30 hours of university work.

Econ. 1	5	Lect. I	8	TT	114 Com.	NICKOLEY
		A1 Quiz	8	MWF	111 Com.	BROWN
		A2 Quiz	8	MWF	113 Com.	HOOVER
		A3 Quiz	8	MWF	108 Com.	LUNEY
Students registered in quiz sections listed under Lect. I, must enroll in Lect. I; those under Lect. II in Lect. II, etc.		A4 Quiz	8	MWF	310 Com.	VAN ARSDELL
		A5 Quiz	8	MWF	106 Com.	ALYEA
		E1 Quiz	1	MWF	312 Com.	SANFORD
		E2 Quiz	1	MWF	108 Com.	WHITLO
		F1 Quiz	2	MWF	307 Com.	BEHLING
		F2 Quiz	2	MWF	306 Com.	HELBING
		Lect. II	9	TT	114 Com.	NICKOLEY
		B1 Quiz	9	MWF	111 Com.	BROWN

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Econ. 1	5	B2 Quiz	9	MWF	108 Com.	Luney
		B3 Quiz	9	MWF	113 Com.	Hoover
		B4 Quiz	9	MWF	310 Com.	Van Arsdell
Students registered in quiz sections listed under Lect. I, must enroll in Lect. I; those under Lect. II in Lect. II, etc.		B5 Quiz	9	MWF	106 Com.	Alyea
		C Quiz	10	MWF	106 Com.	Bartlett
		D Quiz	11	MWF	106 Com.	Bartlett
		E3 Quiz	1	MWF	307 Com.	Behling
		F3 Quiz	2	MWF	312 Com.	Sanford
		Lect. III	8	WF	114 Com.	Nickoley
		J1 Quiz	8	TTS	310 Com.	Van Arsdell
		J2 Quiz	8	TTS	306 Com.	Helbing
		J3 Quiz	8	TTS	108 Com.	Luney
		J4 Quiz	8	TTS	113 Com.	Hoover
		J5 Quiz	8	TTS	312 Com.	Whitlo
		K1 Quiz	9	TTS	312 Com.	Sanford
		K2 Quiz	9	TTS	306 Com.	Helbing
		K3 Quiz	9	TTS	310 Com.	Van Arsdell
		K4 Quiz	9	TTS	108 Com.	Luney

2. Elements of Economics.—*Prerequisite:* 30 hours of university work. Not open to those who have had Econ. 1. Exclusively for non-commerce students.

Econ. 2	3	C1 Quiz	10	MWF	111 Com.	Lounsbury
		C2 Quiz	10	MWF	101 Com.	Berman
		C3 Quiz	10	MWF	307 Com.	Sublette
		E Quiz	1	MWF	111 Com.	Sublette
		J Quiz	8	TTS	111 Com.	Lounsbury
		K Quiz	9	TTS	111 Com.	Lounsbury

3. Money, Credit, and Banking.—*Prerequisite:* Econ. 1 or 2.

Econ. 3	3	Lect.	9	W	114 Com.	Lee
		B1 Quiz	9	MF	312 Com.	Lee
		B2 Quiz	9	MF	322 Com.	Lockling
		B3 Quiz	9	MF	306 Com.	Sanford
		J Quiz	8	TT	106 Com.	Lockling
		K Quiz	9	TT	113 Com.	Lockling
		L Quiz	10	TT	312 Com.	Sanford
		M Quiz	11	TT	310 Com.	Lee

22. Economic History of the United States.—Open to freshmen only.

Econ. 22	3	Lect. I	1	M	114 Com.	Bogart
		E1 Quiz	1	WF	113 Com.	Fitzgerald
Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II, etc.		E2 Quiz	1	WF	126 Com.	Brainard
		E3 Quiz	1	WF	119 Com.	Heckman
		E4 Quiz	1	WF	326 Com.	Long
		E5 Quiz	1	WF	302 U. H.	Martin
		E6 Quiz	1	WF	310 Com.	Curtis
		E7 Quiz	1	WF	411 U. H.	Shaw
		N1 Quiz	1	TT	306 Com.	Curtis
		N2 Quiz	1	TT	329 Com.	Tandy
		Lect. II	2	M	114 Com.	Bogart
		F1 Quiz	2	WF	413 U. H.	Shaw
		F2 Quiz	2	WF	312 U. H.	Martin
		F3 Quiz	2	WF	326 Com.	Long
		F4 Quiz	2	WF	119 Com.	Heckman
		F5 Quiz	2	WF	126 Com.	Brainard
		F6 Quiz	2	WF	113 Com.	Fitzgerald
		F7 Quiz	2	WF	111 Com.	Sublette
		O1 Quiz	2	TT	306 Com.	Curtis
		O2 Quiz	2	TT	312 Com.	Bender
		Lect. III	8	S	114 Com.	Bogart
		J1 Quiz	8	TT	307 Com.	Sublette
		J2 Quiz	8	TT	413 U. H.	Heckman
		J3 Quiz	8	TT	128 L. H.	Bender
		J4 Quiz	8	TT	142 L. H.	Martin
		J5 Quiz	8	TT	227 L. H.	Long
		J6 Quiz	8	TT	126 Com.	Tandy
		L1 Quiz	10	TT	113 Com.	Hoover
		M1 Quiz	11	TT	306 Com.	Brainard
		Lect. IV	9	S	114 Com.	Bogart
		K1 Quiz	9	TT	126 Com.	Tandy
		K2 Quiz	9	TT	233 L. H.	Martin
		K3 Quiz	9	TT	240 L. H.	Bender
		K4 Quiz	9	TT	307 Com.	Sublette
		K5 Quiz	9	TT	300 L. H.	Heckman
		K6 Quiz	9	TT	306 L. H.	Shaw
		K7 Quiz	9	TT	329 L. H.	Long
		L2 Quiz	10	TT	306 Com.	Brainard
		M2 Quiz	11	TT	113 Com.	Hoover

Courses for Advanced Undergraduates and Graduates

4. History of Money and Banking Institutions.—*Prerequisite:* Econ. 3. (3). 11 MWF; 310 Com. Professor Lee.

9. **Advanced Theory and Practice of Banking.**—*Prerequisite:* Econ. 1 or 2 and 3, senior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Econ. 9	3	Lect.	8	W	215 Com.	Wright
		A Quiz	8	MF	322 Com.	Wright
		J Quiz	8	TT	322 Com.	Wright
		K Quiz	9	TT	322 Com.	Wright

11. **Industrial Consolidation.**—*Prerequisite:* Econ. 10.

Econ. 11	3	Lect.	9	M	215 Com.	Robinson
		B Quiz	9	WF	325 Com.	Robinson
		C Quiz	10	WF	325 Com.	Robinson
		K Quiz	9	ThS	325 Com.	Robinson

13. **Marketing and Prices of Agricultural Products.**—*Prerequisite:* Econ. 1 or 2, junior standing.

Econ. 13	3	Lect.	10	M	111 New Agr.	Stewart
		C Quiz	10	WF	111 New Agr.	Stewart
		D Quiz	11	WF	111 New Agr.	Stewart

16. **Economics of Agriculture.**—*Prerequisite:* Econ. 1 or 2. (3). 11 MWF; 316 New Agr. Assistant Professor Norton.

20. **Economic and Social Conditions in the Near East.**—*Prerequisite:* Econ. 1 or 2, and junior standing. (3). 11 MWF; 328 Com. Visiting Professor Nickoley.

25. **Economic History of England.**—*Prerequisite:* Econ. 1 or 2, and junior standing. (3). 10 TTS; 224 Com. Professor Bogart.

31. **Organization of Foreign Commerce.**—*Prerequisite:* Econ. 1 or 2, junior standing.

Econ. 31	3	Lect.	10	W	215 Com.	Litman
		C Quiz	10	MF	322 Com.	Litman
		L Quiz	10	TT	322 Com.	Litman

35. **Corporation Finance.**—*Prerequisite:* Econ. 1 or 2. For engineering students only. (3). 10 MWF; 203 Trans. Assistant Professor Brown.

41. **Introduction to Labor Problems.**—*Prerequisite:* Econ. 1 or 2, junior standing.

Econ. 41	3	Lect.	2	F	114 Com.	Berman
		F1 Quiz	2	MW	322 Com.	Berman
		F2 Quiz	2	MW	108 Com.	Luney
		O Quiz	2	TT	322 Com.	Berman

44. **Socialism and Economic Reform.**—*Prerequisite:* Econ. 1 or 2, senior standing. (3). 1 MWF; 306 Com. Dr. Helbing.

51. **Public Finance.**—*Prerequisite:* Econ. 1 or 2, junior standing.

Econ. 51	3	Lect.	11	M	114 Com.	Hunter
		D1 Quiz	11	WF	312 Com.	Hunter
		D2 Quiz	11	WF	101 Com.	Alyea
		K Quiz	9	TT	106 Com.	Alyea
		L Quiz	10	TT	106 Com.	Alyea
		M1 Quiz	11	TT	312 Com.	Hunter
		M2 Quiz	11	TT	106 Com.	Alyea

55. **Economics of Insurance.**—*Prerequisite:* Econ. 1 or 2, junior standing.

Econ. 55	3	Lect.	9	F	215 Com.	Dickinson
		B Quiz	9	MW	305 Com.	Dickinson
		J Quiz	8	TT	305 Com.	Dickinson
		K Quiz	9	TT	305 Com.	Dickinson

61. **Economic Theory.**—*Prerequisite:* Econ. 1 or 2, senior standing.

Econ. 61	3	C Quiz	10	MWF	113 Com.	Wasserman
		D Quiz	11	MWF	113 Com.	Wasserman

70. **Elements of Statistics.**—*Prerequisite:* Econ. 1 or 2 and 30 hours of university work. (3). Quiz, 11 MW, 111 Com.; lab., 10, 11 Th, 115 Com. Dr. Lounsbury.

71. **Economic Statistics.**—*Prerequisite:* Econ. 1 or 2, senior standing. (3). Quiz, 10 T, 305 Com.; practice, 1-3 Th; 317 Com. Assistant Professor Dickinson.

81. **Principles of Public Utilities.**—*Prerequisite:* Econ. 1 or 2 and 3.

Econ. 81	3	Lect.	10	F	215 Com.	Gray
		C Quiz	10	MW	125 Com.	Gray
		M Quiz	11	TT	125 Com.	Gray

90. **Thesis.**—Primarily for candidates for honors. *Prerequisite:* Major in economics; senior standing. (2-4 units).* Time to be arranged. Professor Wasserman and members of the staff.

Courses for Graduates

101. **Economic Theory.**—(1 unit). 3 MWF; 125 Com. Professor Weston.

102. **Monetary History and Theory from the Restriction Period to the Present.**—(1 unit). Time to be arranged. Assistant Professor Wasserman.

103. **The Distribution of Wealth.**—(1 unit). 11 TT; 212 Com. Professor Weston.

104a. **Theories and Policies of Foreign Commerce.**—(1 unit). 3 TT; 212 Com. Professor Litman

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

105. Public Finance.—(1 unit). 4-6 T; 212 Com. Professor HUNTER.

107. The Corporation in Economic Evolution.—(1 unit). Time to be arranged. Assistant Professor BROWN.

109. Comparison of the Theory and Practice of the Leading Central and Reserve Banks, with Special Reference to England, Germany, France, and the United States.—(1 unit). 9 MWF; 212 Com. Associate Professor WRIGHT.

110b. Finance and Investments: Complex Business Units.—(1 unit). 4-6 F; 212 Com. Professor ROBINSON.

112a. Labor Problems: Social Aspects.—(1 unit). 4-6 M; 209 Com. Associate Professor BERMAN.

120. History of Economic Thought.—(1 unit). 9 TT; 212 Com. Professor WESTON.

123. Industrial and Financial Organization of Society.—(1 unit). Time to be arranged. Professor LEE.

130. Theory of Agricultural Economics.—(1 unit). Time to be arranged. Associate Professor STEWART.

131. Agricultural Resources and Prices.—(1 unit). Time to be arranged. Assistant Professor NORTON.

132. Agricultural Economics Research.—Only those who write acceptable theses will receive credit. (1-2 units).* Time to be arranged. Associate Professor STEWART.

144. Statistical Theory and Analysis.—(1 unit). Time to be arranged. Assistant Professor DICKINSON.

180. Management of Public Utilities.—(1 unit). 4-6 W; 212 Com. Assistant Professor GRAY.

118. Seminar.—Thesis Course. (All graduate students writing theses in Economics must register in Economics 118, registration for other students is optional.) 4-6 Th (alternate weeks); 212 Com.
(a) **Third Year Seminar.**—Professor WESTON.
(b) **First Year: General Economics.**—Assistant Professor BROWN.
(c) **First Year: Agricultural Economics.**—Associate Professor STEWART.
(d) **First Year: Public Utilities.**—Assistant Professor GRAY.

EDUCATION

A. GENERAL EDUCATION

Introductory Courses

2. History of Education.—*Prerequisite:* Junior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Ed. 2	3	B	9	MWF	303 Adm. (E)	SEYBOLT
		C	10	MWF	303 Adm. (E)	SEYBOLT

5. Comparative Education.—*Prerequisite:* Junior standing.

Ed. 5	3	E	1	MWF	204 Adm. (E)	JOHNSTON
		F	2	MWF	204 Adm. (E)	JOHNSTON

6. Principles of Secondary Education.—*Prerequisite:* Ed. 10 and 25.

Ed. 6	3	J	8	TTS	206 Adm. (E)	WEBER
		L	10	TTS	206 Adm. (E)	JOHNSTON
		M	11	TTS	206 Adm. (E)	JOHNSTON
		D	11	MWF	206 Adm. (E)	WEBER
		E1	1	MWF	207 Adm. (E)	PUNKE
		E2	1	MWF	206 Adm. (E)	BROWNE
		F1	2	MWF	206 Adm. (E)	BROWNE
		F2	2	MWF	207 Adm. (E)	PUNKE
		G	3	MWF	303 Adm. (E)	BROWNE

10. Technic of Teaching.—*Prerequisite:* Ed. 25.

Ed. 10	3	A1	8	MWF	307 Adm. (E)	PETERS
		A2[1]	8	MWF	117 W. B.	ROBINSON
		B1	9	MWF	307 Adm. (E)	PETERS
		B2	9	MWF	308 Adm. (E)	REAGAN
		C1	10	MWF	307 Adm. (E)	POTTHOFF
		C2	10	MWF	308 Adm. (E)	BROWNE
		D	11	MWF	307 Adm. (E)	POTTHOFF
		E	1	MWF	308 Adm. (E)	REAGAN
		F	2	MWF	308 Adm. (E)	REAGAN
		G	3	MWF	207 Adm. (E)	LAWSON

25. Educational Psychology.—*Prerequisite:* Psych. 1 (or Ed. 28 in case of A. C. students).

Ed. 25	3	J1	8	TTS	312 Adm. (E)	POTTHOFF
		J2	8	TTS	207 Adm. (E)	PUNKE
		K	9	TTS	312 Adm. (E)	POTTHOFF

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.
[1]For Home Economics students.

Subject	Credits	Section	Hours	Days	Room	Instructor
Educ. 25	3	L	10	TTS	312 Adm. (E)	Dolch
		M	11	TTS	207 Adm. (E)	Punke
		E1	1	MWF	312 Adm. (E)	Dolch
		E2	1	MWF	307 Adm. (E)	Peters
		F1	2	MWF	312 Adm. (E)	Dolch
		F2	2	MWF	307 Adm. (E)	Peters
		G	3	MWF	206 Adm. (E)	Cameron
		H	4	MWF	207 Adm. (E)	Lawson

28. Psychology of Athletics.[1]—*Prerequisite:* Psych. 1, or consent of instructor. Open only to men in athletic coaching. (3). 11 MWF; 209 New Gym. Associate Professor Griffith.

91. Special Problems of Education in Rural Communities.—(Same as Agr. Ed. 91.) *Prerequisite:* Senior standing and at least 6 hours in education. (2). 2 TT; 122 Agr. Mr. Lawson.

Courses for Advanced Undergraduates and Graduates

4. Educational Administration.—*Prerequisite:* Senior standing. (3). 10 MWF; 206 Adm. (E). Associate Professor Weber.

7. School Program of Physical Education.—*Prerequisite:* Senior standing or consent of instructor. (3). 1 MWF; 209 New Gym. Professor Staley.

8. History, Systems, and Theories of Physical Education.—*Prerequisite:* Senior standing or consent of instructor. (2). 1 TT; 209 New Gym. Professor Staley.

11. Ancient and Medieval Education.—*Prerequisite:* Senior standing or Ed. 2. (2). 9 TT; 303 Adm. (E). Professor Seybolt.

18. Educational Measurements.—*Prerequisite:* Ed. 25. (3). 9 MWF; 206 Adm. (E). Associate Professor Odell.

20a. Supervision of Secondary Education.—*Prerequisite:* Ed. 25. (2). 2 TT; 308 Adm. (E). Professor Clement.

41. Survey of Vocational Education.—*Prerequisite:* Senior standing. (3). 10 MWF; 204 Adm. (E). Professor Mays.

42. Special Education.—*Prerequisite:* Ed. 25. (2). 11 MW; 207 Adm. (E). Assistant Professor Dolch.

44. Educational Psychology.—(Laboratory Course.) *Prerequisite:* Ed. 25.

Ed. 44	3	Lect.	2	W	202 Adm. (E)	Griffith
		Lab.	1, 2	MF	202 Adm. (E)	

53. Problems of Industrial Education.—(Same as Indus. Ed. 50.) *Prerequisite:* Junior standing or consent of instructor. (3). 9 MWF; 204 Adm. (E). Professor Mays.

54. Functions and Methods of Part-Time Teaching.—(Same as Indus. Ed. 54.) *Prerequisite:* Senior standing. (2). 9 TT; 204 Adm. (E). Professor Mays.

99a. Thesis.—*Prerequisite:* Senior standing. (2). Time to be arranged. Dean Benner and others.

Courses for Graduates[2]

For a master's degree in Education, courses 123, 124, and 125 are required. For students who have not taken a course in history of education as undergraduates, Education 11 or Education 30 is required.

102. Research in History of American Education.—(1 unit). Time to be arranged. 311 Adm. (E). Professor Seybolt.

104. Educational Administration.—(1 unit). 4, 5 Th; 312 Adm. (E). Associate Professor Weber.

106. High School Administration.—(1 unit). 3 TT; 303 Adm. (E). Professor Clement.

110. Methods of Teaching.—(1 unit). 4, 5 T; 206 Adm. (E). Assistant Professor Reagan.

123. Educational Statistics.—(1 unit). 4, 5 F; 206 Adm. (E). Associate Professor Odell.

124. Educational Research.—(1 unit). 4, 5 Th; 204 Adm. (E). Professor Monroe.

125. Educational Psychology.—(1 unit). 4 MW; 204 Adm. (E). Professor Cameron.

127. High School Curricula.—(1 unit). 10, 11 S; 308 Adm. (E). Professor Clement.

141. Problems in the Teaching of English in the Secondary School.—(1 unit). 4, 5 M; 322 L. H. Professor Paul.

147. Psychology of the Elementary School Subjects.—(1 unit). 10, 11 S; 204 Adm. (E). Professor Cameron.

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[1]Education 28, open only to men in Athletic Coaching, may be substituted for Psychology 1 as a prerequisite for Education 25.

[2]Education 6, 10, and 25, or their equivalents, are prerequisites for all courses for graduates.

150. Thesis.—(1-2 units).* Dean BENNER and others.

165. School Surveys.—(1 unit). 10, 11 S; 307 Adm. (E). Associate Professor ODELL. (Students registering in this course will be expected to devote one or two days to participating in surveys. This cannot be done on Saturday.)

185. Seminar in Educational Psychology.—*Prerequisite:* Ed. 125 and consent of instructor. (1 unit). Arrange. 203 Adm. (E). Professor CAMERON and Associate Professor GRIFFITH.

186. Seminar in Secondary Education.—*Prerequisite:* Ed. 106 and 120a or 127. (1 unit). Arrange. 309 Adm. (E). Professor CLEMENT.

190. Research in Education.—*Prerequisite:* 3 units of graduate credit in education and consent of instructor. (1 unit). Arrange. Professor MONROE.

B. METHODS COURSES IN SPECIAL SUBJECTS

60a. Course for Teachers in Art, Art 15a.—(Same as required in Art and Design 9a, 1930-31.) *Prerequisite:* Art 2a. (3). 9 MWF; 342 L. H. Miss ANDERSON.

60b. Course for Teachers in Art, Art 15b.—(Same as required in Art and Design 9b, 1930-31.) *Prerequisite:* Art 2b. (3). 9 MWF; 342 L. H. Miss ANDERSON.

65. The Teaching of English Literature.—(Same as English 41.) *Prerequisite:* Ten hours of English literature and junior standing. (2). 2 TT; 306 L. H. Professor PAUL, Mrs. SWENEY.

66. The Teaching of English Composition.—(Same as English 42.) *Prerequisite:* Nine hours of rhetoric and junior standing. (2). 3 TT; 202 L. H. Professor PAUL, Mrs. SWENEY.

67. Methods of Teaching French.—(Same as French 25.) Discussions and laboratory work in phonetics. *Prerequisite:* 20 hours' credit in French, or 16 hours' credit in French plus 20 in Spanish. Not open to students other than seniors except by permission of instructor. (3). 2 MWF; 310 U. H. Dr. GULLETTE.

68. Teaching of Geography.—(Same as Geography 9.) *Prerequisite:* One regional course, Geography 14 and consent of instructor. (2). 2 TT; 434 N. H. Dr. POGGI.

70. Teaching of History.—(Same as History 18.) *Prerequisite:* One year of college history and senior standing. (2). 3 TT; 303 L. H. Assistant Professor WERNER.

72. Teaching of Journalism.—(Same as Journalism 47.) A study of class and laboratory work. *Prerequisite:* Junior standing and one course in journalism. (2). 1 MW; 403 U. H. (Subject to change.) Mr. HEITMAN.

75. Teachers Course in Mathematics.—(Same as Mathematics 35.) *Prerequisite:* 18 hours of mathematics including Mathematics 7 and 9. (3). 10 MWF; 208 U. H. Associate Professor LYTLE.

76a. Public School Music Methods.—(Same as Music 25a.) *Prerequisite:* Junior standing. (3). 2 MWTF; 106 S. M. H. Mr. HOLMES.

77a. Public School Music Methods.—(Same as Music 26a.) *Prerequisite:* Music 25a and b. (3). 1 MTWT; 103 S. M. H. Miss KITCHELL.

78a. Methods in Physical Education for Women.—(Same as Physical Education 15a.) *Prerequisite:* Junior standing in the College of Education, or consent of the instructor. (3). 9 MWF; W. B. Miss ROBERTSON.

C. EDUCATIONAL PRACTICE

Open to seniors in the College of Education and in certain cases with the consent of the instructor to juniors.

1. Athletic Coaching.—(2-4).* Hours to be arranged. Gym.

2. Athletic Coaching.—(2-4).* Hours to be arranged. Gym.

3. Athletic Coaching.—(2-4).* Hours to be arranged. Gym.

4. Athletic Coaching.—(2-4).* Hours to be arranged. Gym.

5. Agricultural Education.—(3-5).* Hours to be arranged. Tolono H. S.; St. Joseph H. S. See Agr. Ed. 50.

6. Biology.—(5). Hours to be arranged. U. H. S.

7. Chemistry.—(5). Hours to be arranged. U. H. S.

8. Civics.—(5). Hours to be arranged. U. H. S.

9. Drawing, Art and Design.—(3-5).* Hours to be arranged. U. H. S.

10. Drawing, Mechanical.—(3-5).* Hours to be arranged. U. H. S.

11. English.—(5). Hours to be arranged. U. H. S.

11a. Public Speaking.—(5). Hours to be arranged. U. H. S.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

12. **French.**—(5). Hours to be arranged. U. H. S.

13. **General Science.**—(5). Hours to be arranged. U. H. S.

14. **Home Economics Education.**—*Prerequisite:* Home Econ. 11, or concurrent registration in Home Econ. 11. (3-5).* Hours to be arranged. U. H. S.; Urbana H. S.

15. **History.**—(5). Hours to be arranged. U. H. S.

16. **Industrial Education.**—(3-5).* Hours to be arranged. U. H. S.

17. **Latin.**—(5). Hours to be arranged. U. H. S.

19. **Mathematics.**—(5). Hours to be arranged. U. H. S.

20. **Music.**—(3-5).* Hours to be arranged. U. H. S.

21. **Physics.**—(5). Hours to be arranged. U. H. S.

24. **Stenography and Typewriting.**—(3-5).* Hours to be arranged. U. H. S.

25. **Elementary Education.**—(5). Hours to be arranged. Champaign Public Schools.

26. **Bookkeeping.**—(5). Hours to be arranged. U. H. S.

D. AGRICULTURAL EDUCATION

1. **Introduction to Agricultural Education.**—*Prerequisite:* Sophomore standing and 10 hours of technical agriculture. (2). 2 TT; 122 Agr. Associate Professor NOLAN.

10. **Technic of Teaching.**—(Same as Ed. 10.) *Prerequisite:* Ed. 25. (3). 3 MWF; 307 Adm. (E). Mr. LAWSON. (Section preferably for agricultural students.)

25. **Educational Psychology.**—(Same as Ed. 25.) *Prerequisite:* Psych. 1. (3). 4 MWF; 307 Adm. (E). Mr. LAWSON.

50. **Teaching.**—*Prerequisite:* Ed. 10 and senior standing. See Educational Practice 5.

Subject	Credits	Section	Hours	Days	Room	Instructor
Ed. 50	2 to 5*	A	8:30- 9:52 10:44-12:06	Daily	Tolono H. S.	HENDERSON
		B	9:40-11:10 1:30- 2:30	Daily	St. Joseph H. S.	RUCKER
		C	Apprentice teaching in State			NOLAN

One conference hour per week with staff teacher for all student teachers.

51. **Teachers' Course in Agriculture.**—*Prerequisite:* Ed. 10, 25, and senior standing. (3). 4 MWF; 122 Agr. Associate Professor NOLAN.

91. **Special Problems of Education in Rural Communities.**—(Same as Ed. 91.) *Prerequisite:* Senior standing and at least 6 hours in Education. (2). 2 TT; 122 Agr. Mr. LAWSON.

92. **Adult Education in Vocational Agriculture.**—*Prerequisite:* 25 hours of technical agriculture, Ed. 25, Ed. 10, and senior standing. (Subject-matter and methods in part-time and evening classes, and other extension service in vocational agriculture.) (2). 11 MW; 122 Agr. Associate Professor NOLAN.

E. ATHLETIC COACHING

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

First Year

2. **Calisthenics, Dancing, Tumbling, and Marching.**

A. C. 2	4	A	8-10	MTWTF	New Gym.	PRICE
		B	8-10	MTWTF	New Gym.	MCCRISTAL

30. **Football.**—(1st half semester.)

A. C. 30	2	A	10-12	MTWTF	Armory Field	VON LEHSTEN
		B	10-12	MTWTF	Armory Field	MCCLURE
		C	2-4	MTWTF	Armory Field	SMITH

40. **Basketball.**—(2nd half semester.)

A. C. 40	2	A	10-12	MTWTF	New Gym.	VON LEHSTEN
		B	10-12	MTWTF	New Gym.	ROKUSEK
		C	2-4	MTWTF	New Gym.	SMITH

Second Year

Note: Education 28 is open only to men in Athletic Coaching who may substitute it for Psychology 1 as a prerequisite for Education 25.

7. **Boxing and Wrestling.**—*Prerequisite:* Sophomore standing.

A. C. 7	2	A	8	MTWTF	Wrestling Room	KENNEY and
		B	8	MTWTF	Wrestling Room	assistants

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31. Football.—(1st half semester.) *Prerequisite:* A. C. 30.

Subject	Credits	Section	Hours	Days	Room	Instructor
A. C. 31	2	A	8-10	MTWTF	Armory Field	ROKUSEK
		B	8-10	MTWTF	Armory Field	WILSON

50. Baseball.—*Prerequisite:* Sophomore standing.

A. C. 50	4	A	10-12	MTWTF	319 E. H.	LUNDGREN and
		B	1-3	MTWTF	319 E. H.	JORDAN

Third Year

15. Recreational Activities.—(2nd half semester.) *Prerequisite:* Junior standing. (2). 1-3 MTWTF; New Gym. Mr. JACKSON.

20. Track and Field Athletics.—*Prerequisite:* Junior standing.

A. C. 20	4	A	10-12	MTWTF	Field and Armory	WERNER
		B	1-3	MTWTF	Field and Armory	WERNER

41. Basketball.—(1st half semester.) *Prerequisite:* A. C. 40 and junior standing. (2). 1-3 MTWTF; 204 New Gym. Mr. RUBY and Mr. SABO.

70. Health Education and Corrective Gymnastics.—*Prerequisite:* Anat. 1 and 2, Physiol. 1 and 2. (4). 9 MTWTF; 209 New Gym. Associate Professor STAFFORD.

Fourth Year

4. Apparatus and Tumbling Stunts.—*Prerequisite:* A. C. 2 and senior standing. (4). 1-3 MTWTF; Old Gym. Mr. PRICE.

16. Training and First Aid.—*Prerequisite:* Senior standing or consent of instructor.

A. C. 16	2	K	9	TT	119-22 New Gym.	BROWN
		L	10	TT	119-22 New Gym.	BULLOCK

17. Organization and Administration.—*Prerequisite:* Senior standing. (3). 10 MWF; 204 New Gym. Director HUFF and Assistant Professor OLANDER.

60. Swimming.—*Prerequisite:* Senior standing or consent of instructor. (2). 8 MTWTF; Pool, Old Gym. Mr. MANLEY.

F. INDUSTRIAL EDUCATION

1. Manual Arts.—First course.

Indus. Ed. 1	4	Lect.	10	TT	U. H. S.	BRAUCHER
		A	10, 11	MWF	U. H. S.	BRAUCHER
		B[1]	8, 9	TTS	U. H. S.	BRAUCHER

2. Advanced Manual Arts.—(4). 2, 3 MWF, 2 TT; U. H. S. Mr. BRAUCHER.

3. Mechanical Drawing.—Same as G. E. D. 1.

4. Pattern and Foundry Work.—Same as M. E. 85 and 86.

7. Machine Laboratory.—Same as M. E. 87 and 88.

8. Printing and Publishing.—Same as Journalism 9a. *Prerequisite:* Sophomore standing. (3). (Two two-hour laboratory periods.) Lect., 11 Th; 303 Adm. (E).

Courses for Advanced Undergraduates and Graduates

41. Survey of Vocational Education.—(Same as Ed. 41.) *Prerequisite:* Senior standing. (3). 10 MWF; 204 Adm. (E). Professor MAYS.

50. Problems of Industrial Education.—(Same as Ed. 53.) *Prerequisite:* Junior standing or consent of instructor. (3). 9 MWF; 204 Adm. (E). Professor MAYS.

54. Function and Methods of Part-Time Teaching.—*Prerequisite:* Senior standing. (2). 9 TT; 204 Adm. (E). Professor MAYS.

57. Organization of Shop Work.—(3). Hours to be arranged. Professor MAYS.

61. Supervised Teaching of Manual Arts.—(5). U. H. S. Mr. BRAUCHER.

62. History and Organization of Industrial Arts.—(3). Hours to be arranged. 310 Adm. (E). Professor MAYS.

E41. Survey of Vocational Education.—(Same as Ed. 41.) (1-3).* Extra-mural.

E50. Survey of Industrial Education.—(Same as Indus. Ed. 50.) (1-3).* Extra-mural.

E52. Teaching Related Trade Subjects.—(1-3).* Extra-mural.

E54. Principles and Methods of Part-Time Teaching.—(Same as Indus. Ed. 54.) (1-3).* Extra-mural.

E54a. Continuation of Industrial Education E54.—(1-3).* Extra-mural.

E55. Problems of Vocational Guidance.—(Same as Indus. Ed. 55.) (1-3).* Extra-mural.

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[1]Will not be opened until Shop A is filled.

E55a. Continuation of Industrial Education E55.—(1-3).* Extra-mural.

E56. Teaching Shopwork.—Extra-mural. *Prerequisite:* (a) Two years of trade or industrial experience beyond apprenticeship; (b) completion of elementary school curriculum. (1-3).*

E56a. Continuation of Industrial Education E56.—(1-3).* Extra-mural.

ELECTRICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.50 to $2.50.

11. Direct Current Apparatus.—*Prerequisite:* Physics 1a, 1b, 3a, 3b; Math. 8 or 9; registration in E. E. 61.

Subject	Credits	Section	Hours	Days	Room	Instructor
E. E. 11	3					
For Chem. Engrs.		Ch1	8	TTS	208 E. H.	
For Gen'l Engrs.		J	11	MWF	305 E. H.	
For Mech. Engrs.		P	1	MWF	305 E. H.	
		Q	10	MWF	305 E. H.	
For Cer. Engrs.		X	8	MWF	305 E. H.	

25. Direct Current Apparatus.—*Prerequisite:* Math. 9; registration in E. E. 75 and Physics 44a.

E. E. 25	4	K	8	MTWTF	400 E. H.
		L	11	MTWTF	400 E. H.
		M	11	MTWTF	111 E. H.
		N	8	MTWTF	111 E. H.
		Y	9	MTWTF	111 E. H.

35. Alternating Current Apparatus.—*Prerequisite:* E. E. 26 and 76; registration in E. E. 85.

E. E. 35	4	K	8	MTWTF	102 E. H.
		L	8	MTWTF	109 E. H.
		M	11	MTWTF	108 P. L.
		N	11	MTWTF	109 E. H.
		Y	10	MTWTF	109 E. H.

51. Radio Communication.—*Prerequisite:* Senior standing in E. E.

E. E. 51	3	Quiz	10	TT	111 E. H.
		K Lab.	2-5	T	311-A E. E. L.
		L Lab.	2-5	Th	311-A E. E. L.

55. Electrical Design.—*Prerequisite:* E. E. 26; registration in E. E. 35.

E. E. 55	2	Lect. L1[1]	9	Th	305 E. H.
		Lect. other sects.	9	Th	119 P. L.
		Design K2	10, 11	MF	312 E. H.
		L1[1]	2, 3	TT	312 E. H.
		L2	2, 3	TT	314 E. H.
		M	1, 2	MF	312 E. H.
		N	3, 4	M	312 E. H.
			9, 10	W	312 E. H.
		Y	1, 2	W	312 E. H.
			8, 9	S	312 E. H.

61. Direct Current Laboratory.—*Prerequisite:* Registration in E. E. 11.

E. E. 61	1	P	9-12	T	200 E. E. L.
		Q	2-5	T	200 and 214 E. E. L.
		R	9-12	Th	200 E. E. L.
		S	2-5	Th	200 and 214 E. E. L.
		Ch	9-12	S	214 E. E. L.
		X	1-4	W	214 E. E. L.
		Y	2-5	F	214 E. E. L.

71. Special Electrical Engineering Laboratory.—*Prerequisite:* Junior or senior standing in E. E. (Elective). (1-3).* Arrange.

75. Electrical Engineering Laboratory.—*Prerequisite:* Registration in E. E. 25.

E. E. 75	2	KNY	11	Th	119 P. L.
		LM	1	W	119 P. L.
		K1	8-11	W	200 E. E. L.
		K2	9-12	W	214 E. E. L.
		L1	9-12	M	200 E. E. L.
		L2	9-12	F	200 E. E. L.
		M	1-4	M	200 E. E. L.
		N	1-4	F	200 E. E. L.
		Y	2-5	W	200 E. E. L.

85. Electrical Engineering Laboratory.—*Prerequisite:* E. E. 76; registration in E. E. 35.

E. E. 85	2	KLMNY	9	T	119 P. L.
		K1	9-12	M	200 E. E. L.
		K2	8-11	W	200 E. E. L.
		L1	2-5	T	200 E. E. L.

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[1]L1 open only to those having a grade B or above in mathematics or by special permission of the instructor.

Subject	Credits	Section	Hours	Days	Room	Instructor
E. E. 85	2	L2	2-5	Th	200 E. E. L.	
		M	1-4	M	200 E. E. L.	
		N	1-4	F	200 E. E. L.	
		Y	1-4	W	200 E. E. L.	

90. Lighting.—*Prerequisite:* Junior standing (for architects). (1). 10 T; Room A, L. H.

92. Lighting and Wiring.—*Prerequisite:* Junior standing (for A. E.'s). (2). 11 T; Room A, L. H.; 11 Th, 302 Arch.

95. Seminar.—*Prerequisite:* Senior standing in E. E.

E. E. 95	1	K	9	M	305 E. H.	
		L	9	F	305 E. H.	
		M	1	T	305 E. H.	
		N	1	Th	305 E. H.	
		Y	9	W	305 E. H.	

97. Thesis.—Arrange.

99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

101. Advanced Course in Alternating Currents.—(1½ units). Twice a week. Professor PAINE, Assistant Professor REICH.

103. Electrical Design.—(1 unit). Once a week. Associate Professor WALDO.

105. Electrical Engineering Research.—(1-3 units).* Twice a week. Professors PAINE, TYKOCINER; Assistant Professors BROWN, REICH.

ENGLISH

(Including English Language and Literature, Rhetoric, Public Speaking, and Scandinavian Languages.)

For students entering prior to September, 1929

Major: 20 hours in English excluding Rhetoric 1, 2, 10, 12, English 10, 20, 41, 42, and including at least 10 hours in English literature, at least 3 hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours in either (a) Latin or Greek or French or German; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history.

Major in Public Speaking

Major: 10 hours in public speaking, inclusive of courses 7 and 8 and either 4 or 6, and 10 hours of English exclusive of English 10, 11, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, and 22, and inclusive of one course in English literature from the advanced group.

Minors: 20 hours in any one or two of the following subjects: Psychology, philosophy, Greek, Latin, French, German, history, political science, economics, sociology.

Credit for seniors who take English 10, 11, Rhetoric 1, 2, will be reduced one hour.

For students entering after September 1, 1929

Major: 20 hours in English *excluding* Rhetoric 1, 2, 10, 12, 21, 22, English 10a, 10b, 20a, 20b, 41, 42, and all courses taken during the freshman year, and *including* at least 10 hours in English literature, at least 3 hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours, excluding courses taken during the freshman year, in (a) Latin or Greek or French or German or Spanish; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history. No language courses may be regarded as satisfying the minor requirement if they are excluded from the major of that department (excepting elementary courses in Greek, Latin, French 2a and Spanish 2a). At least eight hours must be offered in each subject.

Major in Public Speaking

Major: 10 hours in public speaking, exclusive of courses taken during the freshman year, inclusive of courses 7 and 8 and either 4 or 6, and 10 hours of English exclusive of English 10a, 10b, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, 22, and inclusive of one course in English literature from the advanced group.

Minors: 20 hours, excluding courses taken during the freshman year, in any one or two of the following subjects: Psychology, philosophy, Greek, Latin, French, German, history, political science, economics, law, or sociology. At least eight hours must be offered in each subject if two are chosen.

A. ENGLISH LANGUAGE AND LITERATURE

Elementary Courses

10a. An Introduction to Literature.—Forms of poetry, mainly narrative. *Prerequisite:* The minimum entrance requirements in English. (Credit is not given for English 10a in addition to 20a and 20b.) *Note:* Seniors will receive credit for two hours only.

Engl. 10a	3	A1	8	MWF	204-A L. H.	KELSO
		A2	8	MWF	311 U. H.	GOLDMAN
		B1	9	MWF	113 L. H.	FINNEY
		B2	9	MWF	204-A L. H.	RINAKER
		B3	9	MWF	240 L. H.	TUPPER

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English

Subject	Credits	Section	Hours	Days	Room	Instructor
Engl. 10a	3	C1	10	MWF	204 U. H.	French
		C2	10	MWF	340 L. H.	Zeitlin
		C3	10	MWF	204-A L. H.	Rapp
		D1	11	MWF	204-A L. H.	Korn
		D2	11	MWF	213 U. H.	Busey
		D3	11	MWF	312 Adm. (E).	Gettman
		E1	1	MWF	120 L. H.	Weirick
		E2	1	MWF	105 L. H.	Kelley
		F1	2	MWF	133 L. H.	Sandin
		F2	2	MWF	203 U. H.	Haskell
		G1	3	MWF	105 L. H.	Griswold
		G2	3	MWF	202 L. H.	Parry
		H1	4	MWF	203 L. H.	E. H. Peterson
		H2	4	MWF	315 U. H.	Bloom
		K1	8	TTS	148 L. H.	Coleman
		K2	8	TTS	403 U. H.	Summers
		L1	9	TTS	207 U. H.	Gibson
		M1	10	TTS	315 U. H.	Brawner
		N1	11	TTS	213 U. H.	Mood

10b. An Introduction to Literature.—Forms of poetry, mainly lyrical. (Credit is not given for English 10b in addition to 20a and 20b.) *Prerequisite:* The minimum entrance requirements in English. *Note:* Seniors will receive credit for two hours only.

Engl. 10b	3	B	9	MWF	208 U. H.	Miller
		C	10	MWF	123 L. H.	Rinaker

20a. Chief English Writers of the Nineteenth Century.—Intended for students in professional and technical courses such as law, medicine, commerce, engineering, etc. *Prerequisite:* One year of college work. (Credit is not given for the course in addition to English 10a and 10b.)

Engl. 20a	4	A1	8	MTWT	203 U. H.	Templeman
		A2	8	MTWT	411 U. H.	Glenn
		B1	9	MTWT	203 U. H.	Jefferson
		B2	9	MTWT	326 L. H.	Kelso
		C1	10	MTWT	311 U. H.	Trelease
		C2	10	MTWT	203 L. H.	Tupper
		D1	11	MTWT	203-A L. H.	Weirick
		D2	11	MTWT	315 U. H.	Belsley
		E1	1	MTWT	136 L. H.	Sandin
		E2	1	MTWT	207 U. H.	French
		F1	2	MTWT	311 U. H.	J. D. Petersen
		G1	3	MTWT	213 U. H.	E. H. Peterson

Intermediate Courses

1. Survey of English Literature.—(A course primarily for English majors.) *Prerequisite:* English 10a and 10b, or consent of instructor.

Engl. 1	3	B	9	MWF	123 L. H.	Glenn
		D	11	MWF	120 L. H.	Finney
		F	2	MWF	202 L. H.	Parry

12. American Literature.—*Prerequisite:* English 10a-10b, or junior standing. (2). 1 TT; 103 New Agr. Professor Paul, Mrs. Sweney, Miss Stutzman.

21. Literary Study of the Bible.—*Prerequisite:* Six hours of English literature. (3). 10 MWF; 103 New Agr. Professor E. C. Baldwin.

23. Introduction to Shakespeare.—*Prerequisite:* Engl. 10a-10b, or 20a-20b with a grade of B, or junior standing.

Engl. 23	3	B	9	MWF	109 L. H.	Secord
		E	1	MWF	109 L. H.	Fletcher
		F	2	MWF	109 L. H.	Templeman

29. English Literature from 1557 to 1688, exclusive of the Drama.—*Prerequisite:* Six hours of English literature. (3). 11 MWF; 304 L. H. Professor E. C. Baldwin.

31. English Literature from 1688 to 1789, exclusive of the Drama.—*Prerequisite:* Six hours of English literature. (3). 11 MWF; 123 L. H. Assistant Professor Secord.

33. English Literature from 1789 to 1837.—*Prerequisite:* Six hours of English literature or junior standing. (3). 9 MWF; 203 L. H. Professor Zeitlin.

34. Dr. Johnson and His Circle.—*Prerequisite:* Six hours of English literature or junior standing. (3). 2 MWF; 123 L. H. Assistant Professor Rinaker.

Courses for Advanced Undergraduates and Graduates

Prerequisite: Junior or senior standing and either ten hours of English literature or the consent of the instructor.

8. Old English (Anglo-Saxon).—(3). 11 MWF; 206 L. H. Professor Jones.

25. Chaucer.—(3). 9 MWF; 114 L. H. Professor Jones.

35. The Engli h Drama (Previous to Shakespeare).—(3). 2 MWF; 204-A L. H. Professor HILLEBRAND.

39. Introduction to the Literature of the Middle Ages.—(3). 1 MWF; 104 L. H. Associate Professor PARRY.

41. The Teaching of English Literature.—*Prerequisite:* Ten hours of English literature and junior standing. (2). 2 TT; 306 L. H. Professor PAUL, Mrs. SWENEY.

42. The Teaching of English Composition.—*Prerequisite:* Nine hours of rhetoric and junior standing. (2). 3 TT; 204 L. H. Professor PAUL, Mrs. SWENEY.

45. The Development of the Modern Drama.—(3). 3 MWF; 109 L. H. Professor HILLEBRAND.

54a. Introduction to Comparative Literature.—Introductory and comparative survey of the greatest Greek, Latin, Italian, Spanish, French, German, and English authors. Professors BERNBAUM, OLDFATHER, VAN HORNE, Associate Professors PERRY, HAMILTON, PARRY, and Miss BUSEY.

Subject	Credits	Section	Hours	Days	Room	Instructor
Engl. 54a	3	Lect.	10	WF	303 L. H.	OLDFATHER VAN HORNE HAMILTON
		A Disc.	10	M	105 L. H.	VAN HORNE
		B Disc.	10	M	203-A L. H.	PARRY
		C Disc.	10	M	133 L. H.	PERRY
		D Disc.	10	M	211 U. H.	BUSEY

56. Tennyson.—Intensive study of the principal poems of Tennyson and his contemporaries. (3). 10 MWF; 406 U. H. Professor GRAHAM.

57. Great Foreign Novelists in Relation to the English Novel.—Goethe, Hugo, Manzoni, Balzac, Dumas, Flaubert, Zola, Turgenev, Dostoevski, Tolstoi. (3). 11 MW; 311 L. H. Professor BERNBAUM, Mr. MOOD.

60a. Thesis.—(2). Primarily for candidates for honors. Time to be arranged. Professor GRAHAM, Miss TUPPER, and others.

Courses for Graduates

101. Research in Special Topics.—(1-2 units).* Professors GRAHAM, BERNBAUM, PAUL, ZEITLIN, E. C. BALDWIN, JONES, HILLEBRAND, JEFFERSON; Associate Professors SANDFORD, FLETCHER, PARRY; Assistant Professors RINAKER, SECORD, FINNEY.

114. Development of the Essay.—(1 unit). 9 TT; 105 L. H. Professor ZEITLIN.

121. History of Rhetorical Theory, II.—(1 unit). 3 TT; 148 L. H. Associate Professor SANDFORD.

128. Literature of the Sixteenth Century.—(1 unit). 10 TT; 113 L. H. Professor JONES.

130. Tragedy.—(1 unit). 1 TT; 204-A L. H. Professor HILLEBRAND.

135. Problems in American Literature.—First semester, American essayists; second semester, Lowell and Whitman. (1 unit). 8 TT; 113 L. H. Professor PAUL.

138. The Romantic Movement.—(1 unit). 2 TT; 303-A L. H. Professor BERNBAUM.

140. Investigations in Modern English Literature.—(1-3 units).* Three hours once a week. Arrange. 220 L. H. Professor BERNBAUM.

141. Literature of the Seventeenth Century.—(1 unit). 3 TT; 302 L. H. Professor E. C. BALDWIN.

143. Seminar in the History and Theory of Prose Fiction.—(1 unit). 4-6 Th; 220 L. H. Professor BERNBAUM.

145. Studies in Eighteenth Century Literature.—(1 unit). 2 MW; 113 L. H. Professor GRAHAM.

B. RHETORIC

A. Review Rhetoric.—Review for students who do not pass the preliminary tests in Rhetoric 1. To be taken in addition to Rhetoric 1. No credit. Sections A to M open about October 1.

1. Rhetoric and Composition.—*Prerequisite:* The minimum entrance requirements in English. Required of all freshmen.

Rhet. 1	3	A1	8	MWF	403 U. H.	CHARLES
		A2	8	MWF	404 U. H.	MILLER
		A3	8	MWF	321 L. H.	GETTMAN
		A4	8	MWF	413 U. H.	DAVIDSON
		A5	8	MWF	203-A L. H.	SECORD
		A6	8	MWF	206 Adm. (E)	BELSLEY
		A7	8	MWF	303 L. H.	HAMILTON
		A8	8	MWF	407 U. H.	BLAIR
		A9	8	MWF	112 U. H.	SLOW
		A10	8	MWF	207 U. H.	MAXWELL
		B1	9	MWF	207 Adm. (E)	BELSLEY
		B2	9	MWF	212 U. H.	HARRIS
		B3	9	MWF	315 U. H.	MAXWELL
		B4	9	MWF	311 U. H.	KELLEY

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

English

Subject	Credits	Section	Hours	Days	Room	Instructo
Rhet. 1	3	B5	9	MWF	213 U. H.	French
		B6	9	MWF	302 U. H.	Trelease
		B7	9	MWF	406 U. H.	Moeller
		B8	9	MWF	407 U. H.	Gettman
		B9	9	MWF	412 U. H.	Charles
		B10	9	MWF	207 U. H.	Johnson
		C1	10	MWF	203 U. H.	Blair
		C2	10	MWF	213 U. H.	Peirce
		C3	10	MWF	407 U. H.	Millhouse
		C4	10	MWF	403 U. H.	Moeller
		C5	10	MWF	412 U. H.	Charles
		C6	10	MWF	413 U. H.	Johnson
		C7	10	MWF	109 L. H.	Kelley
		C8	10	MWF	323 New Agr.	Martin
		C9	10	MWF	207 U. H.	Hamilton
		D1	11	MWF	311 U. H.	Templeman
		D2	11	MWF	425 N. H.	Miller
		D3	11	MWF	413 U. H.	Slow
		D4	11	MWF	406 U. H.	Goldman
		D5	11	MWF	411 U. H.	Glenn
		D6	11	MWF	235 L. H.	Rapp
		D7	11	MWF	412 U. H.	Davidson
		D8	11	MWF	105 L. H.	Jefferson
		D9	11	MWF	112 U. H.	Millhouse
		D10	11	MWF	404 U. H.	Foley
		E1	1	MWF	213 U. H.	Hurley
		E2	1	MWF	123 L. H.	E. H. Peterson
		E3	1	MWF	413 U. H.	Noble
		E4	1	MWF	214 U. H.	Washburn
		E5	1	MWF	407 U. H.	Bloom
		E6	1	MWF	406 U. H.	Roberts
		E7	1	MWF	204 U. H.	Haskell
		E8	1	MWF	203 U. H.	Griswold
		E9	1	MWF	212 U. H.	J. D. Petersen
		E10	1	MWF	211 L. H.	Korn
		F1	2	MWF	204 U. H.	Martin
		F2	2	MWF	207 U. H.	Korn
		F3	2	MWF	213 U. H.	Bloom
		F4	2	MWF	406 U. H.	Hurley
		F5	2	MWF	412 U. H.	Scheerer
		F6	2	MWF	404 U. H.	Lang
		F7	2	MWF	104 L. H.	Foley
		F8	2	MWF	411 U. H.	Fisher
		F9	2	MWF	403 U. H.	Dolk
		F10	2	MWF	305 L. H.	Stutzman
		G1	3	MWF	406 U. H.	Lang
		G2	3	MWF	311 U. H.	Roberts
		G3	3	MWF	403 U. H.	J. D. Petersen
		G4	3	MWF	212 U. H.	Oldham
		G5	3	MWF	404 U. H.	Fisher
		G6	3	MWF	203-A L. H.	Washburn
		G7	3	MWF	413 U. H.	Kennedy
		G8	3	MWF	123 L. H.	Sandin
		G9	3	MWF	207 U. H.	Osenburg
		G10	3	MWF	412 U. H.	Scheerer
		H1	4	MWF	404 U. H.	Griswold
		H2	4	MWF	204 U. H.	Dolk
		H3	4	MWF	407 U. H.	Osenburg
		H4	4	MWF	213 U. H.	Noble
		H5	4	MWF	128 L. H.	Stutzman
		H6	4	MWF	311 U. H.	Oldham
		K1	8	TTS	112 U. H.	Brawner
		K2	8	TTS	315 U. H.	Gress
		K3	8	TTS	105 L. H.	Fielder
		K4	8	TTS	404 U. H.	Lockard
		K5	8	TTS	208 U. H.	Orlovich
		K6	8	TTS	204-A L. H.	Gibson
		K7	8	TTS	213 U. H.	Owen
		K8	8	TTS	406 U. H.	Fain
		L1	9	TTS	214 U. H.	Orlovich
		L2	9	TTS	406 U. H.	Fain
		L3	9	TTS	211 L. H.	Summers
		L4	9	TTS	311 U. H.	Owen
		L5	9	TTS	213 U. H.	Gress
		L6	9	TTS	404 U. H.	Riebel
		L7	9	TTS	407 U. H.	Wheeler
		M1	10	TTS	413 U. H.	Wheeler
		M2	10	TTS	109 L. H.	Lockard
		M3	10	TTS	213 U. H.	Fain
		M4	10	TTS	403 U. H.	Riebel

Subject	Credits	Section	Hours	Days	Room	Instructor
Rhet. 1	3	M5	10	TTS	104 L. H.	Simpson
		M6	10	TTS	407 U. H.	Gibson
		N1	11	TTS	212 U. H.	Gress
		N2	11	TTS	207 U. H.	Simpson
		N3	11	TTS	407 U. H.	Brawner
		N4	11	TTS	411 U. H.	Summers
		N5	11	TTS	413 U. H.	Fielder
		N6	11	TTS	311 U. H.	Orlovich

2. Rhetoric and Composition.—*Prerequisite:* Rhetoric 1. Required of all freshmen.

Rhet. 2	3	A1	8	MWF	213 U. H.	Moeller
		A2	8	MWF	315 U. H.	Harris
		B1	9	MWF	411 U. H.	Blair
		B2	9	MWF	102 Entom.	Peirce
		C1	10	MWF	104 L. H.	Davidson
		C2	10	MWF	208 U. H.	Slow
		D1	11	MWF	323 New Agr.	Martin
		D2	11	MWF	207 U. H.	Hamilton
		E1	1	MWF	312 U. H.	Dolk
		E2	1	MWF	204-A L. H.	Kennedy
		F	2	MWF	203 L. H.	Noble
		G	3	MWF	204 U. H.	Hurley
		H	4	MWF	208 U. H.	Washburn
		K	8	TTS	207 U. H.	Simpson
		L	9	TTS	411 U. H.	Lockard
		M	10	TTS	404 U. H.	Fielder

3. Exposition.—*Prerequisite:* Rhetoric 1 and 2, except for section F.[1]

Rhet. 3	3	B	9	MWF	104 L. H.	Goldman
		D	11	MWF	104 L. H.	Kelso
		F[1]	2	MWF	211 L. H.	Busey
		G	3	MWF	104 L. H.	Haskell

4. Narration and Description.—Elements of narrative writing. (Not a course in short-story writing.) *Prerequisite:* Rhetoric 1 and 2.

Rhet. 4	3	B	9	MWF	304 L. H.	Rapp
		C	10	MWF	232 L. H.	Finney
		D	11	MWF	407 U. H.	Trelease
		F	2	MWF	407 U. H.	Roberts

6. Advanced Narrative Composition.—*Prerequisite:* Two years of college work and the consent of the instructor. (3). 3 MWF; 204-A L. H. Assistant Professor Weirick.

10. Business Letter Writing.—*Prerequisite:* Rhet. 1-2. Registration limited first semester.

Rhet. 10	2	A1 Eng.	8	MW	412 U. H.	Schenck
		A2 Com.	8	TT	123 Com.	Mood
		B1 Com.	9	MW	125 Com.	Anderson
		B2 LAS, Agr., Ed.	9	MW	326 New Agr.	Tarpley
		B3 Eng.	9	TT	123 L. H.	Schenck
		C1 Com.	10	MW	404 U. H.	Tarpley
		C2 Com.	10	MW	224 Com.	Anderson
		C3 Com.	10	TT	320 New Agr.	Tarpley
		C4 Com.	10	TT		
		C5 LAS	10	MW	411 U. H.	
		C6 LAS, Agr., Ed.	10	TT	207 U. H.	Mood
		D1 LAS, Agr., Ed.	11	MW	303-A L. H.	Lang
		D2 Eng.	11	TT	123 L. H.	Tarpley
		D3 Com.	11	TT	105 L. H.	Anderson
		E1 Com.	1	MW	305 Com.	Saunders
		E2 Com.	1	MW	219 Com.	Coleman
		E3 LAS, Agr., Ed.	1	TT	213 U. H.	Coleman
		F1 Com.	2	MW	305 Com.	Saunders
		F2 Com.	2	TT	305 Com.	Saunders
		F3 Eng.	2	TT	407 U. H.	Coleman

21. Advanced Business Writing.—(Sales letter campaigns and advertising copy.) *Prerequisite:* Grade A or B in Rhetoric 10. (2). 1 TT; 305 Com. Associate Professor Saunders.

22. Special Types of Business Writing. (Business reports and articles for business magazines.) *Prerequisite:* Rhetori 10. (2). 10 TT; 223 Com. Assistant Professor Anderson.

Courses for Advanced Undergraduates and Graduates

17. Advanced Composition. (Open to a limited number of students and only on recommendation.) *Prerequisite:* Junior standing. (3). 3 MWF; 113 L. H. Dr. Tupper.

[1]Freshmen exempted from Rhetoric 1 and 2 may enter section F of Rhetoric 3.

C. PUBLIC SPEAKING

Note: Certain courses in this department require a laboratory fee of $5 (Pub. Spk. 11).

1. Principles of Effective Speaking.—*Prerequisite:* Rhet. 1 and 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Pub. Spk. 1	3	A	8	MWF	202 Entom.	HENDERSON
		B	8	MWF	148 L. H.	MCCARTY
		C	9	TTS	142 L. H.	MCCARTY
		D	9	MWF	202 Entom.	HENDERSON
		E	9	MWF	148 L. H.	MCCARTY
		F	10	MWF	202 Entom.	HUSTON
		G	10	MWF	148 L. H.	SWANSON
		H	11	MWF	148 L. H.	WALTZ
		I	11	MWF	202 Entom.	HUSTON
		J	1	MWF	202 Entom.	HENDERSON
		K	1	MWF	148 L. H.	MCCARTY
		L	2	MWF	148 L. H.	NELSON
		M	3	MWF	202 Entom.	HUSTON

2. Business and Professional Speaking.—*Prerequisite:* Pub. Spk. 1.

Pub. Spk. 2	2	A	10	TT	142 L. H.	HUSTON
		B	11	TT	142 L. H.	WALTZ
		C	1	TT	142 L. H.	SANDFORD

3. Elements of Debating.—*Prerequisite:* Pub. Spk. 1.

Pub. Spk. 3	3	A	9	MWF	142 L. H.	WALTZ
		B	2	MWF	142 L. H.	WALTZ

10. Oral Interpretation of Literature.—*Prerequisite:* Pub. Spk. 1.

Pub. Spk. 10	2	A	9	TT	148 L. H.	NELSON
		B	10	TT	148 L. H.	NELSON
		C	2	TT	148 L. H.	HENDERSON

Courses for Advanced Undergraduates and Graduates

4. Advanced Debating.—*Prerequisite:* Pub. Spk. 3, junior standing. (3). 10 MWF; 142 L. H. Associate Professor SANDFORD.

6. Forms of Public Address.—*Prerequisite:* Pub. Spk. 2, junior standing. (3). 11 MWF; 142 L. H. Associate Professor SANDFORD.

8. Dramatization.—*Prerequisite:* Pub. Spk. 9 or 10, junior standing.

Pub. Spk. 8	3	A	1	MWF	L. H. Theatre	NELSON
		B	2	MWF	L. H. Theatre	SWANSON

9. The Acting of Shakespearean Plays.—*Prerequisite:* Pub. Spk. 10, junior standing. (2). 1 TT; L. H. Theatre. Miss NELSON.

16. Advanced Study of Acting.—*Prerequisite:* Pub. Spk. 11. (2). 11 TT; L. H. Theatre. Mr. SWANSON.

D. SCANDINAVIAN LANGUAGES AND LITERATURE[1]

22. Elementary Swedish.—(Not open to freshmen.) Grammar; conversation; readings from present-day writers. (3). Arrange. 209 L. H. Mr. JOHNSON.

ENTOMOLOGY

For students entering prior to September, 1929

Major: 20 hours from courses offered in the department, except Entom. 1, 2, and 31.

Minors: 20 hours in not more than three of the following: Zoology, botany, physiology, chemistry, horticulture, and agronomy.

Entomology 1 is open to freshmen, without prerequisite, and may be followed by any of the other courses for undergraduates or by 6, 10, 20, or 21 in the senior year. Agricultural students and others desiring strictly practical work may take 1, 8, and 20 in sequence. Students preparing for service as economic entomologists should take as many of the courses offered as possible and should consult the head of the department.

For students entering after September 1, 1929

Major: 20 hours exclusive of Entomology 1, 2, 31, and all courses taken during the freshman year. At least five hours must be offered from the advanced group.

Minors: 20 hours, excluding courses taken during the freshman year, in not more than two of the following, with not less than eight hours in either department, if two subjects are chosen: Zoology, botany, chemistry, physiology, horticulture, and agronomy.

Entomology 1 is open to freshmen, without prerequisite, and may be followed by any of the other courses for undergraduates or by 6, 10, 20, or 21 in the senior year. Agricultural students and others desiring strictly practical work may take 1, 8, and 20 in sequence. Students preparing for service as economic entomologists should take as many of the courses offered as possible and should consult the head of the department.

Note: Certain courses in this department require laboratory fees varying from $1.50 to $5.

1. Destructive and Useful Insects.—(*Note:* Seniors will receive two hours' credit only.)

Entom. 1	3	A Lect.	10	MF	309 Entom.	METCALF
		A Lab.	{11 {10, 11	MF and W	309 Entom.	BALDUF and KUTCHKA
		B Lect.	1	MF	309 Entom.	METCALF
		B Lab.	{2 {1, 2	MF and W	309 Entom.	MILUM and KEARNS
		C Lect.	8	TT	309 Entom.	HAYES

[1]Professor Flom on leave of absence 1931-32.

Subject	Credits	Section	Hours	Days	Room	Instructor
Entom. 1	3	C Lab.	{9 {8, 9	TT and S	309 Entom.	Hayes and Kearns

2. Insects: Their Ways and Their Relations to Man.—A non-technical, cultural course. *Prerequisite:* 30 hours of university work. (2). Lect., 11 TT; 310 Entom. Assistant Professor Balduf and staff. (Not open to students who have taken Entomology 1.)

3a. Classification of Insects: Orders with gradual metamorphosis and principles of systematic entomology.—*Prerequisite:* Entomology 1 and 30 hours of university work. (5). Lab., 8, 9, 10 TT; Lect., to be arranged; 310 Entom. Assistant Professor Balduf.

8a. Insect Pests of Field Crops.—*Prerequisite:* Entomology 1 and 30 hours of university work. (3 or 5).* 1, 2, 3 WF; 312 Entom. Associate Professor Hayes.

31. Essentials of Beekeeping.—*Prerequisite:* 30 hours of university work. (2). 1, 2 TT; 104 Viv. Assistant Professor Milum.

Courses for Advanced Undergraduates and Graduates

6. Special Problems.—*Prerequisite:* Any of the following: Entom. 3, 7, 8, 10, 20, 21, 22, or 31; senior standing. (2-5).* Saturday morning; additional hours to be arranged. Various instructors.

10a. Morphology of Immature Insects.—*Prerequisite:* Entom. 7a and senior standing. (3). Lect., 8 F; Lab., to be arranged; 310 Entom. Associate Professor Hayes.

20. Insect Control.—*Prerequisite:* Entom. 1; senior standing. (4). Lab., 1, 2, 3 TT; Lect., to be arranged; 109 Entom. Professor Metcalf.

Courses for Graduates

The prerequisite for graduate work in entomology is two years of undergraduate biology, including zoology and entomology.

102. Research in the Morphology and Embryology of Insects.—(½-2 units).* Time to be arranged. Associate Professor Hayes.

108. Research in Economic Entomology.—(½-2 units).* Time to be arranged. Professor Metcalf.

109. Research in Systematic Entomology.—(½-2 units).* Time to be arranged. Professor Metcalf, Assistant Professor Balduf.

110. Research in the Biology and Ecology of Insects.—(½-2 units).* Time to be arranged. Professor Metcalf.

FARM MECHANICS

Courses for Undergraduates

Note: Certain courses in this department require laboratory fees varying from $1.50 to $8.

1. Elementary Farm Mechanics.—(Seniors allowed 2 hours' credit only.)

Farm Mech. 1	3	Lect.	8	WF	201 F. M.	Albrecht
		B Quiz	9	W		Reed
		J Quiz	8	T		
		N Quiz	1	T		
		A Lab.	8, 9	M		
		J Lab.	8, 9	Th		
		N Lab.	1, 2	Th		

2. Field and Power Driven Machinery.—*Prerequisite:* Farm Mech. 1.

Farm Mech. 2	3	Lect.	9	TT	201 F. M.	Shawl
		J Quiz	8	T		
		A Quiz	8	W		
		N Lab.	1, 2	Th		
		A Lab.	8, 9	F		

5. Drainage.—*Prerequisite:* 30 hours of university work.

Farm Mech. 5	3	Lect.	1	M	204 F. M.	Lehmann
		Quiz	1	W		
		Lab.	1, 2, 3	F		

11. Dairy Machinery and Equipment.—*Prerequisite:* Farm Mech. 1. For students specializing in dairy manufactures. Others see instructor. (2). Lect. and Lab., 8, 9, 10 S; 204 F. M. Mr. Young.

18a. Investigation with Thesis.—*Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to the thesis problem, and approval of the head of the department. Continuous throughout the year; credit is not given for either semester separately. (5). Professor Lehmann, Assistant Professor Shawl.

20. Farm Concrete Construction.—*Prerequisite:* Farm Mech. 1.

Farm Mech. 20	2	Lect.	3	T	204 F. M.	Albrecht
		P Lab.	3, 4	Th		
		J Lab.	8, 9	S		

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Courses for Advanced Undergraduates and Graduates

28. Advanced Gas Engines and Tractors.—*Prerequisite:* Farm Mech. 3 and consent of the instructor. (3). 2, 3, 4 MW; Lect. arranged; 201 F. M. Assistant Professor SHAWL.

51. Special Power and Field Machinery.—*Prerequisite:* Farm Mech. 17 or 28. Consult instructor before registering. (3). Time to be arranged. Professor LEHMANN, Assistant Professor SHAWL.

FARM ORGANIZATION AND MANAGEMENT

Courses for Undergraduates

1. Elementary Farm Management.—*Prerequisite:* Econ. 1 or 2, and 60 hours of university work. Local field trips will be arranged; estimated cost, $5.

Subject	Credits	Section	Hours	Days	Room	Instructor
Farm Man. 1	3	Lect. & Disc.	10	TT	316 New Agr.	WILCOX
		S Lab.	1, 2	Th	331 New Agr.	
		T Lab.	1, 2	F	331 New Agr.	WILLS

10a. Investigation with Thesis.—*Prerequisite:* 90 hours of university work including not less than 20 hours pertinent to the thesis problem and approval of the head of the department. (This course is continuous throughout the year; credit is not given for either semester separately.) Time to be arranged. (5). Professor CASE and others.

Courses for Advanced Undergraduates and Graduates

2. Types and Systems of Farming.—Factors determining the location of important farming type areas and systems of farming in the United States with special emphasis on Illinois conditions; analysis of capital requirements; cropping systems; livestock systems; relation of farming types to income. *Prerequisite:* Farm Management 1. Lectures and quiz. Local field trips will be arranged; estimated cost $3. (3). 8 MWF; 316 New Agr. Professor CASE, Associate Professor WILCOX.

4. Farm Operation.—*Prerequisite:* Farm Management 1 and 90 hours of university work. Local field trips will be arranged; estimated cost, $3. (2). 11 TT; 316 New Agr. Assistant Professor JOHNSTON.

6. Land Tenure.—*Prerequisite:* Econ. 1 or 2 and 90 hours of university work. (2). 9 TT; 316 New Agr. Professor CASE.

Courses for Graduates

101. Farm Management Principles and Investigational Methods.—(1 unit). Twice a week. Time to be arranged. Associate Professor CASE.

110. Seminar. Thesis Course.—(All graduate students registered in Farm Management must register in Farm Management 110, but only those students who are writing theses will be given credit.) (1-2 units).* Time to be arranged. Once a week. Professor CASE.

FINE ARTS

(See Art, Landscape Architecture, and Music.)

FLORICULTURE

(See Horticulture.)

FRENCH

(See Romance Languages and Literature.)

GAS ENGINEERING

Courses for Undergraduates

41. Design.—*Prerequisite:* Senior standing in Gas Engineering. (3). 9, 1-4 Th, 1-4 F; 207 T. B. Mr. MITCHELL.

51. Manufacture of Gas.—*Prerequisite:* Senior standing in Gas Engineering. (2). Arrange time. 206 T. B. Professor CALLEN, Mr. MITCHELL.

99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

GENERAL ENGINEERING DRAWING

(See Drawing, General Engineering.)

GEOLOGY

(Including Mineralogy, Paleontology, and Geography.)

A. GEOLOGY

For students entering prior to September, 1929

Major: 20 hours in Geology exclusive of Geology 1, 43, and 44, and including Geology 2b and 4 (the field course).

Minors: 20 hours selected from any one or two of the following departments: Astronomy, botany, chemistry, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

For students entering after September 1, 1929

Major: 20 hours in Geology exclusive of Geology 1, 43, and 44 and all courses taken during the freshman year; inclusive of Geology 3 and 4 (the field trip), and at least 5 hours of courses not open to freshmen or sophomores.

Minors: 20 hours of courses in one or two of the following named departments, exclusive of those taken in the freshman year: Astronomy, botany, chemistry, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology. At least eight hours must be offered in each subject if two are chosen.

Note: Certain courses in this department require laboratory fees varying from $1 to $2.50.

1. General Geology.—Discussions; quiz; 4 hours' laboratory; one or two field trips.

Note: Seniors receive only 4 credits; students who have credit for Geography 1 receive only 3 credits for Geology 1.

Subject	Credits	Section	Hours	Days	Room	Instructor
Geol. 1	5	A Lect. and Quiz	8	TWTF	247 N. H.	Shepard
		B Lect. and Quiz	9	TWTF	247 N. H.	Savage
		C Lect. and Quiz	10	TWTF	247 N. H.	DeWolf
		D Lect. and Quiz	11	TWTF	247 N. H.	Sutton
		E Lect. and Quiz	2	MTWT	247 N. H.	Crickmay
		1 Lab.	1-3	MF	251 N. H.	Kania
		2 Lab.	1-3	TT	251 N. H.	Shepard
		3 Lab.	3-5	MF	251 N. H.	Wanless
		4 Lab.	8-10	TT	251 N. H.	DeWolf
		5 Lab.	10-12	TT	251 N. H.	Crickmay
		6 Lab.	3-5	TT	251 N. H.	Kania

2a. Historical Geology.—*Prerequisite:* Geol. 1. *Note:* Seniors receive only 4 hours' credit.

Geol. 2a	5	A Lect.	9	MTWTF	241 N. H.	Sutton
		B Lect.	10	MTWTF	241 N. H.	Savage

3. Study of Geological Maps.—*Prerequisite:* Geol. 2a or registration therein. Required of majors in Geology. (2). Lab., 3-5 T, 3 Th; 134 N. H. Assistant Professor Sutton.

20. General Mineralogy.—*Prerequisite:* One year of chemistry. (3). 8-10 TTS; 147 N. H. Mr. Kania.

28. Geological History of Vertebrates.—*Prerequisite:* Geol. 2a. (2). 11 TT; 134 N. H. Assistant Professor Wanless.

43. Engineering Geology.—*Prerequisite:* Sophomore standing in the College of Engineering. (3). 11 TT; 241 N. H. Lab., 9-12 S; 251 N. H. Mr. Kania.

44. Agricultural Geology.—*Prerequisite:* Sophomore standing in the College of Agriculture.

Geol. 44	3	Lect.	1	MW	247 N. H.	Wanless
		A Quiz	10	T	134 N. H.	Wanless
		B Quiz	10	Th	134 N. H.	Wanless
		C Quiz	1	F	134 N. H.	Wanless
		Laboratory Hours				
		1	1-3	Th	147 N. H.	Wanless
			10-12	F	147 N. H.	Wanless

Courses for Advanced Undergraduates and Graduates

9. Invertebrate Paleontology.—*Prerequisite:* Geol. 2a and junior standing. (3). 8 MWF; 236 N. H. Laboratory hours to be arranged. Professor Savage.

15. Structural Geology.—Discussion and one two-day field trip. *Prerequisite:* Geol. 4. (3). 9 MWF; 134 N. H. Assistant Professor Shepard.

38. Regional Geology of the United States.—*Prerequisite:* Geol. 2a. (3). 3 MWF; 134 N. H. Assistant Professor Crickmay.

47. Systematic Mineralogy.—*Prerequisite:* One year of chemistry, and except for engineering and chemistry students, Geol. 2a. (3). 10-12 MWF; 150 N. H. Associate Professor Howard.

95. Economic Geology.—*Prerequisite:* Geol. 2a, or 43, and 20 or 48 or 49. (3). 9 MWF; 150 N. H. Associate Professor Howard.

60a. Introduction to Research.—Limited to seniors majoring in Geology. (2). Members of the department.

Courses for Graduates

101. Advanced Crystallography.—(1 unit). Twice a week. Hours to be arranged. 253 N. H. Associate Professor Howard.

102. Igneous Petrography.—(1 unit). Twice a week. 253 N. H. Associate Professor Howard.

125. Sedimentation.—(1 unit). Three times a week. Hours to be arranged. Assistant Professor Wanless.

135. Research.—(½-4 units).* Once a week. Hours to be arranged. Members of the department.

142. Stratigraphic Paleontology: Paleozoic.—(1 unit). 1 MWF; 236 N. H. Professor SAVAGE.

143. Stratigraphic Paleontology: Mesozoic and Cenozoic.—(1 unit). 2 MWF; 236 N. H. Assistant Professor SUTTON.

144. Micropaleontology: The study of microscopic fossil faunas.—(1 unit). Twice a week. Hours to be arranged. Assistant Professor CRICKMAY.

151. Advanced Dynamic Geology.—(1 unit). Three times a week. Hours to be arranged. Assistant Professor SHEPARD.

161. Applied Petroleum Geology.—(1 unit). Three times a week. Hours to be arranged. Professor DEWOLF.

163. Geologic Development of the Continents.—(1 unit). Three times a week. Hours to be arranged. Associate Professor HOWARD.

B. GEOGRAPHY

For students entering prior to September, 1929

Major: 20 hours of courses that have prerequisites in geography, exclusive of Geography 1.

Minors: 20 hours selected from not more than two of the following: Economics, education, history, zoology, and botany.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, and 12 or 8 or 53.

For students entering after September 1, 1929

Major: 20 hours of courses that have prerequisites in geography, exclusive of Geography 1, and all courses taken during the freshman year and including at least 5 hours of courses not open to freshmen.

Minors: 20 hours selected from not more than two of the following named departments, exclusive of those taken in the freshman year: Economics, education, history, zoology, botany, and geology. At least eight hours must be offered in each subject, if two are chosen.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, and 10 or 11, or 12 or 8 or 53.

Courses for Undergraduates

1. Elements of Geography.—Lectures and discussions; two or three field trips.

Note: Seniors receive only 4 hours' credit and those who have credit for Geol. 1 receive only 3 hours' credit for Geog. 1.

Subject	Credits	Section	Hours	Days	Room	Instructor
Geog. 1	5	A Lect. and Disc.	8	MTWF	435 N. H.	PAGE
		A Lab.	8-10	Th	422 N. H.	
		B Lect. and Disc.	9	MWTF	435 N. H.	BURGY
		B Lab.	8-10	T	422 N. H.	
		C Lect. and Disc.	10	MWTF	435 N. H.	DOW
		C Lab.	10-12	T	422 N. H.	
		D Lect. and Disc.	10	MTWF	434 N. H.	BLOCK
		D Lab.	10-12	Th	422 N. H.	
		E Lect. and Disc.	11	MTWF	435 N. H.	BLOCK
		E Lab.	3-5	Th	422 N. H.	
		F Lect. and Disc.	1	MWTF	435 N. H.	DOW
		F Lab.	1-3	T	422 N. H.	
		G Lect. and Disc.	2	MTWF	435 N. H.	BLOCK
		G Lab.	1-3	Th	422 N. H.	

2. Economic Geography.—*Prerequisite:* Geog. 1. Lectures and discussion. *Note:* Seniors receive 4 hours' credit.

Geog. 2	5	A	9	MTWTF	434 N. H.	POGGI
		B	11	MTWTF	434 N. H.	POGGI

4. Geography of North America.—*Prerequisite:* Geog. 2. (3). 2 MWF; 422 N. H. Dr. BURGY

6. Cartography and Graphics.—*Prerequisite:* Geog. 2 and permission of instructor. (1). 3-5 W; 422 N. H. Assistant Professor PAGE.

9. Teaching of Geography.—*Prerequisite:* One regional course, Geog. 14 and consent of instructor. (2). 2 TT; 434 N. H. Dr. POGGI.

14. Weather and Climate.—*Prerequisite:* Geog. 1. (3). 10 MWF; 422 N. H. Assistant Professor PAGE.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Courses for Advanced Undergraduates and Graduates

10. Geography of Africa.—*Prerequisite:* One regional course. (3). 1 MWF; 422 N. H. Assistant Professor PAGE.

12. Historical Geography of the United States.—*Prerequisite:* Geog. 4 and Hist. 3a and 3b. (3). 9 MWF; 422 N. H. Dr. MURPHY.

53a. Production of the Great World Staples.—*Prerequisite:* Geog. 2, one regional course and senior standing. (3). 8 MWF; 422 N. H. Dr. BURGY.

60a. Introduction to Research.—*Prerequisite:* Permission of instructor. Hours to be arranged. (2). Members of the staff.

GERMAN

For students entering prior to September, 1929

Major: 20 hours in German, excluding courses 1 and 2, and including 6 hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list: Languages (not less than 8 hours in any one), education, history, philosophy, and psychology.

Seniors taking German 1-2 will receive but three hours' credit.

For students entering after September 1, 1929

Major: 20 hours, in German, excluding courses 1 and 2 and all courses taken during the freshman year, and including 6 hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours, exclusive of courses taken during the freshman year, in not more than two subjects chosen from the following list, with not less than eight hours in each subject: Education, English (excluding Rhetoric 1, 2, and 12), French (excluding 1a), Greek, history, Italian, Latin, philosophy, Spanish (excluding 1a).

Seniors taking German 1-2 will receive but three hours' credit.

Elementary and Intermediate Courses

1. Elementary Course.—(*Note:* Seniors will receive three hours' credit only.)

Subject	Credits	Section	Hours	Days	Room	Instructor
German 1	4	A1	8	MTWT	312 U. H.	BALD
		A2	8	MTWT	202 L. H.	MOORE
		A3	8	MTWT	205 L. H.	KRAUSS
		A4	8	MTWT	206 L. H.	ROBINSON
		A5	8	MTWT	310 U. H.	MUELLER
		B1	9	MTWT	205 L. H.	BROOKS
		B2	9	MTWT	310 U. H.	MUELLER
		B3	9	MTWT	219 L. H.	JEHLE
		B4	9	MTWT	238 L. H.	KUBITZ
		C1	10	MTWT	233 L. H.	MUNRO
		C2	10	MTWT	206 L. H.	ROBINSON
		D1	11	MTWT	312 U. H.	KURTZ
		D2	11	MTWT	310 U. H.	JUNG
		E1	1	MTWT	224 L. H.	MOORE
		F1	2	MTWT	205 L. H.	JEHLE
		F2	2	MTWT	232 L. H.	KUBITZ
		G1	3	MTWT	205 L. H.	VOIGT
		G2	3	MTWT	312 U. H.	MUNRO
		H1	4	MTWT	205 L. H.	BALD
		H2	4	MTWT	232 L. H.	GENSCHMER

2. Elementary Course (continued).—*Prerequisite:* German 1, German S1, or 1 year of high-school German. (*Note:* Seniors will receive three hours' credit only.)

German 2	4	A	8	MTWT	233 L. H.	SCHREIBER
		B	9	MTWT	312 U. H.	KOLLER
		D	11	MTWT	320 New Agr.	VOIGT
		E	1	MTWT	233 L. H.	KRAUSS
		F	2	MTWT	233 L. H.	KURTZ
		G	3	MTWT	233 L. H.	GENSCHMER
		H	4	MTWT	206 L. H.	JUNG

4. Intermediate Course.—*Prerequisite:* German 2, S2, or 2 years of high-school German, or equivalent.

German 4	4	A1	8	MTWT	238 L. H.	WILLIAMS
		A2	8	MTWT	219 L. H.	JEHLE
		B	9	MTWT	302 L. H.	GEISSENDOERFER
		C	10	MTWT	310 U. H.	KURTZ
		D	11	MTWT	233 L. H.	MUNR
		E	1	MTWT	205 L. H.	SCHREIBER
		F	2	MTWT	235 L. H.	MOORE
		G	3	MTWT	206 L. H.	KOLLER

5. Intermediate Course (continued).—Literary reading. *Prerequisite:* German 4, S4, or 3 years of high-school German, or equivalent.

Subject	Credits	Section	Hours	Days	Room	Instructor
German 5	4	A	8	MTWT	308 L. H.	GEISSENDOERFER
		B	10	MTWT	312 U. H.	KOLLER

Courses for Advanced Undergraduates

14. Introductory Schiller Course.—*Prerequisite:* German 5 or equivalent. (3). 11 MWF; 205 L. H. Professor ARON.

16a. Conversation and Writing.—*Prerequisite:* German 5, or equivalent. (2). 2 TT; 206 L. H. Assistant Professor KOLLER.

24a. Nineteenth Century Drama.—*Prerequisite:* German 5, or equivalent. (2). 3 TT; 204-A L. H. Assistant Professor GEISSENDOERFER.

28a. Lyrics and Ballads.—*Prerequisite:* German 5, or equivalent, and sophomore standing. (2). 9 TT; 204-A L. H. Associate Professor WILLIAMS.

29a. Advanced Conversation and Writing.—*Prerequisite:* German 16b, or equivalent. (2). 2 TT; 211 L. H. Assistant Professor GEISSENDOERFER.

30a. Senior Thesis and Honors Course.—*Prerequisite:* Senior standing; three years of college German, or equivalent. (2). Arrange. Professor ARON and others.

Courses for Advanced Undergraduates and Graduates

19a. Goethe's Faust I.—*Prerequisite:* Three years of college German, or equivalent. (2). 11 TT; 206 L. H. Professor BROOKS.

26a. German Literature up to 1800.—*Prerequisite:* Three years of college German or equivalent. (3). 9 MWF; 233 L. H. Professor ARON.

31. Middle High German.—*Prerequisite:* Senior or graduate standing; three years of college German, or equivalent. (2). Arrange. Associate Professor WILLIAMS.

54. Introduction to Comparative Literature.—See English 54.

Courses for Graduates

101. Seminar in the German Novel.—(1 unit). Twice a week. Arrange. Professor ARON.

102. Thesis.—(½-2 units).* Arrange. Professors ARON, BROOKS; Associate Professor WILLIAMS.

103. Introduction to the Historical Study of the Germanic Languages.—(1 unit). Twice a week. Arrange. Associate Professor WILLIAMS.

113. German Literature of the Fifteenth and Sixteenth Centuries.—(1 unit). Twice a week. Arrange. Professor BROOKS.

GREEK

(See Classics.)

HISTORY

For students entering prior to September, 1929

Major: 20 hours, excluding History 1a and 2a, and including (a) either History 1b or 2b; (b) six hours selected from courses for advanced undergraduates and graduates; and (c) any other courses offered in the department.

Minors: 20 hours, selected from two of the following subjects: Economics, political science, law, sociology, English and American literature, and philosophy. Courses in any foreign language may be accepted in satisfaction of this requirement if the student can show his ability to read ordinary historical prose in that language.

For students entering after September 1, 1929

Major: 20 hours, including (a) ten hours in courses having junior standing as a prerequisite, and (b) any other courses offered by the department (except courses taken in the freshman year).

Minors: 20 hours selected from one or two of the following subjects: Economics, political science, geography, philosophy, law, sociology, and English and American literature (except such courses as are taken in the freshman year). Courses in one modern language (except such as are primarily designed for freshmen) will be accepted as one of two minor subjects.

Courses for Undergraduates

1a. Continental European History.

Hist. 1a	4 or 3[1]	Lect. 1[2]	10	TT	M. H.	JONES
[1]Three credits for seniors; four credits for students other than seniors.		Lect. 2[2]	2	TT	218 U. H.	JONES
		A Disc.	8	WF	211 U. H.	TOLO
		B Disc.	8	WF	335 L. H.	MAJOR
[2]Students in lectures 1 and 2 must elect a discussion in the A-O group.		C Disc.	9	WF	303-A L. H.	MAJOR
		D Disc.	10	WF	211 L. H.	JONES
		E Disc.	10	WF	303-A L. H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Hist. 1a	4 or 3[1]	F Disc.	10	WF	211 U. H.	Davenport
		G Disc.	10	WF	335 L. H.	Shay
		H Disc.	1	WF	303-A L. H.	Davenport
		I Disc.	1	WF	211 U. H.	Erickson
		J Disc.	2	WF	211 U. H.	Tolo
[1]Three credits for seniors; four credits for students other than seniors.		K Disc.	2	WF	303-A L. H.	Erickson
		L Disc.	3	WF	335 L. H.	Erickson
		M Disc.	3	WF	305 L. H.	Martig
		N Disc.	4	WF	335 L. H.	Martig
		O Disc.	1	TT	305 L. H.	
		Lect. 3[2]	2	MW	228 N. H.	Ronalds
[2]Students in lecture 3 must elect a discussion in the P-V group.		P Disc.	1	TT	321 L. H.	LaFuze
		Q Disc.	2	TT	321 L. H.	LaFuze
		R Disc.	4	TT	311 L. H.	Wright
		S Disc.	9	ThS	335 L. H.	Ronalds
		T Disc.	10	TT	329 L. H.	Ronalds
		U Disc.	11	TT	321 L. H.	Ronalds
		V Disc.	2	TT	335 L. H.	Shay

2a. English History.

Hist. 2a	3 or 2[1]	Lect. 1	11	M	L. H. Theatre	Dietz
		Lect. 2	2	M	M. H.	Dietz
		A Disc.	10	WF	321 L. H.	Baker
		B Disc.	11	WF	321 L. H.	Dietz
		C Disc.	11	WF	212 U. H.	Sage
		D Disc.	11	WF	329 L. H.	Baker
[1]Two credits for seniors; three credits for students other than seniors.		E Disc.	11	WF	224 L. H.	Wright
		F Disc.	11	WF	335 L. H.	Shay
		G Disc.	11	WF	203 U. H.	Yount
		H Disc.	11	WF	240 L. H.	Martig
		I Disc.	1	WF	305 L. H.	Shay
		J Disc.	2	WF	240 L. H.	Sage
		K Disc.	2	WF	311 L. H.	Shay
		L Disc.	2	WF	329 L. H.	Wright
		M Disc.	2	TT	203 L. H.	Baker
		N Disc.	3	TT	305 L. H.	Shay
		O Disc.	4	TT	305 L. H.	Tolo
		P Disc.	9	ThS	305 L. H.	

3a. History of the United States to 1828.—*Prerequisite:* One year of college work.

Hist. 3a	3	Lect. 1[1]	8	MF	218 U. H.	Werner
		A Disc.	8	T	305 L. H.	Werner
		B Disc.	8	T	311 L. H.	LaFuze
		C Disc.	8	T	303-A L. H.	Davenport
		D Disc.	8	W	305 L. H.	Werner
[1]Students in Lecture 1 must elect a discussion in the A-H group. Students in Lecture 2 must elect a discussion in the I-P group. Students in Lecture 3 must elect a discussion in the Q-W group.		E Disc.	8	W	303-A L. H.	LaFuze
		F Disc.	8	W	311 L. H.	Davenport
		G Disc.	8	Th	305 L. H.	Werner
		H Disc.	9	Th	303-A L. H.	
		Lect. 2[1]	11	MF	M. H.	Dunbar
		I Disc.	10	T	300 L. H.	Dunbar
		J Disc.	11	T	305 L. H.	Dunbar
		K Disc.	11	W	334 L. H.	Dunbar
		L Disc.	11	W	211 U. H.	
		M Disc.	11	W	423 N. H.	Major
		N Disc.	10	Th	321 L. H.	Dunbar
		O Disc.	11	Th	311 L. H.	Dunbar
		P Disc.	1	T	311 L. H.	Major
		Lect. 3[1]	2	MF	218 U. H.	Hansen
		Q Disc.	1	W	335 L. H.	Sage
		R Disc.	1	Th	311 L. H.	Baker
		S Disc.	2	T	117 L. H.	
		T Disc.	2	W	335 L. H.	Hansen
		U Disc.	2	W	308 L. H.	Baker
		V Disc.	2	W	321 L. H.	Baker
		W Disc.	3	W	303-A L. H.	Sage

5a. The Ancient World.—*Prerequisite:* Sophomore standing.

Hist. 5a	3	Lect.	2	MF	303 L. H.	Swain
		A Disc.	2	T	333 L. H.	Yount
		B Disc.	2	W	340 L. H.	Yount
		C Disc.	2	W	333 L. H.	Swain
		D Disc.	2	Th	333 L. H.	Yount
		E Disc.	9	S	333 L. H.	Yount

14. The American Colonies in the Seventeenth Century.—*Prerequisite:* Junior standing. (3) 11 MWF; 305 L. H. Assistant Professor Werner.

18. The Teaching of History.—*Prerequisite:* One year of college history and senior standing. (2) 3 TT; 303 L. H. Assistant Professor Werner.

22a. History of the West, 1634-1815.—*Prerequisite:* History 3a and junior standing. (2). 10 TT; 410 U. H. Professor PEASE.

23a. The Puritan Revolution in England and America.—*Prerequisite:* Sophomore standing and one year of college history. (2). 11 TT; 410 U. H. Professor PEASE.

33a. History of Russia and Her Slavic Neighbors to 1796.—*Prerequisite:* Junior standing and one year of college history. (3). 8 MWF; 105 L. H. Associate Professor RODKEY.

34a. Development of Modern Europe, 1648-1789.—*Prerequisite:* Junior standing and one year of college history. (3). 11 MWF; 303 L. H. Dr. ERICKSON.

40. History of the British Empire.—*Prerequisite:* One year of college history. (2). 8 TT; L. H. Theatre. Dr. ERICKSON.

41. The Middle Ages: The Formation and the Development of the European States.—*Prerequisite:* Sophomore standing. (3). 2 MWF; 204 L. H. Professor LARSON.

45a. History of England in the Eighteenth and Early Nineteenth Centuries (1688-1837).—*Prerequisite:* Junior standing and one year of college history. (2). 2 TT; 303 L. H. Assistant Professor RONALDS.

51a. Hebrew History.—*Prerequisite:* Junior standing. (2). 2 TT; 305 L. H. Associate Professor SWAIN.

90a. Thesis.—*Prerequisite:* Senior standing. (2). Time to be arranged. Associate Professor RODKEY.

91a. Honors Course.—*Prerequisite:* Senior standing. (2). Time to be arranged. Professor LYBYER.

Courses for Advanced Undergraduates and Graduates

(Open to seniors and juniors of high standing)

16a. The Foundations of American Society: The Colonies in the Eighteenth Century.—*Prerequisite:* History 3a. (3). 10 MWF; 311 L. H. Assistant Professor DUNBAR.

17a. Social and Economic Forces in the Nineteenth Century (to 1850).—*Prerequisite:* History 3b. (3). 9 MWF; 303 L. H. Professor HANSEN.

19a. The History of American Immigration.—*Prerequisite:* History 3. (2). 9 TT; 203 L. H. Professor HANSEN.

21. The Recent History of the United States.—*Prerequisite:* History 3b. (3). 9 TT; 303 L. H. Professor RANDALL.

25. The Civil War and Reconstruction.—*Prerequisite:* History 3b. (3). 11 MWF; 109 L. H. Professor RANDALL.

32a. The History of Europe, 1878-1904.—*Prerequisite:* One year of college history, economics, or political science. (3). 8 MWF; L. H. Theatre. Professor LYBYER.

36a. History of the German People to the End of the Thirty Years War.—*Prerequisite:* One year of college history. (3). 9 MWF; 211 L. H. Associate Professor RODKEY.

37a. Introduction to the History of Eastern and Southern Asia.—*Prerequisite:* One year of college history. (3). 10 MWF; 305 L. H. Professor LYBYER.

39a. The Renaissance and the Reformation.—*Prerequisite:* History 1a. (3). 9 MWF; 329 L. H. Professor JONES.

44a. The Constitutional History of England.—*Prerequisite:* One year of college history. (3). 3 MWF; 303 L. H. Professor LARSON.

47a. History of England in the Early Modern Period, 1399-1603.—*Prerequisite:* One year of college history. (3). 9 MWF; 335 L. H. Professor DIETZ.

55. History of the Ancient Greek States.—*Prerequisite:* One year of college history. (3). 1 MWF; 202 L. H. Professor OLDFATHER.

57a. Ancient Imperialism.—*Prerequisite:* One year of college history. (3). 11 MWF; 203 L. H. Associate Professor SWAIN.

62a. Political and Constitutional Development of the United States.—*Prerequisite:* One year of college history. (3). 10 MWF; 329 L. H. Professor RANDALL.

Courses for Graduates

101a. Seminar in American History: Introduction to Research.—(1 unit). 4, 5 T. Professor HANSEN.

102a. Seminar in English History.—(1 unit). 4, 5 T. Professor DIETZ.

103a. Studies in Historical Method.—(½ unit). 3 TT. Professor RANDALL.

104a. Seminar in European History.—(1 unit). 4. 5 W. Professor LYBYER.

105. Research in Special Topics (Thesis Course).—(1-2 units).* Professors LARSON, LYBYER, PEASE, JONES, RANDALL, DIETZ, HANSEN; Associate Professors SWAIN, RODKEY; Assistant Professors DUNBAR, RONALDS, WERNER.

106a. Seminar in the History of the Later Middle Ages.—(1 unit). Time to be arranged. Professor LARSON.

122c. The Westward Movement, 1763-1776.—(1 unit). Two hours. 4 MTh. Professor PEASE.

133a. Studies in the History of Europe in the Nineteenth Century.—(1 unit). Time to be arranged. Associate Professor RODKEY.

138a. History of France during the Religious Civil Wars.—(1 unit). Time to be arranged. Professor JONES.

150a. Research in Ancient History.—(1 unit). Time to be arranged. Associate Professor SWAIN.

HOME ECONOMICS

College of Agriculture

Curriculum in General Home Economics. (See page 49.)
Curriculum in Nutrition and Dietetics. (See page 50.)

College of Education

Home Economics Education. (See page 58.)
Home Economics Education—Smith-Hughes. (See page 59.)

College of Liberal Arts and Sciences

Major A.—General Home Economics: 20 hours from courses offered by the department, excluding Home Economics 1 and 6 (or 44), 7, and including Home Economics 2, 5, 10, 29, and two or more of the following: Home Economics 14, 19, 20, 28, 31, 33, 41, 43a, 43b, 48, 55.

Major B.—Nutrition: 20 hours excluding Home Economics 1 and including Home Economics 5, 6 (or 44), 39a, 39b, 41, and two or more of the following: Home Economics 20, 33, 45, 47.

Minors: 20 hours from (a) chemistry, bacteriology (lecture and laboratory), and physiology (at least one course from each subject), or (b) economics (a minimum of 8 hours), and one or two of the following subjects: Education, history, psychology, sociology.

Transfer Students: To satisfy the requirements for graduation, students transferring home economics credits from other institutions must take five hours in residence from the following: Home Economics 20, 28, 31, 33, 39a, 39b, 41, 43a, 43b, 47, 48, 50, 51, 55.

Electives: In addition to the required subjects in each college, it is expected that students will choose electives in accord with their special interest.

1. Textiles, clothing and costume design: Home Economics 19, 30, 31, 42, 43a, 43b, 50, 51.
2. Institutional management and hospital dietetics: Home Economics 20, 33, 46, 47, 48, 55.
3. Household Management: Home Economics 14, 28, 57a, 57b, and additional courses in economics.
4. House planning and furnishing: Art 16a, 16b; Architecture 11, 12; Home Economics 3, 43a, 43b, and additional courses in art and history.
5. Nutrition: Chemistry 24, 50a; Zoology 1; Home Economics 20, 33, 39a, 39b, 41, 45.
6. Teaching of home economics: Home Economics 11, 13, 34, 45; Education 6, 10, 25.

Courses for Undergraduates

Note: Certain courses in this department require laboratory fees varying from $1 to $16.

1. Foods.—*Prerequisite:* Chemistry 1, 5.

Subject	Credits	Section	Hours	Days	Room	Instructor
Home Econ. 1	4	Lect.	9	W	113 W. B.	WOODRUFF
		B1 Quiz	9	M	117 W. B.	ZWERMAN
		B2 Quiz	9	F	117 W. B.	PICKENS
		D Quiz	11	F	121 W. B.	WOODRUFF
		C Lab.	10, 11	MW	235 W. B.	PICKENS
		E Lab.	1, 2	MW	235 W. B.	MERRITT
		J Lab.	8, 9	TT	235 W. B.	ZWERMAN
		N Lab.	1, 2	TT	229 W. B.	ZWERMAN

2. Home Architecture.—*Prerequisite:* Art 13a and sophomore standing; *Prerequisite or concurrent:* Art 13b.

Home Econ. 2	3	Lect.	9	T	113 W. B.	FOSTER
		Lect.	9	Th	113 W. B.	WEAVER
		Lab.	9, 10	S	300 Arch.	FOSTER and WEAVER

3. Home Decoration.—*Prerequisite:* Art 13a, 13b; Home Economics 2.

Home Econ. 3	3	Lect.	11	S	113 W. B.	WEAVER
		L Lab.	10, 11	TT	309 W. B.	WEAVER
		N Lab.	1, 2	TT	309 W. B.	WEAVER

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

5. Dietetics.—*Prerequisite:* Chemistry 33; Home Economics 6 or 44; Physiology 4.

Subject	Credits	Section	Hours	Days	Room	Instructor
Home Econ. 5	4	Lect.	9	M	113 W. B.	Barto
		B1 Quiz	9	W	121 W. B.	Barto
		B2 Quiz	9	F	121 W. B.	Barto
		C Lab.	10, 11	MW	229 W. B.	Hönig
		L Lab.	10, 11	TT	229 W. B.	Hönig
		P Lab.	3, 4	TT	229 W. B.	Hönig

6. Foods.—*Prerequisite:* Home Economics 1.

Home Econ. 6	4	Lect.	11	Th	117 W. B.	Woodruff
		Quiz	11	T	117 W. B.	Zwerman
		Lab.	3, 4	MW	235 W. B.	Zwerman

7. Textiles.

Home Econ. 7	3 or 2[1]	Lect.	10	M	113 W. B.	Jacobsen
		B Quiz	9	W	117 W. B.	Jacobsen
		C1 Quiz	10	W	117 W. B.	Jacobsen
		C2 Quiz	10	F	117 W. B.	Jacobsen
		D Quiz	11	F	117 W. B.	Beam
		A Lab.	8, 9	M	304 W. B.	Beam
		E1 Lab.	1, 2	M	304 W. B.	Jacobsen
		L1 Lab.	10, 11	T	304 W. B.	Jacobsen
		C Lab.	10, 11	W	304 W. B.	Beam
		L2 Lab.	10, 11	Th	304 W. B.	Jacobsen
		E2 Lab.	1, 2	F	304 W. B.	Beam

10. Organization and Management of the Household.—*Prerequisite:* Economics 1 or 2; Home Economics 7, 6, or 44. *Prerequisite or concurrent:* Home Economics 2.

Home Econ. 10	3	Lect. and Disc.	1	F	121 W. B.	Munger
		A Quiz	8	MW	121 W. B.	Munger
		E Quiz	1	MW	121 W. B.	Munger

11. The Teaching of Home Economics.—*Prerequisite:* Home Economics 6, 29. *Prerequisite or concurrent:* Education 10, Home Economics 5, 10, 19. *Recommended:* Home Economics 34. One inspection trip (approximate cost, $3). Required of all who wish to be recommended to teach home economics. (Same as Home Economics Education 1.) (3). Lect. 2 TT; 121 W. B. Miss Robinson.

11a.[2] **Supervised Teaching.**—*Prerequisite or concurrent:* Home Economics 11. (2). Time to be arranged daily for twenty lessons. Miss Robinson, Miss Todd, Miss King.

13. Home Economics in Education.—*Prerequisite or concurrent:* Home Economics 10, 29. Recommended for all seniors in home economics. (Same as Home Economics Education 2.) (3). Lect. 3 TT; 117 W. B. Miss Todd.

14. Practice House.—Lecture, conference, and laboratory work in practice apartment. The students reside in the apartment four weeks during the semester. *Prerequisite:* Home Economics 5, 10, and consent of instructor. (3). Conference, 4 Th; 117 W. B.; laboratory to be arranged, 317-19 W. B. Miss Munger.

19. Costume Design.—*Prerequisite:* Art 13a, 13b; Home Economics 29.

Home Econ. 19	3	Lect.	11	F	113 W. B.	Barnes
		C Lab. and Disc.	10, 11	MW	309 W. B.	Barnes
		E Lab. and Disc.	1, 2	MW	309 W. B.	Barnes

29. Clothing.—*Prerequisite:* Home Economics 7; Art 13a or 13b.

Home Econ. 29	4	Lect.	9	F	113 W. B.	Whitlock
		K Quiz	9	Th	121 W. B.	Whitlock
		M Quiz	11	Th	121 W. B.	Whitlock
		C Lab.	10, 11	MW	203 W. B.	Whitlock
		L Lab.	10, 11	TT	327 W. B.	Beam
		N Lab.	1, 2	TT	327 W. B.	Beam

30. Clothing.—*Prerequisite or concurrent:* Home Economics 19.

Home Econ. 30	3	Lect.	2	F	121 W. B.	Whitlock
		E Lab.	1, 2	MW	203 W. B.	Whitlock
		N Lab.	1, 2	TT	203 W. B.	Whitlock

34. Teachers' Course in Clothing.—*Prerequisite:* Home Economics 19. (Same as Home Economics Education 3.)

Home Econ. 34	1	Lab.	3, 4	W	203-5 W. B.	King

38. Elementary Nutrition.—*Prerequisite:* Senior standing. (Open only to students not majoring in home economics.)

Home Econ. 38	2	Lect.	2	MW	121 W. B.	Barto

42. History of Costume.—*Prerequisite or concurrent:* Home Economics 19. (1). Lect., 3 T; 113 W. B. Miss Barnes.

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[1]Two credits for seniors; three credits for other students.

[2]Students wishing a five-hour course in supervised teaching in home economics should take Educational Practice 14. (See page 102.) Credit is not allowed for supervised teaching in the College of Liberal Arts and Sciences.

44. Foods.—*Prerequisite:* Transfer credit of one year each in general chemistry and foods.

Subject	Credits	Section	Hours	Days	Room	Instructor
Home Econ. 44	3	Lect. and Disc.	1	MW	117 W. B.	PICKENS
		Lab.	1, 2, 3	T	235 W. B.	PICKENS

46. Quantity Cookery.—*Prerequisite:* Home Economics 6 or 44.

Home Econ. 46	3	Quiz	4	W	121 W. B.	SMITH
		Lab.	8, 9, 10	two mornings a week, to be arranged with instructor; advised not to have 11:00 classes as students are required to serve at noon at least two days a week. SMITH, BENNETT		

47. Institutional Management.—*Prerequisite:* Economics 1 or 2. *Prerequisite or concurrent:* Home Economics 46. (3). Lect. and disc., 2 MWF; 117 W. B. Assistant Professor SMITH.

Courses for Advanced Undergraduates and Graduates

20. Infant Nutrition.—*Prerequisite:* Home Economics 5, senior standing. (2). Lect. and disc., 1 MW; 113 W. B. Miss PLANT.

33. Diet in Disease.—*Prerequisite:* Home Economics 5.

Home Econ. 33	3	Lect.	3	F	117 W. B.	BARTO
		Quiz	3	W	117 W. B.	BARTO
		Lab.	3, 4	M	229 W. B.	BARTO

39a. Readings in Food and Nutrition.—*Prerequisite:* Home Economics 5, senior standing. *Prerequisite or concurrent:* Chemistry 50a, or Home Economics 20, 33, 41, or 55. (1). Seminar, 4-5:30 Th, 203-5 W. B. Associate Professor WOODRUFF, Assistant Professors OUTHOUSE and BARTO, Mrs. MEYER, Miss PLANT.

43a. Problems in Textiles and Clothing.—*Prerequisite:* Economics 1 or 2; Home Economics 30 or 51. Each student will undertake an individual problem which may require prerequisites of chemistry and physics.

Home Econ. 43a	3		3	T	304 W. B.	JACOBSEN WEAVER WHITLOCK BARNES

51. Textiles.—*Prerequisite:* Chemistry 5; Economics 1 or 2; Home Economics 7; junior standing.

Home Econ. 51	3	Lect.	3	F	121 W. B.	JACOBSEN
		Lab.	3, 4	MW	304 W. B.	JACOBSEN

55. Food and Nutrition.—*Prerequisite or concurrent:* Home Economics 5, senior standing.

Home Econ. 55	5	Lect.	1	TT	117 W. B.	OUTHOUSE, MEYER, PLANT
		S Lab.	2, 3, 4	T		
			2, 3	Th		
			8, 9, 10	S	215 W. B.	PLANT
		T Lab.	2, 3, 4	MF		
			2, 3	W	215 W. B.	MEYER

57a. Problems in Household Management.—*Prerequisite:* Home Economics 10. (3). Time to be arranged. Miss MUNGER.

Courses for Graduates

101. Home Economics.—(1 unit). Twice a week. Professor WARDALL.

102. Research in Nutrition.—(½-3 units).* Assistant Professor OUTHOUSE.

103. Nutrition Seminar.—(½ unit). Once a week. Assistant Professor OUTHOUSE.

104. Research in Foods.—(½-3 units).* Associate Professor WOODRUFF.

105. Foods Seminar.—(½ unit). Once a week. Associate Professor WOODRUFF.

HORTICULTURE

Courses for Undergraduates

Note: Certain courses in this department require laboratory fees varying from $0.50 to $3.50.

1a. Elements of Horticulture.—(No credit allowed to juniors and seniors.)

Hort. 1a	2	E Quiz	1	MF	127 New Agr.	COLBY
		Lab.	1, 2	W	H. F. Lab.	KELLEY
		S Quiz	1	WF	111 New Agr.	
		Lab.	1, 2	M	H. F. Lab.	
		J Quiz	8	TT	127 New Agr.	
		Lab.	8, 9	S	H. F. Lab.	
		A Quiz	8	WF	127 New Agr.	
		Lab.	8, 9	M	H. F. Lab.	
		T Quiz	3	TT	127 New Agr.	
		Lab.	10, 11	S	H. F. Lab.	
		V Quiz	8	MW	111 New Agr.	
		Lab.	8, 9	F	H. F. Lab.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

5. Plant Propagation.—(3). 1, 2 MWF; F. G. Professor DORNER, Mr. DECKER.

6a. Nursery Methods.—*Prerequisite:* Hort. 5. An inspection trip is required; expenses not to exceed $20. (3). 10, 11 TTS; F. G. Mr. DECKER.

8a. Orcharding.—*Prerequisite:* Hort. 1a and 1b. An inspection trip is required; expenses not to exceed $15. (3). Lect., 10 Th; 127 New Agr. Lab., 10, 11 TS; 106 H. F. Lab. Mr. MCMUNN.

15b. Commercial Floricultural Crops.—*Prerequisite:* Hort. 15a. (3). 10, 11 MWF; F. G. Associate Professor HALL.

22a-g. Investigation with Thesis.—(This course is continuous throughout the year. Credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work including not less than 20 hours pertinent to the thesis problem, and the approval of the head of the department. (5). Arrange.
- **(a) Pomology.**—Professors DORSEY, RUTH, COLBY, ANDERSON; Assistant Professor KELLEY.
- **(c) Olericulture.**—Professor LLOYD.
- **(e) Floriculture.**—Professor DORNER, Associate Professor WEINARD.
- **(g) Plant Breeding.**—Professor DORSEY.

32a. Floral Decoration.—(For floriculture students.) (3). 8, 9 TTS; F. G. Professor DORNER.

33. Systematic Pomology.—*Prerequisite:* 60 hours of university work. (2). 3, 4 TT; H. F. Lab. Mr. MCMUNN.

34. Vegetables under Glass.—*Prerequisite:* Hort. 3 or 15a. Inspection trip, costing about $20, required. (3). 1, 2 MWF; 203 V. G. Mr. WEAVER.

49. Systematic Vegetable Crops.—*Prerequisite:* Hort. 1b. (2). 3, 4 TT; 203 V. G. Professor LLOYD, Mr. WEAVER.

53. Viticulture.—*Prerequisite:* Hort. 1a and 1b. (2). 1, 2 TT; H. F. Lab. Professor COLBY.

54. Horticultural Manufactures.—*Prerequisite:* Farm Mech. 1; registration in Bact. 5a. Inspection trip, costing about $20, required. (3). Lect., 1 TT, 2-5 TT; H. F. Lab. Associate Professor HUELSEN.

Courses for Advanced Undergraduates and Graduates

12. Evolution of Horticultural Plants.—*Prerequisite:* Zoology 15 or Botany 20. (3). Arrange. 203 V. G. Professor DORSEY.

43. Greenhouse Fertilizers.—*Prerequisite:* Botany 3; Agron. 28; Hort. 3 or 15a; senior standing. (3). 2 MWF; F. G. Associate Professor WEINARD.

44. Current Pomological Literature.—*Prerequisite:* 90 hours of university work. (1). 4 W; 214 New Agr. Professor RUTH.

46. Marketing Horticultural Products.—*Prerequisite:* Econ. 1 or 2; Hort. 3 or 8a; 90 hours of university work. Inspection trip, costing about $20, required. (3). 3 MWF; 203 V. G. Professor LLOYD.

47. Fruit Storage.—*Prerequisite:* Chem. 32; Bot. 3, or concurrent registration in Bot. 3. (3). 1, 2 MWF; 102 H. F. Lab. Professor RUTH.

Courses for Graduates

103. Olericulture.—(1-2 units).* Time to be arranged. Professor LLOYD.

105. Marketing Fruits and Vegetables.—(1-2 units).* Time to be arranged. Professor LLOYD.

108. Pomology.—(1-4 units).* Time to be arranged.
- **(a) Pomological Problems.**—Professor BLAIR.
- **(b) Pomology and Fruit Breeding.**—Professor DORSEY.
- **(c) Pomological Physiology.**—Professor RUTH, Assistant Professor KELLEY.
- **(d) Small Fruits.**—Professor COLBY.
- **(e) Pomological Pathology.**—Professor ANDERSON.

115. Floriculture.—(1-2 units).* Time to be arranged.
- **(a) Floricultural Problems.**—Professor DORNER.
- **(b) Floricultural Physiology and Pathology.**—Associate Professor WEINARD.

120. Pomology Seminar.—(¼ unit). Time to be arranged. Professors DORSEY, RUTH, ANDERSON.

125. Fruit Development.—(1 unit). Time to be arranged. Professor DORSEY.

130. Physiology of Fruit Production.—(1 unit). Time to be arranged. Professor RUTH.

135. Fruit Disease Research.—(1 unit). Time to be arranged. Professor ANDERSON.

HYGIENE

1. Elementary Hygiene and Sanitation.—Required of all undergraduate men during their first year of residence.

Subject	Credits	Section	Hours	Days	Room	Instructor
Hyg. 1	½	A1	8	M	128 New Agr.	BEARD
		A3	8	W	128 New Agr.	CAIN
		A4	8	Th	313 New Agr.	ROSS
		A5	8	F	128 New Agr.	BLACKSTONE
		A6	8	S	128 New Agr.	GEBHART
		B1	9	M	128 New Agr.	LEWIS
		B2	9	T	313 New Agr.	JUDAH
		B3	9	W	313 New Agr.	BRUNER

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Hyg. 1	½	B5	9	F	313 New Agr.	
		B6	9	S	128 New Agr.	
		B7	9	M	313 New Agr.	
		B10	9	Th	313 New Agr.	
		B12	9	S	313 New Agr.	
		C1	10	M	128 New Agr.	
		C2	10	T	128 New Agr.	
		C3	10	W	313 New Agr.	
		C5	10	F	313 New Agr.	
		C6	10	S	128 New Agr.	
		C7	10	M	313 New Agr.	
		C10	10	Th	313 New Agr.	
		C12	10	S	313 New Agr.	
		D1	11	M	128 New Agr.	
		D2	11	T	313 New Agr.	
		D5	11	F	313 New Agr.	
		D6	11	S	128 New Agr.	
		D10	11	Th	313 New Agr.	
		D12	11	S	313 New Agr.	
		F1	2	M	313 New Agr.	
		F3	2	W	313 New Agr.	
		G1	3	M	128 New Agr.	
		G2	3	T	128 New Agr.	
		G4	3	Th	128 New Agr.	
		G5	3	F	128 New Agr.	

2. Essentials of Hygiene and Sanitation.—Required of all undergraduate women during their first year of residence.

Hyg. 2	½	A2	8	T	106 L. H.	Smarzo
		A4	8	Th	106 L. H.	Smarzo
		A5	8	F	106 L. H.	Millbrook
		B1	9	M	106 L. H.	Smarzo
		B2	9	T	106 L. H.	Etheredge
		B3	9	W	106 L. H.	Etheredge
		B4	9	Th	106 L. H.	Etheredge
		B5	9	F	106 L. H.	Etheredge
		C1	10	M	106 L. H.	Etheredge
		C3	10	W	106 L. H.	Wheeler
		C4	10	Th	106 L. H.	Wheeler
		C5	10	F	106 L. H.	Wheeler
		D2	11	T	106 L. H.	Millbrook
		D3	11	W	106 L. H.	Millbrook
		D5	11	F	106 L. H.	Smarzo
		F4	2	Th	106 L. H.	Millbrook
		G2	3	T	106 L. H.	Wheeler

5. Principles and Practice of Hygiene.—Completion of this course satisfies the requirement for Hygiene 1 and 3. *Prerequisite:* Registration in the Colleges of Engineering or Agriculture and others with proper approval.

Hyg. 5	2	A1	8	TT	128 New Agr.	Beard
		B1	9	WF	128 New Agr.	Cain
		B2	9	TT	128 New Agr.	Ross
		C1	10	WF	128 New Agr.	Blackstone
		C2	10	TT	205 E. H.	Gebhart
		D1	11	WF	128 New Agr.	Lewis
		D2	11	TT	128 New Agr.	Judah
		D3	11	MW	306 P. L.	
		F1	2	TT	205 E. H.	Bruner
		G1	3	WF	111 E. H.	

10. Advanced Hygiene.—*Prerequisite:* Three semesters of university work and consent of instructor.

Hyg. 10	3	Lect.	2	M	128 New Agr.	Gebhart and others
		Quiz	2	WF	128 New Agr.	

INDUSTRIAL EDUCATION

(See Education.)

ITALIAN

(See Romance Languages and Literature.)

JOURNALISM

(Credit in journalism will be given for Rhet. 6, Engl. 45, Pol. Sci. 22, 27, 28, Law 2, 5, Hist. 21.)

Courses for Undergraduates

Note: Certain courses in this school require laboratory fees varying from $1 to $2.

1. Introduction to Journalism.—*Prerequisite:* Open to pre-journalism freshmen only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Journ. 1	1	K	9	Th	208 U. H.	Barlow
		L	10	Th	204 U. H.	Barlow
		N	1	Th	203 U. H.	Barlow
		O	2	Th	203 U. H.	Barlow

3. The Newspaper and the News.—*Prerequisite:* 30 hours of university work. A non-laboratory survey course for students outside of the School of Journalism. Not open to students with credit in Journalism 1-2, or to students registered in Journalism 5.

Journ. 3	2	L	10	TT	218 U. H.	Dickinson
		M	11	TT	M. H.	Heitman

4. Newspaper Reference Service.—*Prerequisite:* Sophomore standing. (2). 10 MW; 2 hours laboratory to be arranged; 113 U. H. Mr. Heitman.

5. Reporting.—*Prerequisite:* Sophomore standing. Make out class cards for one lecture, one discussion, and one laboratory period.

Journ. 5 3

For students in pre-journalism and in the various colleges and schools:

	O1 Lect.	2	T	312 Adm. (E)	Davis
	O2 Disc.[1]	2	Th	113 U. H.	Davis
	O3 Lab.[1]	3 hrs. to be arranged			Leiter
	P2 Disc.	3	Th	113 U. H.	Davis
Sign for O1, O2, and O3; or	P3 Lab.	3 hrs. to be arranged			Leiter
O1, P2, and P3; or M1, L2, and	M1 Lect.	11	T	312 Adm. (E)	Davis
L3; or M1, M2, and M3.	L2 Disc.	10	Th	203 U. H.	Davis
	L3 Lab.	3 hrs. to be arranged			Leiter
	M2 Disc.[1]	11	Th	203 U. H.	Davis
	M3 Lab.[1]	3 hrs. to be arranged			Leiter

For students in the College of Agriculture (agricultural news, etc.):

E1 Lect.	1	M	315 U. H.	Leiter
E2 Disc.	1	W	211 U. H.	Leiter
E3 Lab.	3 hrs. to be arranged			Leiter

For students in the College of Commerce (financial news, etc.):

M4 Lect.	11	T	113 U. H.	Dickinson
M5 Disc.	11	Th	113 U. H.	Dickinson
M6 Lab.	3 hrs. to be arranged			Dickinson

7. Sports Writing.—(For students in Athletic Coaching.) *Prerequisite:* Sophomore standing.

Journ. 7	3	B	9	MWF	410 U. H.	Dickinson
		E	1	MWF	113 U. H.	Schooley

9a. History and Practice of Printing and Publishing.—*Prerequisite:* Sophomore standing. (See also Indus. Ed. 8.)

Journ. 9a	2 or 3[2]	Lect.	11	Th	303 Adm. (E)	Allen
		Lab. A1	8-10	M	126 U. H.	Allen
		J1	8-10	T	126 U. H.	Allen
		A2	8-10	W	126 U. H.	Allen
		J2	8-10	Th	126 U. H.	Allen
		A3	8-10	F	126 U. H.	Allen
		C1	10-12	M	126 U. H.	Allen
		C2	10-12	W	126 U. H.	Allen
		G1	3-5	M	126 U. H.	Allen
		P	3-5	T	126 U. H.	Allen
		G2	3-5	W	126 U. H.	Allen

Courses for Advanced Undergraduates

10. Newspaper Advertising.—(Same as B. O. and O. 10). *Prerequisite:* Journ. 5-6. (3). 11 MWF; 215 Com. (Offered first semester only.) Professor Russell.

12. Publicity Methods.—*Prerequisite:* Junior standing. (2). 9 TT; 113 U. H. Associate Professor Wright.

13. Copyreading, Head Writing, and Make-up.—*Prerequisite:* Journ. 5 or equivalent, and junior standing.

Journ. 13	3	Lect. G	3	M	315 U. H.	Siebert
		Lab. N	1-3	TT	118 U. H.	Siebert
		E	1-3	WF	118 U. H.	Siebert
		P	3-5	TT	118 U. H.	Siebert
		G1[3]	3-5	WF	118 U. H.	Siebert

15. Special and Feature Articles.—*Prerequisite:* Junior standing. (2). 9 TT; 315 U. H. Mr. Davis.

17. History of Journalism.—*Prerequisite:* Junior standing. (3). 10 MWF; 410 U. H. Professor Murphy.

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[1]For students on the news staff of *The Daily Illini.*
[2]Three credits for Industrial Education students registering for 4 hours of laboratory work.
[3]For students with desk experience. Consult adviser before registering.

19. Editorials and the Editorial Page.—*Prerequisite:* Journ. 5-6 or equivalent, and junior standing. (2). 11 MW; 113 U. H. Professor MURPHY.

21. Community and Country Journalism.—*Prerequisite:* Junior standing. (3). Lecture and discussion, 10 TT; 2 hours laboratory to be arranged; 126 U. H. Assistant Professor ALLEN.

29. Advanced Reporting.—*Prerequisite:* Journ. 5-6 or equivalent, and junior standing. (3). 2 MWF. Section E. General news and correspondence. Room 113 U. H. Associate Professor BARLOW.

33. Newspaper Advertising Copy and Layouts.—*Prerequisite:* Junior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Journ. 33	2	Lect.	1	Th	113 U. H.	ALLEN
		Lab. N	1-3	T	113 U. H.	ALLEN

35. Contemporary Life and Thought.—*Prerequisite:* Junior standing and 6 hours of journalism. (2). 10 TT; 113 U. H. Assistant Professor SIEBERT.

39. Special Problems.—(For seniors not writing theses in journalism.) (2). 3 W; 113 U. H. Associate Professor BARLOW.

43. Newspaper Accounting.—*Prerequisite:* Junior standing. (3). 9 MWF; 113 U. H. (Offered first semester only). Mr. KRANNERT.

47. Teaching of Journalism.—A study of class and laboratory. *Prerequisite:* Junior standing and one course in journalism. (2). 1 MW; 403 U. H. Mr. HEITMAN.

60a. Thesis Course.—Open to seniors with consent of the Director. (2). Time to be arranged. Professor MURPHY and staff.

LANDSCAPE ARCHITECTURE

11. History of Landscape Architecture.—(Formerly Horticulture 36.) (3). 11 MWF; 214 New Agr. Assistant Professor PETERSON.

31. Landscape Design.—(Formerly Horticulture 21a.) *Prerequisite:* Arch. 72. (4). Lab., 9-12 TT, 8-12 F; 200 New Agr. Mr. MITCHELL.

33. Landscape Design.—(Formerly Horticulture 23a.) *Prerequisite:* L. A. 31. (4). Lect., 2 W; 214 New Agr. Lab., 1-5 TT, 2-5 F; 200 New Agr. Professor WHITE.

35. Advanced Landscape Design.—(Formerly Horticulture 25a.) *Prerequisite:* L. A. 33. (5). Lect., 9 M; 214 New Agr. Lab., 10-12 M, 9-12 WFS; 203 New Agr. Professor LOHMANN.

43. Landscape Construction.—(Formerly Horticulture 27a.) *Prerequisite:* C. E. 18. (3). Lect., 10 M, 9 F; 214 New Agr. Lab., 11 M, 10-12 WF; 200 New Agr. Professor SCHAFFER.

51. Trees and Shrubs.—(Formerly Horticulture 24a.) *Prerequisite:* Botany 5; open only to students in landscape architecture and floriculture. (3). Lect., 3 W; 214 New Agr. Lab.: landscape students, 10-12 TT, 211 New Agr.; students in floriculture, 3-5 MF, 214 New Agr. Assistant Professor ROBINSON.

53. Planting Design.—(Formerly Horticulture 26a.) *Prerequisite:* L. A. 34, 52, and Hort. 31. (3). Lect., 1 M; 214 New Agr. Lab., 2 M, 1-3 WF; 203 New Agr. Assistant Professor ROBINSON.

55. Care of Plant Materials.—(Formerly Horticulture 40.) *Prerequisite:* L. A. 52; 90 hours of university work. (2). 11 TT; 214 New Agr. Professor WHITE.

71. City Planning.—(Formerly Horticulture 37a.) *Prerequisite:* 90 hours of university work. (2). 10 TT, occasional other hours arrange; 214 New Agr. Professors BARTHOLOMEW and LOHMAN.

LAW

First Year Courses[1]

1a. Contracts.—Corbin: *Cases on Contracts.*

Law 1a	3	A	2	MWF	300 Law	GOBLE
		B	3	MWF	300 Law	

2a. Torts.—Bohlen: *Cases on Torts* (3rd ed.).

Law 2a	4	A	9	MTWT	103 Law	WEISIGER
		B	10	MTWT	103 Law	

3. Personal Property and Introduction to Law.—Bigelow: *Cases on Personal Property*, and assigned readings.

Law 3	3	A	8	TTF	106 Law	McDOUGAL
		B	9	TTF	106 Law	

4. Procedure I.—McCaskill: *Cases on Actions and Suits.*

Law 4	2	A	2	TT	106 Law	McCASKILL
		B	3	TT	106 Law	

5. Criminal Law.—Harno: *Cases on Criminal Law.*

Law 5	3	A	10	MWF	300 Law	KIRGIS
		B	11	MWF	300 Law	

[1]In addition to the program for which a first year student registers he is asked to hold open the eleven o'clock hour on Thursday during the first semester for quizzes to be scheduled during the course of the semester in room 300 Law Building.

Second Year Courses[1]

6a. International Law.—Law of Peace. (3). 2 MWF; 300 L. H. Professor GARNER.

7. Persons.—McCurdy: *Cases on Domestic Relations.* (2). 2 WF; 306 Law. Professor HOLT.

9. Sales.—Woodward: *Cases on Sales* (2d ed.). (3).

Subject	Credits	Section	Hours	Days	Room	Instructor
Law 9	3	A	2	MTW	103 Law	BRITTON
		B	3	MTW	103 Law	

10. Real Property II.—Titles. Aigler: *Cases on Property.* (4). 8 TWTF; 103 Law. Professor SUMMERS.

12. Equity Jurisdiction I.—Cook: *Cases on Equity* (one volume edition). (4). 10 MTWT; 106 Law. Professor SCHNEBLY.

14. Carriers and Warehousemen.—Green: *Cases on Carriers* (2d ed.). (2). 9 MT; 303 Law. Professor GREEN.

22a. Constitutional Law.—Government and the Individual. Hall: *Cases on Constitutional Law.* (3). 11 MTW; 103 Law. Professor GREEN.

49. Industrial Relations I.—Labor Law. Selected cases and readings. (2). 4 TT; 306 Law. Professor WEISIGER.

50. Industrial Relations II.—Oliphant: *Cases on Trade Regulation.* (2). 2 TT; 303 Law. Professor GOBLE.

54. Legal Problems I.—Legal problems to be assigned. (1). *Prerequisite:* One year of law work and at least an average grade of B (4.) in law courses. Professor HOLT.

60. Public Utilities.—Casebook to be announced. (2). 11 ThF; 103 Law. Professor GREEN.

Third Year Courses[2]

18. Wills and Administration.—Costigan: *Cases on Wills, Descent and Administration* (2d ed.). (3). 10 WTF; 303 Law. Professor SUMMERS.

19. Business Organizations II.—Richards: *Cases on Private Corporations* (2d ed.). (3). 9 WTF; 303 Law. Professor JOHNSON.

21a. Credit Transactions I.—Accommodation Contracts. Sturges: *Cases on Credit Transactions.* (2). 4 MW; 303 Law. Assistant Professor MCDOUGAL.

25. Bankruptcy.—Britton: *Cases on Bankruptcy.* (2). 10 MT; 306 Law. Professor BRITTON.

27. Real Property III.—Future Interests. Powell: *Cases on Future Interests.* (3). 8 MTT; 103 Law. Professor SCHNEBLY.

31. Conflict of Laws.—Lorenzen: *Cases on Conflict of Laws* (2d ed.). (3). 3 WTF; 303 Law. Professor HOLT.

35. Procedure III.—Trial Practice. Hinton: *Cases on Trial Practice.* (3). 2 MWF; 303 Law. Professor MCCASKILL.

39a. Thesis Course.—This course is open to students who are candidates for the J. D. degree during the academic year next preceding their graduation. (2). Credit deferred until completion of 39b. Members of the staff.

56. Legal Problems III.—Legal problems to be assigned. (1). *Prerequisite:* Legal Problems I or II, two years of law work, and at least an average grade of B (4.) in law courses. Professor HOLT.

LIBRARY SCIENCE

Course for Freshmen and Sophomores

12. General Reference.

Lib. Sci. 12	2	A	9	T	104 Lib.	BLACK
		B	10	W	106 Lib.	SIGNOR
		C	2	W	118 Lib.	HARDING
		D	10	T	104 Lib.	
		E	1	T	118 Lib.	HOUCHENS

Courses for First Year Library School Students

2a. Reference.

Lib. Sci. 2a	3	A	8	MWF	118 Lib.	SINGLETON
		B	8	MWF	314 Lib.	
		C	9	MWF	118 Lib.	SINGLETON
		D	11	MWF	118 Lib.	SINGLETON

[1]In addition to the program for which a second year student registers he is asked to hold open the eight o'clock hour on Monday during the first semester for quizzes to be scheduled during the course of the semester in room 300 Law Building.

[2]In addition to the program for which a third year student registers he is asked to hold open the eight o'clock hour on Wednesday during the first semester for quizzes to be scheduled during the course of the semester.

Subject	Credits	Section	Hours	Days	Room	Instructor
3a. Selection of Books.						
Lib. Sci. 3a	2	A	11	TT	314 Lib.	Boyd
		B	9	TT	106 Lib.	Boyd
		C	10	WF	106 Lib.	Boyd
		D	9	WF	104 Lib.	Boyd
31a. Cataloging.						
Lib. Sci. 31a	2	A	2-5	MTh	118 Lib.	Bond
		B	2-5	MTh	314 Lib.	
		C	2-5	TF	118 Lib.	Bond
		D	2-5	TF	314 Lib.	
34. Administration.						
Lib. Sci. 34	3	A	9	MWF	314 Lib.	Gramesly
		B	8	TTS	314 Lib.	Gramesly
		C	1	MWF	118 Lib.	Gramesly
35. Order and Accessions.						
Lib. Sci. 35	3	A	10	MWF	314 Lib.	Hostetter
		B	9	MWF	106 Lib.	Hostetter
		C	11	MWF	314 Lib.	Hostetter
		D	10	MWF	118 Lib.	Phelps
36. Classification.						
Lib. Sci. 36	2	A	10	TT	118 Lib.	Bond
		B	10	TT	314 Lib.	
		C	11	TT	118 Lib.	Bond
		D	9	TT	314 Lib.	

Courses for Advanced Library School Students and Graduates

13a. Government Publications.—*Prerequisite:* Lib. 2a and 2b. (2). 11 WF; 106 Lib. Miss Phelps.

24a. Selection of Books.—*Prerequisite:* Lib. 3a and 3b. (2). 10 TT; 328 Lib. Miss Hostetter.

44. Book Buying for the Large Library.—*Prerequisite:* Senior standing. (2). 11 TT; 106 Lib. Miss Garver.

45. Library Buildings and Equipment.—*Prerequisite:* Senior standing. (2). 2 TT; 328 Lib. Miss Gramesly.

Courses for Graduates

101. Thesis.—(1-2 units).* Professor Windsor and others.

102. Seminar in Library Economy.—(1 unit). 3, 4 M; 328 Lib. Professor Windsor and Assistant Professor Boyd.

103. Advanced Reference.—*Prerequisite:* Lib. 2a and 2b. (½ unit). 9 TT; 328 Lib.

MATHEMATICS

For students entering prior to September, 1929

Major: 20 hours made up from any undergraduate courses offered by the department except Math. 1a, 2, 3, 4, 5, and 8. The courses selected must include Math. 7 and 9, and at least one of the following courses: Math. 10, 16, 18, 20, 21, 30, 40, 90. For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: Math. 1; or first semester, Math. 2 (or 3) and 4; second semester, Math. 6. Sophomore year: first semester, Math. 7 (Section T); second semester, Math. 9 (Section T) and 19.

Minors: 20 hours selected from not more than three of the following subjects: Astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), philosophy, theoretical and applied mechanics, and surveying. At least 8 hours must be offered in some one subject.

Credit for seniors who take Math. 1a, 1b, 2, 3, 4, 5, 6, or 6a will be reduced one hour.

For students entering after September 1, 1929

Major: 20 hours, exclusive of Math. 1a, 1b, 2, 3, 4, 5, 6, 6a, 8a, and 8b (and all courses taken during the freshman year); inclusive of Math. 7 and 9, and two semesters of 70, 71, 72.

For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: Math. 1; or first semester, Math. 2 (or 3) and 4; second semester, Math. 6. Sophomore year: first semester, Math. 7 (Section T); second semester, Math. 9 (Section T) and 19.

Minors: 20 hours exclusive of courses taken during the freshman year selected from one or two of the following subjects: Astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), philosophy, theoretical and applied mechanics, surveying. If two subjects are chosen, at least eight hours must be offered in each.

Credit for seniors who take Math. 1a, 1b, 2, 3, 4, 5, 6, or 6a will be reduced one hour.

Courses for Undergraduates

1a. Introduction to College Mathematics.—This course is designed as a two-semester course to give in a unified way an introduction to mathematics, including material from college algebra, trigonometry, analytical geometry, and elementary calculus. A student taking Math. 1a and 1b will not take

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Math. 2, 3, 4, or 6. *Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit. *Note:* Seniors will receive 4 hours' credit only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Math. 1a	5	S	9	MTWTF	202 U. H.	Norris
		T	10	MTWTF	102 Entom.	Wood
		U	11	MTWTF	302 U. H.	Moore
		W	1	MTWTF	105 Entom.	Dennis
		X	2	MTWTF	103 Entom.	Jacokes
		Y	3	MTWTF	302 U. H.	Schilling

2. **College Algebra.**—*Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit. *Note:* Seniors will receive 2 hours' credit only.

Math. 2	3	A1[1]	8	MWF	202 U. H.	Norris
		A2[1]	8	MWF	208 U. H.	Locke
		R1	8	MWF	103 Entom.	Huff
		R2	8	TTS	103 Entom.	Lang
		B1[1]	9	MWF	103 Entom.	McClellan
		B2[1]	9	MWF	155 Math.	Bower
		S1	9	MWF	158 Math.	Emch
		S2	9	MWF	206 U. H.	Moore
		S3	9	MWF	110 L. H.	Miles
		S4	9	TTS	102 Entom.	Barber
		C1[1]	10	TTS	302 U. H.	Clark
		T1	10	MWF	159 Math.	Armstrong
		T2	10	MWF	302 U. H.	Bower
		T3	10	MWF	212 U. H.	Bird
		T4	10	MWF	318 U. H.	Barber
		D1[1]	11	MWF	154 Math.	Pepper
		D2[1]	11	MWF	406 P. L.	Peters
		U1	11	MWF	208 U. H.	Cooley
		U2	11	MWF	202 U. H.	Schilling
		U3	11	MWF	155 Math.	Rogers
		E1[1]	1	MWF	158 Math.	Chanler
		E2[1]	1	MWF	202 U. H.	Cooley
		W1	1	MWF	159 Math.	Levy
		W2	1	MWF	318 U. H.	
		F1[1]	2	MWF	158 Math.	Hopkins
		F2[1]	2	MWF	154 Math.	Rogers
		F3[1]	2	MWF	156 Math.	Brown
		X1	2	MWF	202 U. H.	Schilling
		X2	2	MWF	159 Math.	Rumsey
		G1[1]	3	MWF	105 Entom.	Brown
		G2[1]	3	MWF	158 Math.	Chanler
		G3[1]	3	MWF	103 Entom.	Jacokes
		Y1	3	MWF	208 U. H.	Walden
		Y2	3	MWF	214 U. H.	Burdette
		H[1]	4	MWF	155 Math.	Burdette
		Z1	4	MWF	154 Math.	Walden
		Z2	4	MWF	158 Math.	Huff

3. **Algebra.**—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit. Students having 1½ entrance units in algebra will receive but 3 hours' credit for this course. *Note:* Seniors will receive 4 hours' credit only.

Math. 3	5	R1	8	MTWTF	158 Math.	Grant
		R2	8	MTWTF	318 U. H.	
		S1	9	MTWTF	105 Entom.	Bailey
		S2	9	MTWTF	156 Math.	Peters
		S3	9	MTWTF	159 Math.	Bird
		T1	10	MTWTF	154 Math.	Pepper
		T2	10	MTWTF	105 Chem. Annex	Lang
		T3	10	MTWTF	406 P. L.	Cooley
		D[1]	11	MTWTF	318 U. H.	McClellan
		U1	11	MTWTF	110 L. H.	Shaw
		U2	11	MTWTF	105 Entom.	Maria
		E[1]	1	MTWTF	103 Entom.	Jacokes
		W	1	MTWTF	156 Math.	Wood
		X1	2	MTWTF	208 U. H.	Shaw
		X2	2	MTWTF	206 U. H.	Hoersch
		Y1	3	MTWTF	318 U. H.	
		Y2	3	MTWTF	202 U. H.	Dennis
		Y3	3	MTWTF	154 Math.	Rogers
		Y4	3	MTWTF	156 Math.	Rumsey

4. **Plane Trigonometry.**—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit. *Note:* Seniors will receive 1 hour's credit only.

Math. 4	2	A1[1]	8	TT	206 U. H.	Moore
		A2[1]	8	TT	202 U. H.	McClellan
		R1	8	TT	105 Chem. Annex	Locke
		R2	8	TT	105 Entom.	Bird

[1]For freshman engineers only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Math. 4	2	R3	8	WF	406 P. L.	Brown
		B1[1]	9	TT	318 U. H.	Cooley
		B2[1]	9	TT	155 Math.	Bower
		S1	9	TT	110 L. H.	Miles
		S2	9	TT	206 U. H.	Moore
		S3	9	TS	103 Entom.	Lang
		C[1]	10	MF	163 Chem.	Bourgin
		T1	10	TT	158 Math.	Hazlett
		T2	10	TT	206 U. H.	Wilson
		T3	10	TT	159 Math.	Armstrong
		T4	10	TT	208 U. H.	Barber
		D1[1]	11	TT	154 Math.	Pepper
		D2[1]	11	TT	104 P. L.	Peters
		U1	11	TT	208 U. H.	Lytle
		U2	11	TT	156 Math.	Brahana
		U3	11	TT	103 Entom.	Lang
		U4	11	TS	155 Math.	Grant
		E1[1]	1	TT	158 Math.	Chanler
		E2[1]	1	TT	302 U. H.	Huff
		W1	1	TT	110 L. H.	Maria
		W2	1	TT	318 U. H.	
		W3	1	TT	159 Math.	Rumsey
		F1[1]	2	TT	156 Math.	Huff
		F2[1]	2	TT	154 Math.	Rogers
		X1	2	TT	202 U. H.	Schilling
		X2	2	TT	159 Math.	Rumsey
		X3	2	TT	158 Math.	Wood
		G1[1]	3	TT	105 Entom.	Brown
		G2[1]	3	TT	158 Math.	Chanler
		Y1	3	TT	208 U. H.	Walden
		Y2	3	TT	214 U. H.	Burdette
		Y3	3	TT	155 Math.	Bristow
		H[1]	4 9	Tu S	155 Math.	Burdette
		Z	4 9	Tu S	154 Math.	Walden

5. Advanced Trigonometry.—Intended for students having entrance credit in trigonometry. The course will include such topics as trigonometric equations, De Moivre's theorem, complex numbers with applications to more complicated problems in plane trigonometry, and a brief introduction to spherical trigonometry. *Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit; solid geometry, ½ unit; entrance trigonometry, ½ unit (or Math. 4). *Note:* Seniors will receive 1 hour's credit only.

Math. 5	2	A[1]	8	TT	110 L. H.	Miles
		B[1]	9	TT	302 U. H.	Clark
		D[1]	11	TT	206 U. H.	Bower
		E[1]	1	TT	202 U. H.	Ketchum
		F[1]	2	TT	105 Entom.	Dennis
		G[1]	3	TT	206 U. H.	Hoersch

6. Analytic Geometry.—*Prerequisite:* Math. 2 (or 3), 4. *Note:* Seniors will receive 4 hours' credit only.

Math. 6	5	A[1]	8	MTWTF	302 U. H.	Clark
		B[1]	9	MTWTF	103 Chem.	Locke
		T1	10	MTWTF	202 U. H.	Norris
		T2	10	MTWTF	155 Math.	Grant
		D[1]	11	MTWTF	105 Chem. Annex	Barber
		U1	11	MTWTF	102 Entom.	Hopkins
		U2	11	MTWTF	159 Math.	Armstrong
		E[1]	1	MTWTF	206 U. H.	Hoersch
		X	2	MTWTF	155 Math.	Bristow
		Y	3	MTWTF	110 L. H.	Steimley

7. Differential and Integral Calculus.—*Prerequisite:* Math. 6.

Math. 7	5	A1	8	MTWTF	159 Math.	Armstrong
		A2	8	MTWTF	154 Math.	Wilson
		A3	8	MTWTF	156 Math.	Peters
		A4	8	MTWTF	155 Math.	Bower
		B	9	MTWTF	154 Math.	Pepper
		C1	10	MTWTF	105 Entom.	Maria
		C2	10	MTWTF	110 L. H.	Miles
		T[2]	10	MTWTF	156 Math.	Brahana
		D	11	MTWTF	158 Math.	Hazlett
		E1	1	MTWTF	154 Math.	Hopkins
		E2	1	MTWTF	208 U. H.	Bourgin
		E3	1	MTWTF	155 Math.	Bristow
		F	2	MTWTF	110 L. H.	Steimley
		G	3	MTWTF	159 Math.	Ketchum

[1]For freshman engineers only.
[2]For L. A. S. students only.

8a. Differential Calculus.—*Prerequisite:* Math. 6a or 6.

Subject	Credits	Section	Hours	Days	Room	Instructor
Math. 8a	3	A1	8	MWF	110 L. H.	MILES
		A2	8	MWF	206 U. H.	MOORE
		C1	10	MWF	206 U. H.	CRATHORNE
		C2	10	MWF	158 Math.	EMCH
		C3	10	MWF	210 Chem. Annex	BRISTOW

9. Integral Calculus.—*Prerequisite:* Math. 7.

Math. 9	3	B	9	TTS	158 Math.	WILSON
		D	11	TTS	202 U. H.	BOURGIN
		G1	3	MWF	155 Math.	LEVY
		G2	3	MWF	206 U. H.	HOERSCH
		H	4	MWF	159 Math.	KETCHUM

Courses for Advanced Undergraduates and Graduates

16. Differential Equations and Advanced Calculus.—*Prerequisite:* Math. 7 and 9 (or 8).

Math. 16	3	A	8	MWF	105 Entom.	BAILEY
		E	1	MWF	110 L. H.	STEIMLEY

22. Statistics.—*Prerequisite:* Math. 2 and 6, junior standing. (3). 11 MWF; 206 U. H. Associate Professor CRATHORNE.

30. Actuarial Theory.—*Prerequisite:* Math. 7 and 9 (or 8). (3). 9 MWF; 254 Math. Associate Professor CRATHORNE.

35. Teachers Course.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 10 MWF; 103 Entom. Associate Professor LYTLE.

36. Advanced Aspects of Euclidean Geometry.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 11 MWF; 103 Entom. Associate Professor LYTLE.

52. Integral and Operational Equations in Mathematical Physics.—*Prerequisite:* Math. 16, 17. (3). 10 TTS; 366 Math. Dr. BOURGIN.

70. Introduction to Higher Algebra.—*Prerequisite:* Math. 7 and 9. (3). 10 TTS; 254 Math. Professor COBLE.

71. Introduction to Higher Analysis.—*Prerequisite:* Math. 7 and 9. (3). 11 MWF; 156 Math. Assistant Professor BRAHANA.

72. Introduction to Higher Geometry.—*Prerequisite:* Math. 7 and 9. (3). 2 MWF; 254 Math. Assistant Professor LEVY.

90a. Undergraduate Thesis.—*Prerequisite:* 24 hours of college mathematics. (2). Arrange.

Courses for Graduates

100. Seminar and Thesis.—(1-2 units).* Arrange.

112. Linear Difference Equations.—(1 unit). 11 MWF; 254 Math. Professor CARMICHAEL.

131. Algebraic Geometry.—(1 unit). 8 MWF; 254 Math. Professor EMCH.

139. Analysis Situs.—(1 unit). 9 MWF; 366 Math. Dr. WILSON.

141. Vector Methods.—(1 unit). 1 MWF; 254 Math. Dr. KETCHUM.

145. Linear Operations.—(1 unit). 1 MWF; 366 Math. Professor SHAW.

170. Algebra.—(1 unit). 10 MWF; 254 Math. Associate Professor HAZLETT.

171. Analysis.—(1 unit). 11 TTS; 254 Math. Professor CARMICHAEL.

172. Geometry.—(1 unit). 9 TTS; 254 Math. Professor COBLE.

MECHANICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $4.50.

1. Steam and Air Machinery.—*Prerequisite:* Math. 9, Phys. 1 and 3.

M. E. 1	3	E	9	MWF	208 M. E. L.
		F	1	MWF	208 M. E. L.
		GU	8	MWF	208 M. E. L.
		H	10	MWF	216 M. E. L.

3. Steam Engineering.—*Prerequisite:* M. E. 10, registration in M. E. 61.

M. E. 3	3	LM	10	TTS	216 M. E. L.
		JKNV	11	TTS	216 M. E. L.

7. Internal Combustion Engines.—*Prerequisite:* M. E. 6. (3). Sec. PQ, 11 MWF; 208 M. E. L.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

10. Thermodynamics.—*Prerequisite:* Math. 9, Phys. 1 and 3.

Subject	Credits	Section	Hours	Days	Room	Instructor
M. E. 10	3	LY	8	MWF	217 M. E. L.	
		KN	10	MWF	217 M. E. L.	

13. Thermodynamics.—*Prerequisite:* Math. 9, Phys. 1 and 3.

M. E. 13	3	PS	10	WF	202 T. B.
			10-12	S	218 Cer.
		QRW	11	TT	202 T. B.
			10-12	S	218 Cer.

17. Refrigeration Engineering.—*Prerequisite:* M. E. 16.

M. E. 17	3	PQ	11	MW	202 T. B.
			8-10	S	112 T. B.

23. Mechanical Equipment of Buildings.—*Prerequisite:* Senior standing.

M. E. 23	5	C	11	MWFS	M. E. L.
			8-11	W	M. E. L.

25. Heating and Ventilation for Architects.—*Prerequisite:* Senior standing. (2). Sec. A, 11 TT; M. E. L.

31. Mechanics of Machinery.—*Prerequisite:* Registration in T. A. M. 2.

M. E. 31	5	PQ	8	MWF	216 T. B.
			8-11	TT	216 T. B.
		RS	1	MWF	216 T. B.
			1-4	TT	216 T. B.

33. Aeronautical Engineering.—*Prerequisite:* Senior standing. (3). Sec. PQ, 11 MWF; 216 M. E. L.

41. Mechanical Engineering Design.—*Prerequisite:* M. E. 40.

M. E. 41	4	P	8	TT	112, 114 T. B.
			8-11	MWF	112, 114 T. B.
		Q	1	TT	112, 114 T. B.
			1-4	MWF	112, 114 T. B.

61. Mechanical Engineering Laboratory.—*Prerequisite:* M. E. 1 or 2 or 3.

M. E. 61	2	LMCh1	1-4	MF	M. E. L.
		KVCh2	1-4	W	M. E. L.
			8-11	S	M. E. L.
		N	8-11	MF	M. E. L.

65. Mechanical Engineering Laboratory.—*Prerequisite:* M. E. 64.

M. E. 65	3	P	1-5	TT	M. E. L.
		Q	8-12	TT	M. E. L.

85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing.

M. E. 85	3	J2KP	8-12	TT	Pat. Lab.
		LQ	8-12	MF	Pat. Lab.
		MR	1-5	TT	Pat. Lab.
		J1NS	1-5	MF	Pat. Lab.

87. Machine Laboratory.—*Prerequisite:* M. E. 85 and junior standing.

M. E. 87	3	JKS	8-12	TT	Mach. Lab.
		LR	8-12	MF	Mach. Lab.
		MPV	1-5	TT	Mach. Lab.
		NQW	1-5	MF	Mach. Lab.

89. Heat Treatment of Metals.—*Prerequisite:* Senior standing in Mechanical or Railway Mechanical Engineering.

M. E. 89	3	P	2-4	MWF	Mach. Lab.
		QW	8-10	MWF	Mach. Lab.

97. Thesis.—*Prerequisite:* Senior standing. (3). Time to be arranged.

99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

Entrance on graduate work in Mechanical Engineering presupposes the full undergraduate course in that subject.

107. Thermodynamics.—Application of thermodynamics to the solution of physical and engineering problems. (1 unit). Twice a week; time to be arranged. Associate Professor Goff.

108. The Flow of Fluids and Heat Transfer.—The application of dimensional analysis and other rational formulas. Special problems. (1 unit). Twice a week; time to be arranged. Professor Macintire.

109. Machine Design.—Rational design; the application of mechanics of materials. Individual problems. (1 unit). Twice a week; time to be arranged. Professor Leutwiler.

112. Laboratory Investigation.—Combustion of fuel, boiler economy; steam engines and turbines; gas engines and producers; explosive mixtures; mechanical refrigeration; heating and ventilation. Original work. (1½ units). Three times a week; time to be arranged. Professors Willard, Polson, Kratz, Ham, Macintire.

MECHANICS, THEORETICAL AND APPLIED

Note: Certain courses in this department require laboratory fees varying from $1 to $2.50.

1. Analytical Mechanics (Statics).—*Prerequisite:* Math. 7; registration in Math. 9.

Subject	Credits	Section	Hours	Days	Room	Instructor
T. A. M. 1	2	A	9	TT	202 E. H.	
		B	9	TT	315 M. T. L.	
		C	9	WF	101 E. H.	
		D	4	TT	202 E. H.	
		E	4	TT	305 M. T. L.	

2. Analytical Mechanics (Kinetics).—*Prerequisite:* T. A. M. 1.

T. A. M. 2	3	X	8	MWF	305 M. T. L.	
		M	8	TTS	309 M. T. L.	
		R	8	TTS	202 E. H.	
		F	9	MWF	305 M. T. L.	
		K	9	TTS	305 M. T. L.	
		N	9	TTS	313 M. T. L.	
		E	10	MWF	202 E. H.	
		G	10	MWF	305 M. T. L.	
		O	10	MWF	104 P. L.	
		Y	10	MWF	309 M. T. L.	
		H	11	MWF	305 M. T. L.	
		P	11	MWF	202 E. H.	
		S	11	MWF	309 M. T. L.	
		LQ	1	TT	305 M. T. L.	
			8	S	305 M. T. L.	
		J	3	MWF	305 M. T. L.	

3. Resistance of Materials.—*Prerequisite:* T. A. M. 1 or 20.

T. A. M. 3	3	Ch1	8	MWF	313 M. T. L.	
		H	8	MWF	309 M. T. L.	
		C	9	MWF	315 M. T. L.	
		J	9	MWF	309 M. T. L.	
		Q	9	MWF	313 M. T. L.	
		S	9	MWF	202 E. H.	
		F	10	MWF	313 M. T. L.	
		W	10	MWF	315 M. T. L.	
		Ch2	11	MWF	104 P. L.	
		E	11	MWF	315 M. T. L.	
		G	11	MWF	205 E. H.	
		X	11	MWF	313 M. T. L.	
		P	1	MWF	305 M. T. L.	
		D	2	MWF	305 M. T. L.	
		R	2	MWF	202 E. H.	

4. Hydraulics.—*Prerequisite:* Registration in T. A. M. 2.

T. A. M. 4	2	Y	8	TT	305 M. T. L.	
		M	9	TT	309 M. T. L.	
		K	10	TT	309 M. T. L.	
		N	10	TT	305 M. T. L.	
		L	2	TT	305 M. T. L.	

17. Statics.—*Prerequisite:* Math. 6a.

T. A. M. 17	3	A	8-10	M	112 M. T. L.	
			8	WF	315 M. T. L.	
		B	9-11	F	112 M. T. L.	
			10	MW	108 P. L.	

63. Resistance of Materials Laboratory.—*Prerequisite:* Registration in T. A. M. 3.

T. A. M. 63	1	X	8-10	T	M. T. L.	
		R	8-10	W	M. T. L.	
		F	8-10	Th	M. T. L.	
		Z	10-12	W	M. T. L.	
		C	10-12	F	M. T. L.	
		G	1-3	M	M. T. L.	
		Ch1	1-3	T	M. T. L.	
		J	1-3	W	M. T. L.	
		Ch2	1-3	Th	M. T. L.	
		H	1-3	F	M. T. L.	
		P	3-5	M	M. T. L.	
		Q	3-5	T	M. T. L.	
		E	3-5	W	M. T. L.	
		D	3-5	Th	M. T. L.	
		S	3-5	F	M. T. L.	

64. Hydraulics Laboratory.—*Prerequisite:* Registration in T. A. M. 4.

T. A. M. 64	1	N	10-12	M	M. T. L.	
		Y	10-12	T	M. T. L.	
		M	1-3	M	M. T. L.	
		L	3-5	T	M. T. L.	
		K	1-3	W	M. T. L.	

Courses for Advanced Undergraduates and Graduates

41. Advanced Mechanics of Materials.—*Prerequisite:* T. A. M. 3 and 63. (3). Time to be arranged. Professor SEELY.

43. Laboratory Work in Hydraulics.—Advanced experimental work in hydraulics. *Prerequisite:* T. A. M. 4 and 64. (2). Time to be arranged. Professor ENGER.

45. Advanced Technical Statics.—*Prerequisite:* T. A. M. 1, 3, and 63, or equivalent work in mathematics and physics. (3). Time to be arranged. Professor WESTERGAARD.

Courses for Graduates

101. Analytical Mechanics.—(1 unit). Twice a week; time to be arranged. Professor MOORE.

104. Experimental Work in the Laboratory of Applied Mechanics.—(1-2 units).* Twice a week; time to be arranged. Professors MOORE, ENGER, RICHART.

105. Experimental and Analytical Work in Reinforced Concrete.—(1-2 units).* Twice a week; time to be arranged. Professor RICHART.

106. Theory of Elasticity and Applications to Engineering Problems.—(1 unit). Three times a week; time to be arranged. Professor WESTERGAARD.

MILITARY BANDS

Note: The following courses are open only to those who have passed the examination for admittance to one of the bands. All new students who play band instruments and who desire to try for places in the bands should make application at the Band Office, in the Band Building, at the earliest possible time. Those who are accepted for membership will be given a slip indicating that they have been accepted.

Service in the bands takes the place of the regular military drill.

1. Freshman Band.—(1). Twice a week. Days and section to be assigned according to proficiency. Director HARDING.

3. Sophomore Band.—(1). See foregoing. Director HARDING.

5. Junior Band.—Twice a week. Days and section to be assigned. Director HARDING.

7. Senior Band.—See foregoing. Director HARDING.

MILITARY SCIENCE

All military courses consist of two parts designated by the same number: a practical course lettered with "a" and a theoretical course lettered with "b." Students who have had training in a senior R. O. T. C. unit are permitted to register for work one year advanced for each year they have had in the senior unit. All students who register for junior and senior courses are required to sign a contract with the Government to take five hours of military per week during two years in the University and to attend one summer camp of six weeks.

Infantry

1a. Freshman Infantry.

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 1a	½	Co. A	8-10	M	Arm.	MILAN
		Co. B	8-10	M	Arm.	
		Co. E	10-12	W	Arm.	
		Co. G	1-3	Th	Arm.	
		Co. H	1-3	Th	Arm.	
		Co. L	10-12	S	Arm.	
		Co. M	10-12	S	Arm.	

1b. Freshman Infantry.

Mil. Sci. 1b	½	1	10	M	150 Arm.	MILAN
		2	11	M	150 Arm.	
		3	9	T	150 Arm.	
		4	1	T	150 Arm.	
		5	2	T	150 Arm.	
		6	8	W	150 Arm.	
		7	9	W	150 Arm.	
		8	1	W	150 Arm.	
		9	2	W	150 Arm.	
		10	9	Th	150 Arm.	
		11	10	Th	150 Arm.	
		12	11	Th	150 Arm.	
		13	9	F	150 Arm.	
		14	10	F	150 Arm.	
		15	11	F	150 Arm.	
		16	9	S	150 Arm.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

3a. Sophomore Infantry.

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 3a	½	Co. C	1-3	M	Arm.	INNIS
		Co. D	10-12	W	Arm.	
		Co. F	1-3	Th	Arm.	
		Co. I	10-12	S	Arm.	
		Co. K	10-12	S	Arm.	

3b. Sophomore Infantry.

Mil. Sci. 3b	½	50	10	M	151 Arm.	INNIS
		51	11	M	151 Arm.	
		52	3	M	151 Arm.	
		53	10	T	151 Arm.	
		54	11	T	151 Arm.	
		55	9	W	151 Arm.	
		56	11	Th	151 Arm.	
		57	3	Th	151 Arm.	
		58	9	F	151 Arm.	
		59	9	S	151 Arm.	

5a. Junior Infantry.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 5a	½	Group I	10-12	W	Arm.	KELLOGG
		and	4	F	Arm.	
		Group II	1-3	Th	Arm.	
		and	4	F	Arm.	

5b. Junior Infantry.—*Prerequisite:* First and second year basic credits.

Mil. Sci. 5b	1	80	10-12	M	152 Arm.	KELLOGG
		81	1-3	T	152 Arm.	
		82	1-3	W	152 Arm.	
		83	10-12	Th	152 Arm.	
		84	10-12	F	151 Arm.	

7a. Senior Infantry.—(Cadet Officers only.)

Mil. Sci. 7a	½	Co.'s A to M incl.	(See 1a and 3a for hours.)			STEVENS
		and	4	F	Arm.	

7b. Senior Infantry.—(Cadet Officers only.)

Mil. Sci. 7b	1	90	9	TT	151 Arm.	STEVENS
		91	2	TT	151 Arm.	
		92	2	WF	151 Arm.	

Field Artillery

11a. Freshman Field Artillery.

Mil. Sci. 11a	½	1st Bn.	3-5	M	Arm.	BUSCH
		2nd Bn.	1-3	T	Arm.	WEILAND
		3rd Bn.	3-5	W	Arm.	
		4th Bn.	3-5	Th	Arm.	
		5th Bn.	1-3	F	Arm.	

11b. Freshman Field Artillery.

Mil. Sci. 11b	½	100	9	M	155 Arm.	BUSCH
		101	10	M	155 Arm.	WEILAND
		102	11	M	155 Arm.	LEE
		103	2	M	155 Arm.	
		104	9	T	155 Arm.	
		105	10	T	155 Arm.	
		106	11	T	155 Arm.	
		107	9	W	155 Arm.	
		108	10	W	155 Arm.	
		109	11	W	155 Arm.	
		110	9	Th	155 Arm.	
		111	10	Th	155 Arm.	
		112	11	Th	155 Arm.	
		113	2	Th	155 Arm.	
		114	9	F	155 Arm.	
		115	10	F	155 Arm.	
		116	11	F	155 Arm.	

13a. Sophomore Field Artillery.

Mil. Sci. 13a	½	1st Bn.	3-5	M	Arm.	DALFERES
		2nd Bn.	1-3	T	Arm.	LEE
		3rd Bn.	3-5	W	Arm.	
		4th Bn.	3-5	Th	Arm.	
		5th Bn.	1-3	F	Arm.	

13b. Sophomore Field Artillery.

Mil. Sci. 13b	½	130	9	M	154 Arm.	DALFERES
		131	10	M	154 Arm.	LEE
		132	11	M	154 Arm.	
		133	9	T	154 Arm.	
		134	10	T	154 Arm.	

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 13b	½	135	11	T	154 Arm.	
		136	10	W	154 Arm.	
		137	9	Th	154 Arm.	
		138	10	Th	154 Arm.	
		139	11	Th	154 Arm.	
		140	9	F	154 Arm.	
		141	10	F	154 Arm.	
15a. Junior Field Artillery.—*Prerequisite:* Mil. Sci. 14a.						
Mil. Sci. 15a	½	1st Bn.	3-5	M	Arm.	DAUGHERTY
		2nd Bn.	1-3	T	Arm.	
		3rd Bn.	3-5	W	Arm.	
		4th Bn.	3-5	Th	Arm.	
		5th Bn.	1-3	F	Arm.	
15b. Junior Field Artillery.—*Prerequisite:* Mil. Sci. 14b.						
Mil. Sci. 15b	1	160	9	M	152 Arm.	DAUGHERTY
		and	9	W	152 Arm.	
		and	4	F	152 Arm.	
		161	11	M	153 Arm.	
		and	11	W	153 Arm.	
		and	4	F	154 Arm.	
		162	9	T	152 Arm.	
		and	9	Th	152 Arm.	
		and	4	F	152 Arm.	
		163	10	T	153 Arm.	
		and	10	Th	153 Arm.	
		and	4	F	152 Arm.	
17a. Senior Field Artillery.—*Prerequisite:* Mil. Sci. 16a.						
Mil. Sci. 17a	½	1st Bn.	3-5	M	Arm.	MCCLEAVE
		2nd Bn.	1-3	T	Arm.	
		3rd Bn.	3-5	W	Arm.	
		4th Bn.	3-5	Th	Arm.	
		5th Bn.	1-3	F	Arm.	
17b. Senior Field Artillery.—*Prerequisite:* Mil. Sci. 16b.						
Mil. Sci. 17b	1	190	9	M	153 Arm.	MCCLEAVE
		and	9	W	153 Arm.	
		and	4	F	155 Arm.	
		191	10	M	153 Arm.	
		and	10	W	153 Arm.	
		and	4	F	155 Arm.	
		192	9	T	153 Arm.	
		and	9	Th	153 Arm.	
		and	4	F	155 Arm.	
		193	11	T	153 Arm.	
		and	11	Th	153 Arm.	
		and	4	F	155 Arm.	
		Cavalry				
21a. Freshman Cavalry.						
Mil. Sci. 21a	½	1A	10-12	M	Arm.	STRAWN
		1B	8-10	T	Arm.	PATTERSON
		1C	8-10	Th	Arm.	
		1D	10-12	Th	Arm.	
		1E	8-10	F	Arm.	
		1F	10-12	F	Arm.	
21b. Freshman Cavalry.						
Mil. Sci. 21b	½	201	1	M	146 Arm.	STRAWN
		202	2	M	146 Arm.	PATTERSON
		203	9	T	146 Arm.	
		204	10	T	146 Arm.	
		205	1	T	146 Arm.	
		206	8	W	146 Arm.	
		207	9	W	146 Arm.	
		208	2	W	146 Arm.	
		209	10	Th	146 Arm.	
		210	11	Th	146 Arm.	
		211	1	Th	146 Arm.	
		212	9	F	146 Arm.	
		213	10	F	146 Arm.	
		214	11	F	146 Arm.	
23a. Sophomore Cavalry.						
Mil. Sci. 23a	½	2A	8-10	M	Arm.	ROGERS
		2B	9-11	T	Arm.	BRYAN
		2C	9-11	F	Arm.	
		2D	8-10	S	Arm.	
		2E	10-12	S	Arm.	

23b. Sophomore Cavalry.

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 23b	½	221	10	M	147 Arm.	Rogers
		222	11	M	147 Arm.	Bryan
		223	11	T	146 Arm.	
		224	2	T	147 Arm.	
		225	3	T	147 Arm.	
		226	8	W	147 Arm.	
		227	9	W	147 Arm.	
		228	1	Th	147 Arm.	
		229	2	Th	147 Arm.	
		230	11	F	147 Arm.	
		231	2	F	147 Arm.	
		232	10	S	147 Arm.	

25a. Junior Cavalry.—*Prerequisite:* Mil. Sci. 24a.

Mil. Sci. 25a	½	3A	8-10	S	Arm.	Featherstone

25b. Junior Cavalry.—*Prerequisite:* Mil. Sci. 24b.

Mil. Sci. 25b	1	241	3-5	M	146 Arm.	Featherstone
			4	F	146 Arm.	
		242	3-5	T	146 Arm.	
			4	F	146 Arm.	
		243	8-10	Th	146 Arm.	
			4	F	146 Arm.	
		244	3-5	Th	146 Arm.	
			4	F	146 Arm.	

27a. Senior Cavalry.—*Prerequisite:* Mil. Sci. 26a.

Mil. Sci. 27a	½	1A-1F incl.	(See 21a and 23a for hours.)			Conard
		2A-2E incl.				Rogers
						Patterson

27b. Senior Cavalry.—*Prerequisite:* Mil. Sci. 26b.

Mil. Sci. 27b	1	251	3-5	M	147 Arm.	Conard
			4	F	147 Arm.	
		252	8-10	T	147 Arm.	
			4	F	147 Arm.	
		253	3-5	Th	147 Arm.	
			4	F	147 Arm.	
		254	9-11	F	147 Arm.	
			4	F	147 Arm.	

Engineers

31a. Freshman Engineers.

Mil. Sci. 31a	½	1st Bn.	3-5	W	Arm.	Lemen
		2nd Bn.	3-5	Th	Arm.	Griffiths
		3rd Bn.	10-12	S	Arm.	

31b. Freshman Engineers.

Mil. Sci. 31b	½	300	11	T	143 Arm.	Griffiths
		301	2	T	143 Arm.	
		302	3	T	143 Arm.	
		303	11	Th	143 Arm.	
		304	9	F	143 Arm.	
		305	10	F	143 Arm.	

33a. Sophomore Engineers.

Mil. Sci. 33a	½	1st-3rd Bn. incl.	(See 31a for hours.)		Arm.	Lemen
						Griffiths

33b. Sophomore Engineers.

Mil. Sci. 33b	½	320	11	T	145 Arm.	Lemen
		321	3	T	145 Arm.	
		322	4	T	145 Arm.	
		323	2	W	145 Arm.	
		324	11	Th	145 Arm.	

35a. Junior Engineers.—*Prerequisite:* Mil. Sci. 34a.

Mil. Sci. 35a	½	1st-3rd Bn. incl.	(See 31a for hours.)		Arm.	Lemen
						Griffiths

35b. Junior Engineers.—*Prerequisite:* Mil. Sci. 34b.

Mil. Sci. 35b	1	340	2-4	F	143 Arm.	Griffiths
		and	4	F	143 Arm.	
		341	8-10	S	143 Arm.	
		and	4	F	143 Arm.	

37a. Senior Engineers.—*Prerequisite:* Mil. Sci. 36a.

Mil. Sci. 37a	½	1st-3rd Bn. incl.	(See 31a for hours.)		Arm.	Lemen
						Griffiths

37b. Senior Engineers.—*Prerequisite:* Mil. Sci. 36b.

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 37b	1	350	9-11	F	145 Arm.	LEMEN
		and	4	F	145 Arm.	
		351	8-10	S	145 Arm.	
		and	4	F	145 Arm.	

Signal Corps

41a. Freshman Signal Corps.

Mil. Sci. 41a	½	A	3-5	T	Arm.	RHOADES
		B	3-5	W	Arm.	ENGERUD
		C	3-5	Th	Arm.	
		D	2-4	F	Arm.	

41b. Fresbman Signal Corps.

Mil. Sci. 41b	½	400	10	M	222 Arm.	RHOADES
		401	10	T	222 Arm.	ENGERUD
		402	8	W	222 Arm.	
		403	1	W	222 Arm.	
		404	1	Th	222 Arm.	
		405	10	F	222 Arm.	

43a. Sophomore Signal Corps.

Mil. Sci. 43a	½	A-D incl.	(See 41a for hours.)			RHOADES
						ENGERUD

43b. Sophomore Signal Corps.

Mil. Sci. 43b	½	410	9	T	222 Arm.	RHOADES
		411	11	T	222 Arm.	ENGERUD
		412	9	F	222 Arm.	
		413	11	F	222 Arm.	

45a. Junior Signal Corps.—*Prerequisite:* Mil. Sci. 44a.

Mil. Sci. 45a	½	A-D incl.	(See 41a for hours.)			RHOADES
						ENGERUD

45b. Junior Signal Corps.—*Prerequisite:* Mil. Sci. 44b.

Mil. Sci. 45b	1	420	3-5	M	222 Arm.	RHOADES
			4	F	222 Arm.	ENGERUD
		421	9-11	S	222 Arm.	
			4	F	222 Arm.	

47a. Senior Signal Corps.—*Prerequisite:* Mil. Sci. 46a.

Mil. Sci. 47a	½	A-D incl.	(See 41a for hours.)			RHOADES
						ENGERUD

47b. Senior Signal Corps.—*Prerequisite:* Mil. Sci. 46b.

Mil. Sci. 47b	1	430 Radio Engineering registration in E. E. 51.				BROWN
		431	3-5	M	145 Arm.	RHOADES
			4	F	222 Arm.	
		432	9-11	W	145 Arm.	
			4	F	222 Arm.	

Coast Artillery (Antiaircraft)

61a. Freshman Coast Artillery (AA).—

Mil. Sci. 61a	½	A	10-12	M	Arm.	MCBRIDE
		B	1-3	T	Arm.	
		C	8-10	Th	Arm.	
		D	8-10	F	Arm.	

61b. Freshman Coast Artillery (AA).—

Mil. Sci. 61b	½	601	9	M	144 Arm.	MCBRIDE
		602	1	M	144 Arm.	
		603	3	T	144 Arm.	
		604	10	W	144 Arm.	
		605	1	Th	144 Arm.	
		606	2	Th	144 Arm.	
		607	11	F	144 Arm.	
		608	1	F	144 Arm.	
		609	3	F	144 Arm.	

63a. Sophomore Coast Artillery (AA).—

Mil. Sci. 63a	½	E	10-12	M	Arm.	MCBRIDE
		F	1-3	T	Arm.	
		G	8-10	Th	Arm.	
		H	8-10	F	Arm.	

63b. Sophomore Coast Artillery (AA).—

Mil. Sci. 63b	½	621	2	M	144 Arm.	MCBRIDE
		622	9	T	144 Arm.	
		623	11	W	144 Arm.	
		624	3	Th	144 Arm.	
		625	10	F	144 Arm.	
		626	2	F	144 Arm.	

65a. Junior Coast Artillery (AA).—*Prerequisite:* First and second year basic credits.

Subject	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 65a	½	Group I	1-3	T	Arm.	CHAPMAN
		and	4	F	Arm.	
		Group II	10-12	F	Arm.	
		and	4	F	Arm.	

65b. Junior Coast Artillery (AA).—*Prerequisite:* First and second year basic credits.

Mil. Sci. 65b	1	631	1-3	M	145 Arm.	CHAPMAN
		632	10-12	Th	144 Arm.	

67a. Senior Coast Artillery (AA).—*Prerequisite:* Junior credits.

Mil. Sci. 67a	½	Batteries A to H	(See 61a and 63a for hours.)			
		and	4	F	144 Arm.	CHAPMAN

67b. Senior Coast Artillery (AA).—*Prerequisite:* Junior credits.

Mil. Sci. 67b	1	641	3-5	M	144 Arm.	CHAPMAN
		642	10-12	T	144 Arm.	

MINERALOGY

(See Geology.)

MINING ENGINEERING

Courses for Undergraduates

Note: Certain courses in this department require laboratory fees varying from $1 to $7.50.

1. Elements of Mining.—(For students in Mining Engineering only.) *Prerequisite:* Phys. 1b-3b. (3). 11 MW, 10-12 F; 206 T. B. Mr. NICHOLSON.

2. Mining Principles.—(For students in courses other than mining.) *Prerequisite:* Chem. and Phys.; junior standing. (3). 9 MWF; 206 T. B. Mr. NICHOLSON.

6. Mechanical Engineering of Mines.—*Prerequisite:* Min. 4 and 10; Mech. Eng. 62; T. A. M. 2, 4, and 64. (3). 10 MWF; 206 T. B. Professor CALLEN.

8. Mine Administration.—*Prerequisite:* Min. 4. (3). 10 TTS; 206 T. B. Mr. NICHOLSON.

9. Preparation of Coal and Ores.—*Prerequisite:* Chem. 24, Phys. 1b-3b, Geol. 20 or equivalent. (3). 11 TT, 1-4 W; 206 T. B. and Min. Lab. Assistant Professor MITCHELL.

13. Utilization of Fuels.—*Prerequisite:* Chem. 24; junior standing in College of Engineering. (3). 11 MF, 1-4 T; 206 T. B. and Min. Lab. Professor CALLEN.

41. Mining and Metallurgical Design.—*Prerequisite:* C. E. 88a, senior standing in Mining Engineering. (3). 9, 1-4 Th, 1-4 F; 207 T. B. Assistant Professor MITCHELL.

61. Elementary Mine Surveying.—*Prerequisite:* G. E. D. 1 or 4, Math. 4. (3). 1-4 TT, 1 F; 207 T. B. Mr. NICHOLSON.

69. Fire Assaying.—*Prerequisite:* Chem. 24, Geol. 20. (2). 1-5 M, 9 T; Min. Lab. Assistant Professor MITCHELL.

97. Thesis.—Hours arranged when thesis is permitted, in accordance with the regulations of the College of Engineering.

99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

101. Advanced Mining Practice.—(1 unit). Arrange time. Professor CALLEN.

102. Advanced Preparation of Coal and Ores.—(1 unit). Arrange time.

104.[1] Mining Reports.—(1 unit). Arrange time. Professor CALLEN.

105.[1] Welfare Work and Education among Mine Employees.—(1 unit). Arrange time. Professor CALLEN.

MUSIC

1. History of Music.—*Prerequisite:* One year of university work. (2). 11 MWF; Lect. Room, S. M. H. Associate Professor SCHWARTZ.

3. Theory of Music (Harmony).—*Prerequisite:* The consent of the Director. (3). 8 TTS; 103 S. M. H. Miss USRY.

5. Theory of Music (Advanced Harmony).—*Prerequisite:* Music 4.

Music 5	3	A	8	MWF	106 S. M. H.	USRY
		E	1	MWF	103 S. M. H.	KESSLER
		G	3	MWF	103 S. M. H.	USRY

[1]Of courses 104 and 105 only one will be given, at the election of students.

7. Strict Counterpoint.—*Prerequisite:* Music 6, or the consent of the Director.

Subject	Credits	Section	Hours	Days	Room	Instructor
Music 7	3	A	8	MWF	103 S. M. H.	KESSLER
		C	10	MWF	103 S. M. H.	KESSLER
		G	3	MWF	106 S. M. H.	KESSLER
(for Juniors only)		D	11	MWF	103 S. M. H.	MILES
(for Juniors only)		F	2	MWF	103 S. M. H.	MILES
		J	8	TTS	106 S. M. H.	KESSLER

9. Analysis, Musical Form.—*Prerequisite:* Music 6 and 8.

Music 9	2	T	9	MTh	103 S. M. H.	SCHWARTZ
		K	9	TT	103 S. M. H.	SCHWARTZ
		L	10	TT	103 S. M. H.	SCHWARTZ

11a. Composition.—*Prerequisite:* Music 9-10. (2). Arrange time. Associate Professor MILES.

12a. Advanced Composition.—*Prerequisite:* Music 11a-11b. (4). Arrange time. Associate Professor MILES.

13. Music Appreciation.—The appreciation of good music from the standpoint of the listener. Copiously illustrated with phonograph and reproducing piano. Primarily for students from the other colleges of the University. Attendance at Star Course concerts required.

Music 13	2	L	10	TT	Lecture Room Third Floor	Director STIVEN
(for P. S. M.)		P	3	TT	106 S. M. H.	KITCHELL

15. Instrumentation.—*Prerequisite:* Junior standing. (1 or 2).* 2 TT; Band Building. Professor HARDING.

17. Advanced Orchestration.—*Prerequisite:* Music 10, 15, and 16. (4). Arrange time. Professor HARDING.

21. Ear Training and Sight Singing.

Music 21	1	B	9	MW	106 S. M. H.	PERCIVAL
		W	11	MTh	106 S. M. H.	PERCIVAL
		D	11	WF	106 S. M. H.	PERCIVAL

23. Ear Training and Sight Singing.—*Prerequisite:* Music 22.

Music 23	1	K	9	TT	106 S. M. H.	PERCIVAL
		C	10	MW	106 S. M. H.	PERCIVAL
		L	10	TT	106 S. M. H.	PERCIVAL

25a. Public School Methods.—*Prerequisite:* Junior standing. (3). 2 MWTF; 106 S. M. H. Mr. HOLMES.

26a. Public School Methods.—*Prerequisite:* Music 25a and b. (3). 1 MTWT; 103 S. M. H. Miss KITCHELL.

27. Thesis.—Arrange.

30a. Accompanying and Ensemble.—*Prerequisite:* Junior standing. (½-1).* Arrange time.

31a. Accompanying and Ensemble.—*Prerequisite:* Music 30a-b. (½-1).* Arrange time.

32. Advanced History of Music.—*Prerequisite:* Music 1 and 2.

Music 32	1	B	9	W	103 S. M. H.	SCHWARTZ
		T	9	F	103 S. M. H.	SCHWARTZ

35. Recital Course in Applied Music.—(For Seniors in Music 45b, 65b, 75b, 85b, or 95b.) (4). Arrange time.

36. Recital Course in Applied Music.—(For Seniors in Music 55b.) (3). Arrange time.

37. Recital Course in Composition.—(For Seniors in Theory Major.) (4). Arrange time.

38a. Band Conducting.—*Prerequisite:* Music 16. (2). 2 M, 1 TT; Band Building. Professor HARDING.

APPLIED MUSIC COURSES

Students in the School of Music will receive 4 to 5 hours' credit for their major subject in Applied Music. They will ordinarily receive 2½ hours' credit for their minor subject. Students from other colleges will ordinarily receive 2 hours' credit if in accordance with the regulations of their college.

Courses in Applied Music which require one half-hour lesson per week of recitation and one hour daily of preparation receive 2 hours' credit.

Courses in Applied Music which require two twenty-minute lessons per week of recitation and one hour daily of preparation receive two and one-half hours' credit.

Courses in Applied Music which require two half-hour lessons per week of recitation and two hours daily of preparation receive 4 hours' credit.

Courses in Music 44a-b, 45a-b, 64a-b, 65a-b, 74a-b, 75a-b, 84a-b, 85a-b, require two half-hour lessons per week of recitation and *three* hours daily of preparation.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

PIANO

Associate Professor VAN DEN BERG, Miss WATT, Mr. MACNEILL, Mr. SCHOONMAKER, Miss DELANCY, Mrs. SULLIVAN, Miss USRY

Hours to be arranged.

42a-42b. Piano, First Year.—(2-4).*

43a-43b. Piano, Second Year.—(2-4).*

44a-44b. Piano, Third Year.—(2-5).*

45a-45b. Piano, Fourth Year.—(2-5).*

VOICE

Mr. JOHNSON, Mr. HAMP, Miss SUTHERLIN, Mr. JOHNSTON

Hours to be arranged.

52a-52b. Voice, First Year.—(2-4).*

53a-53b. Voice, Second Year.—(2-4).*

54a-54b. Voice, Third Year.—(2-4).*

55a-55b. Voice, Fourth Year.—(2-4).*

VIOLIN

Assistant Professor ROOSA, Mr. COHEN

Hours to be arranged.

62a-62b. Violin, First Year.—(2-4).*

63a-63b. Violin, Second Year.—(2-4).*

64a-64b. Violin, Third Year.—(2-5).*

65a-65b. Violin, Fourth Year.—(2-5).*

VIOLONCELLO

Mrs. SULLIVAN

Hours to be arranged.

72a-72b. Violoncello, First Year.—(2-4).*

73a-73b. Violoncello, Second Year.—(2-4).*

74a-74b. Violoncello, Third Year.—(2-5).*

75a-75b. Violoncello, Fourth Year.—(2-5).*

ORGAN

Associate Professor MILES, Mr. DEMMING

Hours to be arranged.

Students desiring to take organ will be obliged to pass without conditions the entrance examination in piano. Under no circumstances will they be accepted if their piano work falls below the standard represented by this examination.

82a-82b. Organ, First Year.—(2-4).*

83a-83b. Organ, Second Year.—(2-4).*

84a-84b. Organ, Third Year.—(2-5).*

85a-85b. Organ, Fourth Year.—(2-5).*

BAND AND ORCHESTRAL INSTRUMENTS

Mr. DVORAK, Mr. OVERGARD

Hours to be arranged.

92a-92b. Wind Instruments, First Year.—(2-4).*

93a-93b. Wind Instruments, Second Year.—(2-4).*

94a-94b. Wind Instruments, Third Year.—(2-4).*

95a-95b. Wind Instruments, Fourth Year.—(2-4).*

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

PHILOSOPHY

(See also Psychology and Education.)

For students entering prior to September, 1929

Major: 20 hours from any courses offered by the department, including Phil. 1, 2, 3, 4, and 7. Six hours in psychology may be counted toward a major in philosophy.

Minors: 20 hours in (a) psychology (at least 6 additional hours, if psychology is counted toward a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) botany, chemistry, mathematics, physics, zoology, geology. No course in any subject of the above groups may be counted for the minor requirement if it is excluded from the major requirement of its respective department.

For students entering after September 1, 1929

Major: 20 hours from any courses offered by the department, including Phil. 2, 3, 4, and 7. Six hours in psychology may be counted toward a major in philosophy.

Minors: 20 hours, excluding courses taken during the freshman year, in (a) psychology (at least 6 additional hours if psychology is counted toward a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) astronomy, botany, chemistry, mathematics, physics, zoology, geology. At least 8 hours must be offered in each subject, if two are chosen.

1. Logic.—*Prerequisite:* One year of university work.

Subject	Credits	Section	Hours	Days	Room	Instructor
Phil. 1	3	A	8	MWF	117 L. H.	Nicholson
		B	9	MWF	117 L. H.	Nicholson
		C	10	MWF	117 L. H.	DeLargy
		D	11	MWF	117 L. H.	DeLargy
		E	1	MWF	117 L. H.	Benjamin
		F	2	MWF	117 L. H.	Benjamin
		G	3	MWF	117 L. H.	DeLargy
		H	8	TTS	117 L. H.	Gotshalk
		I	9	TTS	117 L. H.	Gotshalk
		J	10	TTS	117 L. H.	Morrow
		K	11	TTS	117 L. H.	McClure
		L	10	MWF	219 L. H.	Kubitz
		M	11	MWF	308 Adm. (E)	Kubitz

Courses for Advanced Undergraduates and Graduates

3. History of Ancient and Medieval Philosophy.—*Prerequisite:* Junior standing.

Phil. 3	4	Lect.	10	TT	300 Math.	McClure
		A Disc.	11	Th	114 L. H.	DeLargy
		B Disc.	1	Th	117 L. H.	Gotshalk
		C Disc.	2	Th	117 L. H.	
		D Disc.	3	Th	117 L. H.	Nicholson
		E Disc.	2	F	136 L. H.	McClure
		F Disc.	3	F	136 L. H.	Morrow
		G Disc.	(To be arranged; graduate students only.)			McClure

7. Ethics.—*Prerequisite:* Three hours in philosophy and junior standing.

Phil. 7	3	Lect.	11	TT	109 L. H.	Morrow
		A Disc.	2	Th	128 L. H.	Morrow
		B Disc.	2	F	128 L. H.	Morrow

8. Philosophy of the Recent Past.—*Prerequisite:* Philosophy 4. (3). 10 MWF; 308 L. H. Assistant Professor Nicholson.

10. Concepts of Science.—*Prerequisite:* Three hours in philosophy and junior standing. (3). 9 MWF; 321 L. H. Assistant Professor Benjamin.

11. Philosophy of Religion (systematic).—*Prerequisite:* Three hours in philosophy. (3). 10 MWF; 333 L. H. Professor Tawney.

12. Philosophy of Art.—*Prerequisite:* Three hours in philosophy. (3). 2 MWF; 219 L. H. Assistant Professor Gotshalk.

20. Honors Course.—*Prerequisite:* Senior standing. (2). Time to be arranged.

Courses for Graduates

103. Ethics.—(1 unit). Hour to be arranged; 108 Adm. (E). Dean Daniels.

107. Aristotle.—(1 unit). Hour to be arranged. Professor McClure.

108. Plato.—(1 unit). Hour to be arranged. Professor Tawney.

110. Locke, Berkeley, Hume.—(1 unit). Hour to be arranged. Professor MORROW.

114. Theory of Knowledge.—(1 unit). Hour to be arranged. Assistant Professor BENJAMIN.

PHYSICAL EDUCATION FOR MEN

Note: Freshmen must register in Courses numbered 11, 12, 13, 14, 15, 16, and 17.
Sophomores must register in Courses numbered 21, 22, 23, 24, 25, 26, and 27.
Juniors and seniors MAY register in 33.
Students previously enrolled in Individual Gymnastics must continue to take this course until notified otherwise by the University Health Service.
All students excepting those taking Individual Gymnastics must elect a different course each semester.
For information, late registration, and changing sections, call at Room 201, Old Gymnasium.

Freshmen

11. Individual Gymnastics.—(Freshmen who do not pass the health examination are excused from Military and must register in this course.)

Subject	Credits	Section	Hours	Days	Room	Instructor
P. E. 11	1½	B	9	MTWTF	New Gym.	HANKNER
		C	10	MTWTF	New Gym.	HANKNER
		D	11	MTWTF	New Gym.	STAFFORD
		E	1	MTWTF	New Gym.	HANKNER
		F	2	MTWTF	New Gym.	HANKNER
		G	3	MTWTF	New Gym.	McCRISTAL
		H	4	MTWTF	New Gym.	HANKNER
		L	10	MTWTF	Gym. Annex	DERR
		M	11	MTWTF	Gym. Annex	DERR
		O	2	MTWTF	Wres. Room	BROWN
		P	3	MTWTF	Gym. Annex	DERR
		Q	4	MTWTF	Gym. Annex	DERR

12. Individual Gymnastics.—*Prerequisite:* P. E. 11.

P. E. 12	1½	B	9	MTWTF	New Gym.	HANKNER
		C	10	MTWTF	New Gym.	HANKNER
		D	11	MTWTF	New Gym.	STAFFORD
		E	1	MTWTF	New Gym.	HANKNER
		F	2	MTWTF	New Gym.	HANKNER
		G	3	MTWTF	New Gym.	McCRISTAL
		H	4	MTWTF	New Gym.	HANKNER
		L	10	MTWTF	Gym. Annex	DERR
		M	11	MTWTF	Gym. Annex	DERR
		O	2	MTWTF	Wres. Room	BROWN
		P	3	MTWTF	Gym. Annex	DERR
		Q	4	MTWTF	Gym. Annex	DERR

13. Beginning Swimming.—(This course is open to non-swimmers only. Freshmen who cannot swim fifty yards are advised to register in this course.)

P. E. 13	½	B	9	MW	Old Pool	CRAIG
		C	10	MW	Old Pool	TREECE
		D	11	MW	Old Pool	TREECE
		E	1	MW	Old Pool	YOUNG
		F	2	MW	Old Pool	YOUNG
		G	3	MW	Old Pool	YOUNG
		H	4	MW	Old Pool	YOUNG
		K	9	TT	Old Pool	CRAIG
		L	10	TT	Old Pool	TREECE
		M	11	TT	Old Pool	TREECE
		O	2	TT	Old Pool	YOUNG
		P	3	TT	Old Pool	YOUNG
		Q	4	TT	Old Pool	YOUNG

14. Individual Athletics.

P. E. 14	½	A	8	MW	Old Gym.	YOUNG
		B	9	MW	Old Gym.	YOUNG
		C	10	MW	Old Gym.	LAW
		F	2	MW	Old Gym.	DERR
		G	3	MW	Old Gym.	LAW
		K	9	TT	Old Gym.	YOUNG
		L	10	TT	Old Gym.	LAW

15. Tumbling Stunts.

P. E. 15	½	A	8	MW	Old Gym.	BURT
		B	9	MW	Old Gym.	BURT
		C	10	MW	Old Gym.	YOUNG

Subject	Credits	Section	Hours	Days	Room	Instructor
P. E. 15	½	D	11	MW	Old Gym.	Burt
		E	1	MW	Old Gym.	Brown
		J	8	TT	Old Gym.	Derr
		K	9	TT	Old Gym.	Burt
		L	10	TT	Old Gym.	Young
		M	11	TT	Old Gym.	McCristal
		N	1	TT	Old Gym.	Brown
		O	2	TT	Old Gym.	Burt
		P	3	TT	Old Gym.	Law
16. Soccer Football.						
P. E. 16	½	C	10	MW	Soccer Field	Kenney
		D	11	MW	Soccer Field	Law
		E	1	MW	Soccer Field	Treece
		F	2	MW	Soccer Field	Treece
		G	3	MW	Soccer Field	Paterson
		H	4	MW	Soccer Field	Paterson
		L	10	TT	Soccer Field	Craig
		M	11	TT	Soccer Field	Craig
		N	1	TT	Soccer Field	Treece
		O	2	TT	Soccer Field	Treece
		P	3	TT	Soccer Field	Treece
		Q	4	TT	Soccer Field	Paterson
17. Gymnastic Dancing.						
P. E. 17	½	C	10	MW	New Gym.	Burt
		E	1	MW	New Gym.	McCristal
		G	3	MW	New Gym.	Burt
		H	4	MW	New Gym.	McCristal
		L	10	TT	New Gym.	Burt
		N	1	TT	New Gym.	McCristal
		P	3	TT	New Gym.	Burt
		Q	4	TT	New Gym.	McCristal
			Sophomores			
21. Individual Gymnastics.						
P. E. 21	1½	B	9	MTWTF	New Gym.	Hankner
		C	10	MTWTF	New Gym.	Hankner
		D	11	MTWTF	New Gym.	Stafford
		E	1	MTWTF	New Gym.	Hankner
		F	2	MTWTF	New Gym.	Hankner
		G	3	MTWTF	New Gym.	McCristal
		H	4	MTWTF	New Gym.	Hankner
		L	10	MTWTF	Gym. Annex	Derr
			11	MTWTF	Gym. Annex	Derr
		O	2	MTWTF	Wres. Room	Brown
		P	3	MTWTF	Gym. Annex	Derr
		Q	4	MTWTF	Gym. Annex	Derr
22. Individual Gymnastics.						
P. E. 22	1½	B	9	MTWTF	New Gym.	Hankner
		C	10	MTWTF	New Gym.	Hankner
		D	11	MTWTF	New Gym.	Stafford
		E	1	MTWTF	New Gym.	Hankner
		F	2	MTWTF	New Gym.	Hankner
		G	3	MTWTF	New Gym.	McCristal
		H	4	MTWTF	New Gym.	Hankner
		L	10	MTWTF	Gym. Annex	Derr
		M	11	MTWTF	Gym. Annex	Derr
		O	2	MTWTF	Wres. Room	Brown
		P	3	MTWTF	Gym. Annex	Derr
		Q	4	MTWTF	Gym. Annex	Derr
23. Advanced Swimming.						
P. E. 23	½	B	9	MW	New Pool	Treece
		C	10	MW	New Pool	Paterson
		D	11	MW	New Pool	Paterson
		E	1	MW	New Pool	Paterson
		F	2	MW	New Pool	Paterson
		J	8	TT	New Pool	Treece
		K	9	TT	New Pool	Treece
		L	10	TT	New Pool	Paterson
		M	11	TT	New Pool	Paterson
		N	1	TT	New Pool	Paterson
		O	2	TT	New Pool	Paterson
		P	3	TT	New Pool	Paterson
24. Boxing.						
P. E. 24	½	B	9	MW	Gym. Annex	
		C	10	MW	Gym. Annex	

Subject	Credits	Section	Hours	Days	Room	Instructor
P. E. 24	½	D	11	MW	Gym. Annex	
		E	1	MW	Gym. Annex	
		F	2	MW	Gym. Annex	
		J	8	TT	Gym. Annex	Law
		K	9	TT	Gym. Annex	
		L	10	TT	Gym. Annex	
		M	11	TT	Gym. Annex	
		N	1	TT	Gym. Annex	
		O	2	TT	Gym. Annex	
25. Wrestling.						
P. E. 25	½	B	9	MW	Wrestling Room	Law
		C	10	MW	Wrestling Room	McClure
		D	11	MW	Wrestling Room	McClure
		F	2	MW	Wrestling Room	Kenney
		G	3	MW	Wrestling Room	Kenney
		H	4	MW	Wrestling Room	Law
		K	9	TT	Wrestling Room	Law
		L	10	TT	Wrestling Room	McClure
		M	11	TT	Wrestling Room	Kenney
		O	2	TT	Wrestling Room	Kenney
		P	3	TT	Wrestling Room	Kenney
		Q	4	TT	Wrestling Room	Law
26. Fencing.						
P. E. 26	½	F	2	MW	Gym. Annex	Craig
		G	3	MW	Gym. Annex	Craig
		H	4	MW	Gym. Annex	Craig
		O	2	TT	Gym. Annex	Craig
		P	3	TT	Gym. Annex	Craig
		Q	4	TT	Gym. Annex	Craig
27. Apparatus Stunts.						
P. E. 27	½	D	11	MW	Old Gym.	McCristal
		H	4	MW	Old Gym.	Burt
		M	11	TT	Old Gym.	Law
		Q	4	TT	Old Gym.	Burt
		Juniors and Seniors				
9. Circus Stunts.						
P. E. 9	1	H	4	MW	Old Gym.	Jackson
		Q	4	TT	Old Gym.	Jackson
33. Tennis.						
P. E. 33	½	D	11	MW	Library Courts	Gelwick
		E	1	MW	Library Courts	Gelwick
		M	11	TT	Library Courts	Gelwick
		N	1	TT	Library Courts	Gelwick

PHYSICAL EDUCATION FOR WOMEN

Freshmen must register in courses numbered 42, 45, 46, 47, 49, and 51.

Sophomores may elect any course providing their four semesters of required work will include courses in some type of dancing, gymnastics, and swimming.

Major: (Subject of specialization) in the College of Education. 20 hours in courses given in the department in addition to required freshman and sophomore work.

40a. Gymnastics.—For freshman majors only. (1). 3 MTWTF; Woman's Gym. Miss Huelster.

41a. Gymnastics.—For sophomore majors only. (1). 2 MTWTF; Woman's Gym. Miss Robertson.

42. Sports and Gymnastics.						
P. E. 42	1	B	9	MWF	Woman's Gym.	Lawson
		C	10	MWF	Woman's Gym.	Kitzinger
		D	11	MWF	Woman's Gym.	Meares
		S	9	TT		
			3	M	Woman's Gym.	Meares
		T	10	TT		
			3	W	Woman's Gym.	Huelster
		V	11	TT		
			4	M	Woman's Gym.	Lawson
43. Seasonal Sports.						
P. E. 43	1	S	11	TT		
			10	W	Woman's Gym.	Meares
		T	3	TTF	Woman's Gym.	Robertson

44. Apparatus.—(1). 2 TT, 4 W; Woman's Gym. Miss Kitzinger.

45. Elementary Swimming.						
P. E. 45	1	C	10	MWF	W. B.	Stahmer and Haugh
		D	11	MWF	W. B.	
		F	2	MWF	W. B.	
		S	2	TT		
			1	F	W. B.	

46. Intermediate Swimming.

Subject	Credits	Section	Hours	Days	Room	Instructor
P. E. 46	1	B	9	MWF	W. B.	
		H	4	MWF	W. B.	
		S	10	TT		
			8	M	W. B.	

47. Elementary Clogging.

P. E. 47	1	C	10	MWF	W. B.	HUELSTER
		D	11	MWF	W. B.	HUELSTER
		S	2	MTT	W. B.	HUELSTER

48. Intermediate Clogging.—(1). 3 MWF; W. B. Miss KITZINGER.

49. Elementary Folk Dancing.

P. E. 49	1	D	11	MWF	Woman's Gym.	JOHNSON
		G	3	MWF	Woman's Gym.	JOHNSON

50. Intermediate Folk Dancing.—(1). 8 MWF; Woman's Gym. Miss ROBERTSON.

51. Elementary Rhythms.

P. E. 51	1	F	2	MWF	Woman's Gym.	JOHNSON
		S	10	TT		
			4	F	Woman's Gym.	JOHNSON

52. Intermediate Rhythms.—(1). 9 TT, 4 W; Woman's Gym. Miss JOHNSON.

53. Advanced Rhythms.—(1). Time to be arranged; Woman's Gym. Miss JOHNSON.

54. Advanced Swimming and Diving.

P. E. 54	1	S	11	TT		
			8	M	W. B.	STAHMER and
		T	3	TT		HAUGH
			8	F	W. B.	

55. Life Saving.—(1). 4 TT, 8 W; W. B. Miss STAHMER and Miss HAUGH.

56. Individual Gymnastics.

P. E. 56	1	B	9	MWF	Woman's Gym.	SCHNAUBER
		C	10	MWF	Woman's Gym.	SCHNAUBER
		D	11	MWF	Woman's Gym.	SCHNAUBER
		F	2	MWF	Woman's Gym.	MEARES
		G	3	MWF	Woman's Gym.	MEARES
		S	11	TT		
			1	W	Woman's Gym.	MEARES
		T	10	TT		
			1	M	Woman's Gym.	MEARES

10a. History of Physical Education.—*Prerequisite:* Senior standing in College of Education. (1). 11 TT; Woman's Gym. Professor FREER.

15a. Methods.—*Prerequisite:* Junior standing in the College of Education, or consent of instructor. (3). 9 MWF; Woman's Gym. Miss ROBERTSON.

16. Kinesiology.—*Prerequisite:* Junior standing, for students specializing in P. E.; registration in College of Education. (3). 8 MWF; Woman's Gym. Miss KITZINGER.

17a. Educational Practice.—*Prerequisite:* Senior standing in College of Education, P. E. 15 and 16. (3). 4 MWF; Woman's Gym. Assistant Professor LAWSON.

PHYSICS

Major: 20 hours from courses offered in the department. At least 5 hours must be offered from the advanced group.

Minors: 20 hours exclusive of courses taken during the freshman year in one or two of the following subjects, with not less than 8 hours in each department, if two subjects are chosen: Mathematics, astronomy, chemistry, education.

Physics 7a-7b and 8a-8b are recommended to students not specializing in physics, mathematics, chemistry, or engineering. For undergraduate students taking advanced work or a major in physics, the following courses are suggested.

Freshman year: Trigonometry (Math. 4) and chemistry.
Sophomore year: Physics 1a-1b, 3a-3b, or Physics 7a-7b, 8a-8b.
Junior year: Physics 14, 16, 23, 36, 44.
Senior year: Physics 14, 20, 22, 30, 45, 46, 78, 97, 98.

Introductory Courses for Undergraduates

Note: Certain courses in this department require laboratory fees varying from $1.50 to $4.50.

1a. General Physics.—*Prerequisite:* Credit in Math. 2 and 4; registration in Math. 6 and Physics 3a.

Physics 1a	3	Lect. A	9	MW	100 P. L.	SCHULZ, KRUGER,
		Lect. B	11	MW	100 P. L.	MOTT-SMITH
		Lect. C	2	MW	100 P. L.	and [illegible]
		Quiz A	8	TT	204, 305, 306 P. L.	
		Quiz B	9	TT	204, 302, 303 P. L.	
		Quiz C	10	TT	305, 403 P. L.	

Subject	Credits	Section	Hours	Days	Room	Instructor
Physics 1a	3	Quiz D	11	TT	305, 306, 403, 406 P. L.	
		Quiz E	1	TT	204, 306 P. L.	
		Quiz F	2	TT	204, 305, 403, 406 P. L.	
		Quiz G	9	WF	302, 306 P. L.	
		Quiz H	10	WF	305 P. L.	
		Quiz J	1	WF	306 P. L.	
		Quiz K	3	WF	406 P. L.	

3a. Physical Measurements.—*Prerequisite:* Physics 1a or registration therein.

Physics 3a	2	A	9-12	M	305, 403, 406 P. L.	SCHULZ,
		B	1-4	M	305, 403, 406 P. L.	KRUGER,
		C	9-12	T	305, 406, 408 P. L.	and others
		D	1-4	T	305, 403, 406 P. L.	
		E	9-12	W	104, 108, 403 P. L.	
		F	1-4	W	305, 403, 406 P. L.	
		G	8-11	Th	403, 406 P. L.	
		H	1-4	Th	305, 403, 406 P. L.	
		J	1-4	F	305, 406 P. L.	
		K	9-12	S	305, 403 P. L.	

7a. General Physics.—*Prerequisite:* Math. 4 or registration therein; sophomore standing; registration in Physics 8a.

Physics 7a	3	Lect. A	9	TT	100 P. L.	WATSON,
		Lect. B	11	TT	100 P. L.	PATON, and
		Quiz A	8	WF	208, 305 P. L.	others
		Quiz B	9	WF	208, 305, 406 P. L.	
		Quiz C	10	WF	208, 302, 306 P. L.	
		Quiz D	11	WF	208, 302, 305 P. L.	
		Quiz E	2	TT	208, 302 P. L.	

8a. Introductory Laboratory Physics.—*Prerequisite:* Registration in Physics 7a.

Physics 8a	2	A	9-12	M	208, 302 P. L.	PATON and
		B	1-4	M	208, 302 P. L.	others
		C	8-11	T	208 P. L.	
		D	1-4	T	208, 302 P. L.	
		E	1-4	W	208, 302 P. L.	
		F	1-4	Th	208, 302 P. L.	
		G	2-5	F	208, 302 P. L.	
		H	9-12	S	208, 302 P. L.	

Intermediate Course

17a. Light.—*Prerequisite:* Physics 1a-1b, 3a-3b; or Physics 7a-7b, 8a-8b. (3). 9 TT, 119 P. L.; 2-5 F, 313 P. L. Associate Professor SCHULZ.

Courses for Advanced Undergraduates and Graduates

14a. Theoretical Mechanics.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 8a-8b or 7 and 9. (3). 8 MWF; 204 P. L. Mr. MOTT-SMITH.

16. Heat.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 7 and 9 or 8a-8b. (3). 10 TTS; 204 P. L. Associate Professor PATON.

20a. Light.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 8a-8b or 7 and 9. (2). 11 TT; 204 P. L. Dr. ALMY.

22a. Light Laboratory.—*Prerequisite:* Registration in Physics 20a. (2). 2-5 MW; 313 P. L. Dr. ALMY.

23. Sound.—*Prerequisite:* Physics 1a-1b, 3a-3b; or Physics 7a-7b, 8a-8b. (3). 9 MWF; 204 P. L. Professor WATSON.

36. Heat Laboratory.—*Prerequisite:* Registration in Physics 16. (1). 2-5 T; 213 P. L. Associate Professor PATON.

44a. Electrical and Magnetic Measurements.—*Prerequisite:* Physics 1a-1b, 3a-3b; or Physics 7a-7b, 8a-8b; Math. 8a-8b or 7 and 9.

Physics 44a	3	K	1-4	TT	112 P. L.	KNIPP, WILLIAMS,
		L	8-11	TT	112 P. L.	and others
		M	8-11	MF	112 P. L.	
		N	1-4	MF	112 P. L.	
		Y	1-4	W	112 P. L.	
			8-11	S	112 P. L.	

46. Advanced Electrical Measurement.—*Prerequisite:* Physics 44a and 44b or their equivalent. Consult instructor. (2). 1-4 WF; 102 P. L. Associate Professor WILLIAMS.

50. Theory and Use of Optometric and Other Optical Instruments.—*Prerequisite:* Registration in Physics 17. (4). 3 MW, 3-5 TT; 313 P. L. Associate Professor SCHULZ.

97. Thesis.—(2-5).* Professors in the department.

Courses for Graduates

104a. Electrical and Magnetic Measurements.—(1 unit). Arrange. 112 P. L. Professor KNIPP and Associate Professor WILLIAMS.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

123a. Advanced Sound.—(½ unit). 11 MW; 204 P. L. Professor WATSON.

124. Conduction of Electricity through Gases.—(1 unit). 9 MWF; 119 P. L. Professor KNIPP.

129a. Mechanical Vibrations.—(½ unit). 8 TT; 302 P. L. Professor KUNZ.

132e. Statistical Mechanics.—(1 unit). 10 TTS; 302 P. L. Professor LOOMIS and Mr. MOTT-SMITH.

146a. Electrodynamics.—(1 unit). 8 MWFS; 302 P. L. Professor KUNZ.

170. Light.—Physical Optics and Spectroscopy. (1-2 units).* Arrange. 313 P. L. Dr. ALMY.

184. Line Spectra and Atomic Structure.—(1 unit). 10 MWF; 204 P. L. Professor LOOMIS.

186a. Quantum Mechanics.—(1 unit). 9 TTS; 306 P. L. Assistant Professor BARTLETT.

190. Research.—(1-2 units).* Arrange; P. L. Professors in the department.

198. Seminar.—(1-2 units).* Arrange; P. L. Professors in the department.

199. Physics Colloquium.—(No credit). 7:15 p.m., Th; 119 P. L. Professor LOOMIS.

PHYSIOLOGY

For students entering prior to September, 1929

Major: 20 hours from courses offered in the department exclusive of Physiology 1.

Minors: 20 hours in not more than three of the following: Botany, bacteriology, chemistry, entomology, and zoology.

Seniors registered in Physiology 1, 2, 4, 6 will receive one hour less credit.

For students entering after September 1, 1929

Major: 20 hours from courses offered in the department exclusive of Physiology 1, and all courses taken during the freshman year.

Minors: 20 hours, excluding work taken during the freshman year, in not more than two of the following: Botany, bacteriology, chemistry, entomology, and zoology. At least eight hours must be offered in each subject if two are chosen.

Courses for Undergraduates

Note: Certain courses in this department require a laboratory fee of $3.50.

1. Elements of Physiology.—A survey of the field of mammalian physiology. *Note:* Seniors will receive 1 hour's credit only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Physiol. 1	2	Lect. and Demonstration	8	TT	228 N. H.	BURGE, ORTH, and others
		A Quiz	1	T	425 N. H.	
		B Quiz	10	T	425 N. H.	
		C Quiz	11	T	425 N. H.	
		D Quiz	11	Th	425 N. H.	
		E Quiz	10	Th	425 N. H.	
		F Quiz	8	S	425 N. H.	
		G Quiz	9	S	425 N. H.	

2. Physiology of Physical Exercise.—(Required of Athletic Coaching and Physical Education students.) *Prerequisite:* Physiol. 1 and sophomore standing. *Note:* Seniors will receive 3 hours' credit only.

Physiol. 2	4	Lect.	11	MW	103 New Agr.	ELHARDT and others
		A Lab.	8, 9, 10	T	413 N. H.	
		B Lab.	1, 2, 3	T	413 N. H.	
		C Lab.	8, 9, 10	Th	413 N. H.	
		D Lab.	1, 2, 3	Th	413 N. H.	
		E Lab.	8, 9, 10	S	413 N. H.	
		A Quiz	8	F	425 N. H.	
		B Quiz	9	F	425 N. H.	
		C Quiz	10	F	425 N. H.	

4. General Physiology.—(Not open to students who have had Physiol. 1.) *Note:* Seniors will receive 4 hours' credit only.

Physiol. 4	5	Lect. and Demonstration	8	TT	228 N. H.	BURGE, WILLIAMS, KNEE, and others
		A Quiz	10	M	425 N. H.	
		B Quiz	8	W	425 N. H.	
		C Quiz	9	W	423 N. H.	
		D Quiz	9	M	247 N. H.	
		A Lab.	8-10	MF	413 N. H.	
		B Lab.	10-12	WF	413 N. H.	
		C Lab.	11-1	TT	413 N. H.	
		D Lab.	1-3	MW	413 N. H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

6. Advanced Physiology.—(Recommended for the general student.) *Prerequisite:* Physiol. 1. *Note:* Seniors will receive 2 hours' credit only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Physiol. 6	3	Lect.	10	T	229 N. H.	WICKWIRE
		A Lab.	10, 11	M	413 N. H.	
		B Lab.	1, 2	F	413 N. H.	
		Quiz	10	Th	423 N. H.	

Courses for Advanced Undergraduates

7. Advanced Mammalian Physiology.—*Prerequisite:* Physiol. 1 or 4, and 6.

Physiol. 7	3	Lect.	11	F	211 U. H.	BURGE
		Quiz	9	W	425 N. H.	WICKWIRE
		Lab.	10, 11	W	413 N. H.	

8. Thesis.—*Prerequisite:* Senior standing and 15 hours of physiology. (3-5).* Time to be arranged before registration. Associate Professor BURGE.

Courses for Graduates

101. Journal Club.—Review of literature. (¼ unit). Members of staff.

102. Research.—(1-2 units).* Associate Professor BURGE.

103. Experimental Physiology.—(½-1 unit).* Associate Professor BURGE.

POLITICAL SCIENCE

For students entering prior to September, 1929

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 27, 44, or 62).

Minors: 20 hours, selected from two of the following subjects: History, economics, law, sociology, philosophy, and education.

Courses 1 and 3 give a general survey of national, state, and local government in the United States. Undergraduates beginning the study of political science are advised to take first, course 1, 3, or 16, and those planning for advanced work should take course 1 and either 3 or 16 in their sophomore year. Course 3 is offered the second semester.

For students entering after September 1, 1929

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 27, 44, or 62).

Minors: 20 hours exclusive of courses taken during the freshman year, selected from two of the following subjects: History, economics, law, sociology, philosophy, and education. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

1. American National Government.—*Prerequisite:* 30 hours of university work.

Pol. Sci. 1	3	A1 Disc.	8	MWF	300 L. H.	LENOIR
		A2 Disc.	8	MWF	302 L. H.	KNEIER
		A3 Disc.	8	MWF	204 L. H.	HYNEMAN
		B1 Disc.	9	MWF	204 L. H.	HYNEMAN
		B2 Disc.	9	MWF	312 Adm. (E)	CARLETON
		B3 Disc.	9	MWF	308 L. H.	MATHEWS
		C1 Disc.	10	MWF	300 L. H.	LENOIR
		C2 Disc.	10	MWF	302 L. H.	CARLETON
		C3 Disc.	10	MWF	204 L. H.	BERRY
		D1 Disc.	11	MWF	300 L. H.	LENOIR
		D2 Disc.	11	MWF	340 L. H.	SIKES
		D3 Disc.	11	MWF	238 L. H.	STIMSON
		E1 Disc.	1	MWF	204 L. H.	SIKES
		E2 Disc.	1	MWF	238 L. H.	CARLETON
		F Disc.	2	MWF	238 L. H.	CARLETON
		G Disc.	3	MWF	204 L. H.	POWELL
		L Disc.	9	TTS	204 L. H.	STIMSON
		M Disc.	10	TTS	204 L. H.	STIMSON

Courses for Advanced Undergraduates and Graduates

Note: Junior standing is required for admission to the following courses.

4. Municipal Government.—*Prerequisite:* Junior standing.

Pol. Sci. 4	3	Lect.	9	TT	L. H. Theatre	KNEIER
		A Quiz	2	Th	300 L. H.	KNEIER
		B Quiz	3	Th	300 L. H.	KNEIER
		C Quiz	9	F	302 L. H.	KNEIER
		D Quiz	1	F	300 L. H.	KNEIER

6a. International Law: Law of Peace.—*Prerequisite:* Open to seniors, graduate students, and law students of junior standing. (3). 2 MWF; 304 L. H. Professor GARNER.

7. American Diplomacy.—*Prerequisite:* Pol. Sci. 1 or Hist. 3a-3b; junior standing. (3). 11 MWF; 204 L. H. Professor MATHEWS.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

11. Constitutional Aspects of Social and Industrial Problems.—*Prerequisite:* 6 hours of political science or economics; junior standing. (3). 10 MWF; 238 L. H. Assistant Professor HYNEMAN.

12. National Administration in the United States.—*Prerequisite:* Pol. Sci. 1; junior standing. (3). 9 MWF; 300 L. H. Professor FAIRLIE.

21. British Government.—*Prerequisite:* Graduate or senior standing, or junior standing with 6 hours of political science. (2). 2 TT; 308 L. H. Professor FAIRLIE.

21a. Problems in British Government.—(Supplemental to Political Science 21.) Special reports and conferences. *Prerequisite:* Registration in Political Science 21. (1). Arrange. Professor FAIRLIE.

36a. Thesis and Honors Course.—*Prerequisite:* Senior standing. (2-4).* Time to be arranged. Members of the Department.

Courses for Graduates

101. History of Political Theories.—(1 unit). 3 MWF; 304 L. H. Professor GARNER.

103. Seminar in Political Science and Public Law.—Once a week. Time to be arranged. Members of the department.

104. Municipal Administration.—(1 unit). Twice a week. Time to be arranged. Professor FAIRLIE.

105. Topics in Constitutional Law.—(1 unit). Twice a week. Time to be arranged. Professor MATHEWS.

106a. Special Topics in International Law.—(1 unit). Twice a week. Time to be arranged. Professor GARNER.

PSYCHOLOGY

For students entering prior to September, 1929

Major: 20 hours chosen from courses announced by the department, excepting 1.

Minors: 20 hours chosen from not more than three of the following subjects: Education, physiology, philosophy, sociology, and zoology.

For students entering after September 1, 1929

Major: 20 hours chosen from courses announced by the department, excepting 1. At least 5 hours must be offered in the advanced group.

Minors: 20 hours, excluding those taken during the freshman year, chosen from not more than two of the following subjects: Education, mathematics, physiology, sociology, and zoology. At least 8 hours must be offered in each, if two are chosen.

Courses for Undergraduates

Note: Certain courses in this department require a laboratory fee of $1.

1. Introduction to Psychology.—*Prerequisite:* One year of university work.

Subject	Credits	Section	Hours	Days	Room	Instructor
Psych. 1	4	Lect. A	9	MW	218 U. H.	CULLER
		Quiz A1	8	TT	211 U. H.	
Note: A and B quizzes may be elected with either Lecture A or B. C and D quizzes may be elected with either Lecture C or D.		A2	9	TT	211 U. H.	
		A3	10	TS	212 U. H.	
		A4	11	TT	211 U. H.	
		A5	11	TT	404 U. H.	
		A6	2	TT	207 U. H.	
		A7	3	TT	211 U. H.	
		A8	4	TT	211 U. H	
		Lect. B	11	MW	218 U. H.	CULLER
		Quiz B1	8	TT	212 U. H.	
		B2	9	TT	212 U. H.	
		B3	10	TS	203 U. H.	
		B4	11	TS	403 U. H.	
		B5	2	TT	403 U. H.	
		B6	3	TT	403 U. H.	
		B7	4	TT	403 U. H	
		Lect. C	9	TT	218 U. H.	YOUNG
		Quiz C1	8	MW	406 U. H.	
		C2	9	MW	413 U. H.	
		C3	11	MW	403 U. H.	
		C4	1	MW	311 U. H.	
		C5	2	MW	212 U. H.	
		C6	3	MW	407 U. H.	
		C7	8	ThS	407 U. H.	
		Lect. D	11	TT	218 U. H.	YOUNG
		Quiz D1	8	MW	212 U. H.	
		D2	9	MW	211 U. H.	
		D3	10	MW	315 U. H.	
		D4	11	MW	303 Adm. B.	
		D5	2	MW	315 U. H.	
		D6	3	MW	211 U. H	
		D7	4	MW	212 U. H	
		D8	8	TT	412 U. H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

2. General Psychology.—*Prerequisite:* Psych. 1 or senior standing.

Subject	Credits	Section	Hours	Days	Room	Instructor
Psych. 2	4	Lect.	10	MW	218 U. H.	HIGGINSON and assistants
		Quiz A	8	TT	311 U. H.	
		B	9	TT	413 U. H.	
		C	10	TT	412 U. H.	
		D	2	TT	412 U. H.	
		E	3	TT	412 U. H.	

3. Laboratory Practice (Elementary).—*Prerequisite:* Psych. 1.

Psych. 3	2	Lab. A	2, 3	MW	217 U. H.	HIGGINSON, BARKLEY and assistants
		B	8, 9	TT	217 U. H.	
		C	10, 11	TT	217 U. H.	
		D	2, 3	TT	217 U. H.	

4. Psychological Measurements.—*Prerequisite:* Psych. 1. (2). 10, 11 MW; 419 U. H. Dr. MCALLISTER.

Courses for Advanced Undergraduates and Graduates

11. Learning and Comprehension.—*Prerequisite:* Psych. 2 or 3. (2). 11 TT; 413 U. H. Associate Professor CULLER.

12. Minor Problems (Advanced Laboratory).—*Prerequisite:* Psych. 3 and 4 and consent of the instructor. (3). 4 M and other times to be arranged; 507 U. H. Professor WOODROW, Assistant Professor HIGGINSON, Dr. MCALLISTER.

16. Genetic Psychology.—*Prerequisite:* Psych. 2. (2). 2 TT; 413 U. H. Dr. SULLIVAN.

23. Abnormal Psychology.—*Prerequisite:* Psych. 2.

Psych. 23	3	Lect.	11	MW	410 U. H.	HERRINGTON
		Quiz A	10	F	312 U. H.	
		B	11	F	312 U. H.	

26. Recent Experimental Problems (Sensation).—*Prerequisite:* Psych. 3 or 4. (2). 10 TT; 406 U. H. Dr. MÖLLER.

27a. Thesis Course and Honors Course.—*Prerequisite:* Psych. 1, 2, 3, and consent of the department. (2). Time to be arranged; 419 U. H. Professor WOODROW.

28. The Psychology of Motivation.—*Prerequisite:* Psych. 2. (2). 3 TT; 406 U. H. Associate Professor YOUNG.

34. Individual Differences.—*Prerequisite:* Psych. 2 and senior standing. (3). 9 MWF; 403 U. H. Professor WOODROW.

Courses for Graduates

102. Translation of Psychological Treatises.—(½ unit). Time to be arranged; 419 U. H. Professor WOODROW.

103. Research.—(½-2 units).* Time to be arranged; 507 U. H. Professor WOODROW, Associate Professors YOUNG and CULLER, Assistant Professor HIGGINSON.

105. Seminar.—(1 unit). Time to be arranged; 419 U. H. Professor WOODROW.

108. Quantitative Methods: Theory and Technic.—(1 unit). 10, 11 S; 419 U. H. Associate Professor CULLER.

PUBLIC SPEAKING

(See English.)

PUBLIC UTILITIES AND TRANSPORTATION

(See also Railway Engineering.)

1. Economics of Transportation.—*Prerequisite:* Econ. 1, junior standing.

Trans. 1	3	B Quiz	9	MWF	101 Com.	FITZGERALD
		C Quiz	10	MWF	305 Com.	RAMSEY
		D Quiz	11	MWF	305 Com.	RAMSEY
		E Quiz	1	MWF	101 Com.	LOCKLIN
		F Quiz	2	MWF	101 Com.	LOCKLIN
		J1 Quiz	8	TTS	101 Com.	FITZGERALD
		J2 Quiz	8	TTS	115 Com.	RAMSEY
		K1 Quiz	9	TTS	115 Com.	RAMSEY
		K2 Quiz	9	TTS	101 Com.	FITZGERALD

Courses for Advanced Undergraduates and Graduates

8. Railroad Organization.—*Prerequisite:* Junior standing. (2). 11 TT; 100 Com. Mr. RAMSEY.

10. Railroad Rates.—*Prerequisite:* Trans. 1. (3). 9 TTS; 100 Com. Assistant Professor LOCKLIN.

22. Ocean Shipping.—*Prerequisite:* Trans. 1. (3). 9 MWF; 329 Com. Professor LITMAN.

Course for Graduates

100. Economics of Transportation.—(1 unit). Time to be arranged. Assistant Professor LOCKLIN.

RAILWAY ADMINISTRATION

(See Public Utilities and Transportation.)

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

RAILWAY ENGINEERING

(See also Public Utilities and Transportation.)

Note: Certain courses in this department require a laboratory fee of $3.

2. Locomotive Design.—*Prerequisite:* M. E. 16, 64; R. E. 4. (3). Sec. W, 1-4 MWF; 104 T. B.

3. Locomotives.—*Prerequisite:* Junior standing in the College of Engineering. (2). Sec. W, 9 TT; 104 T. B.

5. Railway Laboratory.—*Prerequisite:* M. E. 16, 64; R. E. 4. (3). Sec. W, 1-4 TT, 11 T; 104 T. B.

9. Seminar.—*Prerequisite:* Open to seniors in railway courses only. (1). Sec. W, 9 T; 117 T. B.

25. Railway Development.—*Prerequisite:* Open to students in railway courses only. (2). Sec. UVW, 9 TT; 105 T. B.

31. Railway Yards and Terminals.—*Prerequisite:* C. E. 37, or senior standing in R. E. (3). Sec. U, 10 TT, 9-12 S; 117 T. B.

32. Railway Construction.—*Prerequisite:* Registration in C. E. 61a. (3). Sec. U, 9 MF, 1-4 W; 117 T. B.

35. Railway Signaling.—*Prerequisite:* Senior standing in Engineering. (2). Sec. UV, 10 WF; 105 T. B.

59. Electric Railway Principles.—*Prerequisite:* Registration in E. E. 25 and 75. (2). Sec. V, 10 MW; 117 T. B.

62. Electric Railway Laboratory.—*Prerequisite:* R. E. 60. (2). Sec. V, 1-4 TT; 117 T. B.

64. Electric Railway Practice.—*Prerequisite:* E. E. 26 and 76; R. E. 60. (3). Sec. V, 11 MWF; 105 T. B.

97. Thesis.—(1 or 2).* Arrange. *Prerequisite:* Senior standing in railway engineering.

99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

102. Locomotive Design.—(1 unit). Time to be arranged. Professor YOUNG.

106. Locomotive Operation.—(1 unit). Time to be arranged. Professor SCHMIDT.

110. Railway Location.—(1 unit). Time to be arranged. Professor KING.

RHETORIC

(See English.)

ROMANCE LANGUAGES AND LITERATURES

For students entering prior to September, 1929

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, 6b, and including at least two semester courses or the equivalent from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: Comparative literature, education, English (excluding Rhet. 1, 2, 12), German, Greek, history, Italian, Latin, Spanish, provided that at least 8 hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, 2a, and including at least two semester courses or the equivalent from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: Comparative literature, education, English (excluding Rhet. 1, 2, 12), French, German, Greek, history, Italian, Latin, provided that at least 8 hours be taken in any subject chosen.

For students entering after September 1, 1929

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, 6b, and all work taken during the freshman year, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours, excluding all courses taken during the freshman year, in not more than two of the following subjects: Education, English (excluding Rhet. 1, 2, 12), German, Greek, history, Italian, Latin, philosophy, Spanish, provided that 8 hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, 2a, and all courses taken during the freshman year, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours, excluding courses taken during the freshman year, in not more than two of the following subjects: Education, English (excluding Rhet. 1, 2, 12), French, German, Greek, history, Italian, Latin, philosophy, provided that at least 8 hours be taken in any subject chosen.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2

A. FRENCH

Courses for Undergraduates

1a. Elementary Course.—For students who have no credit in French. *Note:* French 1a and Spanish 1a may not be taken at the same time. Seniors will receive only 3 hours' credit in French 1a.

Subject	Credits	Section	Hours	Days	Room	Instructor
French 1a	4	A1	8	TWTF	208 Adm. (E)	Fisher
		A2	8	TWTF	204 Adm. (E)	Allen
		A3	8	TWTF	308 Adm. (E)	Carter
		A4	8	TWTF	304 Adm. (E)	Alexander
		B1	9	TWTF	304 Adm. (E)	Alexander
		B2	9	TWTF	123 New Agr.	Hilton
		B3	9	TWTF	208 Adm. (E)	Carter
		B4	9	TWTF	224 L. H.	Dismukes
		C1	10	TWTF	214 U. H.	Bussard
		C2	10	TWTF	208 Adm. (E)	Rowe
		C3	10	TWTF	227 L. H.	Amiel
		D1	11	TWTF	214 U. H.	Bussard
		D2	11	TWTF	232 L. H.	Herdman
		D3	11	TWTF	204 Adm. (E)	Rowe
		E1	1	MTWT	133 L. H.	Roche
		E2	1	MTWT	102 Entom.	Allen
		F1	2	MTWT	123 New Agr.	Herdman
		F2	2	MTWT	304 Adm. (E)	Alexander
		G1	3	MTWT	203 U. H.	Smith
		G2	3	MTWT	304 Adm. (E)	Alexander
		H	4	MTWT	102 Entom.	Smith

1b. Elementary Course (continued).—*Prerequisite:* French 1a or S1a, or one year of high-school French. *Note:* Seniors will receive 3 hours' credit only.

French 1b	4	A1	8	TWTF	123 New Agr.	Hilton
		A2	8	TWTF	224 L. H.	Goggin
		C1	10	TWTF	123 New Agr.	Hilton
		C2	10	TWTF	304 Adm. (E)	Fisher
		F1	2	MTWT	214 U. H.	Smith
		F2	2	MTWT	224 L. H.	Goggin
		G	3	MTWT	310 U. H.	Allen

2a. Modern French.—*Prerequisite:* French 1a-1b, or two years of high-school French.

French 2a	4	A1[1]	8	TWTF	136 L. H.	Pietrangeli
		A2	8	TWTF	102 Entom.	Legrand
		A3	8	TWTF	235 L. H.	Herdman
		B1[1]	9	TWTF	204 U. H.	Bussard
		B2	9	TWTF	333 L. H.	Herdman
		B3	9	TWTF	227 L. H.	Fisher
		C1[1]	10	TWTF	224 L. H.	Balthazard
		C2	10	TWTF	207 Adm. (E)	Allen
		D1[1]	11	TWTF	139 L. H.	Balthazard
		D2	11	TWTF	211 L. H.	Dismukes
		E1[1]	1	MTWT	404 U. H.	Pietrangeli
		E2	1	MTWT	412 U. H.	Smith
		F	2	MTWT	303 Adm. (E)	Fisher
		G	3	MTWT	139 L. H.	Rew
		H	4	MTWT	139 L. H.	Rew

2b. Modern French.—*Prerequisite:* French 2a, or three years of high-school French.

French 2b	4	B	9	TWTF	311 L. H.	Legrand
		C	10	TWTF	205 L. H.	Goggin
		D	11	TWTF	123 New Agr.	Goggin
		F	2	MTWT	208 Adm. (E)	Amiel
		G	3	MTWT	102 Entom.	Bussard

3a. Introduction to French Literature.—*Prerequisite:* French 2a-2b or the equivalent.

French 3a	3	A	8	MWF	211 L. H.	Will
		B1	9	MWF	105 L. H.	Jacob
		B2	9	MWF	206 L. H.	Roche
		C	10	MWF	113 L. H.	Dismukes
		D	11	MWF	128 L. H.	Gullette
		E	1	MWF	128 L. H.	Dismukes
		F	2	MWF	206 L. H.	Jacob

6a. Second-Year Composition and Conversation.—*Prerequisite:* French 1a-1b.

French 6a	2	C	10	MW	334 L. H.	Legrand
		F1	2	MW	128 L. H.	Balthazard
		F2	2	TT	133 L. H.	Balthazard

7a. Intermediate Composition and Conversation.—*Prerequisite:* French 2a-2b, or French 6a-6b.

French 7a	2	A	8	TT	104 L. H.	Balthazard
		B1	9	TT	104 L. H.	Roche
		B2	9	MW	318 U. H.	Amiel

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[1]Primarily for students who expect to go beyond French 2b. More attention is paid to the speaking and hearing of French.

Subject	Credits	Section	Hours	Days	Room	Instructor
French 7a	2	C	10	TT	211 L. H.	LEGRAND
		D	11	TT	113 L. H.	ROCHE
		E	1	TT	105 L. H.	AMIEL
		F	2	TT	113 L. H	LEGRAND

Note: Required of those who desire the departmental recommendation to teach French.

8a. Advanced Composition and Conversation.—*Prerequisite:* French 7a-7b.

French 8a	2	B	9	TT	206 L. H.	AMIEL
		F	2	TT	105 L. H.	ROCHE

25. Methods of Teaching French.—Discussions and laboratory work in phonetics. *Prerequisite:* 20 hours' credit in French, or 16 hours' credit in French plus 20 in Spanish. Not open to students other than senior exc pt y permission of the instructor. (3). 2 MWF; 310 U. H. Assistant Professor GULLETTE.

28a. Senior Thesis.—For candidates for honors in French. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Prerequisite: French 3a-3b and junior standing or senior standing and permission of the instructor.

10a. Survey of French Literature.

French 10a	3	C	10	MWF	128 L. H.	WILL
		D	11	MWF	113 L. H.	JACOB

17a. French Drama of the Nineteenth Century.—(2). 1 TT; 104 L. H. Associate Professor HAMILTON.

24a. French Drama of the Seventeenth and Eighteenth Centuries.—(3). 9 MWF; 404 U. H. Assistant Professor WILL.

32a. French Novel of the Nineteenth Cen ury.—(3). 8 MWF; 104 L. H. Assistant Professor JACOB.

34a. La Comédie Humaine de Balzac.—(In French.) (2). 11 TT; 104 L. H. Professor MICHAUD.

Courses for Graduates

101. Old French Literature.—(1 unit). 10 TT; 425-A Lib. Professor CARNAHAN.

102. Villon, Rabelais, Montaigne, La Pléiade.—(1 unit). 4 TT; 425-A Lib. Assistant Professor WILL.

128. Origin and Development of the Novel in France.—(1 unit). 3 TT; 425-A Lib. Professor CARNAHAN.

129. Research Problems in French Romanticism.—(½-1 unit).* Time to be arranged. 425-A Lib. Professor CARNAHAN.

133. La Poésie de Victor Hugo.—(1 unit). 3 MW; 222 L. H. Professor MICHAUD.

145. Doctrines Littéraires et Courants d'Idées Contemporains.—(In French.) (1 unit). 3, 4 F; 120 L. H. Professor MICHAUD.

195. Seminar.—Research work in preparation for theses in French. (1-2 units).* Members of the department.

B. ITALIAN

Courses for Undergraduates

1a. Elementary Course.—*Prerequisite:* Sophomore standing.

Italian 1a	4	B	9	TWTF	128 L. H.	PIETRANGELI
		C	10	TWTF	235 L. H.	PIETRANGELI
		E	1	MTWT	235 L. H.	WELCH

2a. Intermediate Italian.—*Prerequisite:* Italian 1a-1b. (3). 11 MWF; 219 L. H. Miss WELCH.

Course for Advanced Undergraduates and Graduates

3a. Dante.—*Prerequisite:* Italian 1a-1b; junior standing. (2). 2 TT; 219 L. H. Miss WELCH.

Courses for Graduates

140. Italian Literature in the Middle Ages. Petrarch, Boccaccio.—(1 unit). 1 TT; 211 L. H. Professor VAN HORNE.

195. Seminar.—Research work in preparation for theses in Italian. (1 to 2 units).* Professor VAN HORNE.

C. SPANISH

Courses for Undergraduates

1a. Elementary Course.—For students who have no credit in Spanish. *Note.* Spanish 1a and French 1a may not be taken at the same time. Seniors will receive only 3 hours' credit in Spanish 1a.

Spanish 1a	4	A1	8	TWTF	214 U. H.	ADAM
		A2	8	TWTF	133 L. H.	UTLEY
		A3	8	TWTF	303 Adm. (E	ABBAS

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

Subject	Credits	Section	Hours	Days	Room	Instructor
Spanish 1a	4	A4	8	TWTF	232 L. H.	Young
		B1	9	TWTF	340 L. H.	McLain
		B2	9	TWTF	320 New Agr.	Ellies
		B3	9	TWTF	136 L. H.	Abbas
		B4	9	TWTF	232 L. H.	Young
		C1	10	TWTF	240 L. H.	McLain
		C2	10	TWTF	105 L. H.	Kidder
		C3	10	TWTF	114 L. H.	Gullette
		C4	10	TWTF	133 L. H.	Welch
		D1	11	TWTF	227 L. H.	Ellies
		D2	11	TWTF	304 Adm. (E)	Burner
		D3	11	TWTF	204 U. H.	Lodge
		D4	11	TWTF	208 Adm. (E)	Young
		E1	1	MTWT	208 Adm. (E)	Abbas
		E2	1	MTWT	303 Adm. (E)	Adam
		E3	1	MTWT	304 Adm. (E)	Kendall
		E4	1	MTWT	310 U. H.	Hilton
		F1	2	MTWT	227 L. H.	Kidder
		F2	2	MTWT	136 L. H.	Utley
		F3	2	MTWT	302 L. H.	Burner
		G1	3	MTWT	136 L. H.	Kendall
		G2	3	MTWT	203 L. H.	Lodge
		H	4	MTWT	110 L. H.	Kendall

1b. Elementary Course (continued).—*Prerequisite:* Spanish 1a or S1a, or one year of high-school Spanish. *Note:* Seniors will receive only 3 hours' credit.

Spanish 1b	4	A	8	TWTF	139 L. H.	Dallera
		B	9	TWTF	235 L. H.	Kidder
		C1	10	TWTF	203-A L. H.	Adam
		C2	10	TWTF	136 L. H.	Young
		F1	2	MTWT	203-A L. H.	Abbas
		F2	2	MTWT	326 L. H.	Adam
		G	3	MTWT	211 L. H.	Utley

2a. Modern Spanish.—*Prerequisite:* Spanish 1a-1b, or two years of high-school Spanish.

Spanish 2a	4	A1[1]	8	TWTF	240 L. H.	Avilés
		A2	8	TWTF	204 U. H.	Lodge
		B1[1]	9	TWTF	139 L. H.	Utley
		B2	9	TWTF	323 New Agr.	Lodge
		C	10	TWTF	139 L. H.	Burner
		D	11	TWTF	302 L. H.	Dallera
		E	1	MTWT	306 L. H.	McLain
		F	2	MTWT	302 U. H.	McLain
		G	3	MTWT	315 U. H.	Dallera

2b. Modern Spanish.—*Prerequisite:* Spanish 2a, or 3 years of high-school Spanish.

Spanish 2b	4	C	10	TWTF	202 L. H.	Avilés
		F	2	MTWT	139 L. H.	Kendall
		G	3	MTWT	133 L. H.	Kidder

3a. Introduction to Spanish Literature.—*Prerequisite:* Spanish 2a-2b, or the equivalent.

Spanish 3a	3	B	9	MWF	133 L. H.	Hamilton
		D	11	MWF	133 L. H.	Balseiro
		F	2	MWF	300 L. H.	Van Horne

5a. Commercial Spanish.—*Prerequisite:* Spanish 2a-2b or the equivalent.

Spanish 5a	2	B	9	TT	133 L. H.	Avilés
		D	11	MW	308 L. H.	Avilés
		E	1	TT	113 L. H.	Dallera

7a. Intermediate Composition and Conversation.—*Prerequisite:* Spanish 2a-2b, or the equivalent.

Spanish 7a	2	A	8	MW	227 L. H.	Ellies
		D	11	TT	120 L. H.	Avilés
		F	2	TT	123 L. H.	Ellies

Note: Required of those who are given the departmental recommendation to teach Spanish.

8a. Advanced Composition and Conversation.—*Prerequisite:* Spanish 7a-7b. (2). 8 TT; 123 L. H. Miss Ellies.

28a. Senior Thesis.—For candidates for honors in Spanish. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Prerequisite: Spanish 3a-3b and junior standing, or senior standing and permission of the instructor.

10a. Survey of Spanish Literature.—(3). 11 MWF; 136 L. H. Associate Professor Hamilton.

11a. Masterpieces of the Golden Age: Don Quixote, and Other Works.—(2). 11 TT; 205 L. H. Professor Van Horne.

17a. El Teatro Español Moderno.—(In Spanish.) (2). 10 TT; 303-A L. H. Associate Professor Balseiro.

Courses for Graduates

131. Spanish Literature in the Seventeenth Century.—(1 unit). Time to be arranged; 216 L. H. Professor Van Horne.

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[1]Primarily for students who expect to go beyond Spanish 2b. More attention is paid to the speaking and hearing of Spanish.

135. La Novela Española Moderna.—(In Spanish.) (1 unit). 3 MW; 235 L. H. Associate Professor BALSEIRO.

185. Old Spanish Readings.—(1 unit). 2 TT; 142 L. H. Associate Professor HAMILTON.

195. Seminar.—Research work in preparation for theses in Spanish. (1-2 units).* Members of the department.

SCANDINAVIAN LANGUAGES AND LITERATURE
(See English.)

THE SOCIAL SCIENCES
(See Economics, History, Political Science, and Sociology.)

SOCIOLOGY

For students entering prior to September, 1929

Major: 20 hours from any courses in the department.

Minors: 20 hours from any two of the following subjects: History, philosophy, psychology, economics, political science.

For students entering after September 1, 1929

Major: 20 hours from any courses in the department.

Minors: 20 hours, excluding courses taken during the freshman year, from one or two of the following subjects: History, philosophy, psychology, economics, political science. At least 8 hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

1. Principles of Sociology.—*Prerequisite:* Junior standing, or sophomore standing with either the principles of economics, or the principles of psychology, or 5 hours of history. Sophomores are received in Sections A, C, D, F, H, K, and M.

Subject	Credits	Section	Hours	Days	Room	Instructor
Sociol. 1	3	A	8	MWF	306 L. H.	VOELKER
		B	8	MWF	326 L. H.	TIMMONS
		C	8	TTS	334 L. H.	TYLOR
		D	9	MWF	306 L. H.	HOUGHTON
		E	9	MWF	334 L. H.	TIMMONS
		F	9	TTS	334 L. H.	TYLOR
		G	10	MWF	326 L. H.	HILLER
		H	10	MWF	326 New Agr.	VOELKER
		J	11	MWF	326 New Agr.	VOELKER
		K	11	MWF	326 L. H.	HOUGHTON
		L	1	MWF	308 L. H.	TIMMONS
		M	2	MWF	306 L. H.	VOELKER
		N	3	MWF	306 L. H.	ALBIG

2. Social Factors in Personality.—*Prerequisite:* Sociol. 1. No seniors will be admitted to this course except those who need it as a concurrent requirement for Sociology 4 or 8.

Sociol. 2	3	A	8	MWF	109 L. H.	AHRENS
		B	9	MWF	202 L. H.	AHRENS
		C	9	TTS	304 L. H.	AHRENS

Courses for Advanced Undergraduates and Graduates

3. Social Evolution.—*Prerequisite:* Sociol. 1 and junior standing. (3). 11 MWF; 202 L. H. Mr. AHRENS.

4. Social Control.—*Prerequisite:* Sociol. 1 and either 2 or 3. Sociology 2 or 3 may be taken concurrently with this course.

Sociol. 4	2	A	10	TT	334 L. H.	ALBIG
		B	11	TT	334 L. H.	ALBIG

6. Urban Sociology.—*Prerequisite:* Sociol. 1 and junior standing. (3). 8 MWF; 304 L. H. Assistant Professor TYLOR.

8. Charities.—*Prerequisite:* Sociol. 1 and Sociol. 2 or 4 and economic theory or 5 hours of history. Sociol. 2 or 4 may be taken concurrently with this course. (3). 10 MWF; 304 L. H. Assistant Professor TIMMONS.

9. Criminology.—*Prerequisite:* Sociol. 1 and senior standing.

Sociol. 9	3	A	9	MWF	305 L. H.	TAFT
		B	3	MWF	334 L. H.	TAFT

14. Group Opinion.—*Prerequisite:* Sociol. 4 and consent of instructor. (3). 2 MWF, 334 L. H. Assistant Professor ALBIG.

17. Methods of Sociological Research.—*Prerequisite:* 8 hours' credit in sociology. Sociol. 17 is required of all graduate majors in sociology. (3). 10 TT and two hours of supervised research weekly at time to be arranged; 326 L. H. Associate Professor HILLER.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

29. **Human Migrations.**—*Prerequisite:* Sociol. 1 and junior standing. (3). 1 MWF; 334 L. H. Professor TAFT.

30. **Races of Mankind.**—*Prerequisite:* Sociol. 1 and junior standing. (3). 10 MWF; 306 L. H. Assistant Professor KELLY.

45. **Prehistoric Archaeology.**—*Prerequisite:* Junior standing. (3). 11 MWF; 306 L. H. Assistant Professor KELLY.

90a. **Honors Course.**—For senior majors in sociology. Consent of instructor required. (2). Arrange. Associate Professor HILLER.

Courses for Graduates

106. **Urban Communities and Urbanization.**—(1 unit). Twice a week. Arrange. 201 L. H. Assistant Professor TYLOR.

109. **Research in Criminology.**—(1 unit). Twice a week. Arrange. 201 L. H. Professor TAFT.

150. **Seminar.**—Preparation of theses. (½-2 units).* Arrange. Members of the department.

TRANSPORTATION

(See Public Utilities and Transportation.)

ZOOLOGY

For students entering prior to September, 1929

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9.

Minors: 20 hours chosen from one or two of the following subjects: Animal husbandry, bacteriology, botany, chemistry, entomology, physics, physiology, psychology, paleontology, and physiography.

Note: Credit for seniors who take Zoology 1, 2 will be reduced one hour.

For students entering after September 1, 1929

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and all courses taken during the freshman year, and including Zoology 2, 3, 4, 5 (or 7), and 9. At least five hours must be offered from the advanced group.

Minors: 20 hours, excluding courses taken during the freshman year, chosen from one or two of the following subjects: Bacteriology, botany, chemistry, entomology, geology, physics, physiology, psychology. At least 8 hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Note: Certain courses in this department require laboratory fees varying from $1 to $4.50.

1. **General Zoology.**—*Note:* Seniors will receive 4 hours' credit only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Zool. 1	5	Lect.	9	MWF	228 N. H.	THOMAS
		E1 Quiz	8	W	423 N. H.	KUDO
		E2 Quiz	8	W	241 N. H.	LUCE
		E3 Quiz	8	W	229 N. H.	PARK
		F1 Quiz	8	F	241 N. H.	and
		F2 Quiz	8	F	203 U. H.	assistants
		F3 Quiz	8	F	423 N. H.	
		G1 Quiz	1	T	423 N. H.	
		G2 Quiz	1	T	241 N. H.	
		G3 Quiz	1	T	229 N. H.	
		H1 Quiz	1	Th	229 N. H.	
		H2 Quiz	1	Th	423 N. H.	
		K1 Quiz	10	W	229 N. H.	
		K2 Quiz	10	F	423 N. H.	
		L1 Quiz	1	M	425 N. H.	
		L2 Quiz	1	M	423 N. H.	
		A1 Lab.	8, 9	TTS	312 N. H.	
		A2 Lab.	8, 9	TTS	310 N. H.	
		A3 Lab.	8, 9	TTS	418 N. H.	
		B1 Lab.	10, 11	MWF	312 N. H.	
		B2 Lab.	10, 11	MWF	310 N. H.	
		B3 Lab.	10, 11	MWF	418 N. H.	
		C1 Lab.	1, 2	MWF	312 N. H.	
		C2 Lab.	1, 2	MWF	310 N. H.	
		C3 Lab.	1, 2	MWF	418 N. H.	
		D1 Lab.	10, 11	TTS	312 N. H.	
		D2 Lab.	10, 11	TTS	418 N. H.	
		M1 Lab.	1, 2, 3	TT	312 N. H.	
		M2 Lab.	1, 2, 3	TT	310 N. H.	
		M3 Lab.	1, 2, 3	TT	418 N. H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which he intends to take the course, i. e., ½, or 1, or 1½, or 2.

2. Vertebrate Zoology and Comparative Anatomy.—*Prerequisite:* Zoology 1. *Note:* Seniors will receive 4 hours' credit only.

Subject	Credits	Section	Hours	Days	Room	Instructor
Zool. 2	5	Lect.	10	MW	228 N. H.	ADAMS
		A Lab.	8, 9	MWF	330 N. H.	CAHN
		B Lab.	8, 9	TTS	330 N. H.	and
		C Lab.	1, 2	MWF	330 N. H.	assistants
		D Quiz	8	TT	425 N. H.	
		E Quiz	3	MW	425 N. H.	
		F Quiz	4	TT	425 N. H.	
		G Quiz	9	MW	229 N. H.	

3. Microscopical Technic and Vertebrate Embryology.—*Prerequisite:* Zoology 1, 2.

Zool. 3	5	Lect.	1	TT	228 N. H.	SHUMWAY
		A Lab.	8, 9	MWF	323 N. H.	ADAMSTONE
		B Lab.	10, 11	MWF	323 N. H.	and
		C Lab.	1, 2	MWF	323 N. H.	assistants
		D Lab.	3, 4	MWF	323 N. H.	
		(E)[1] Lab.	8, 9	TTS	323 N. H.	
		(F)[1] Lab.	10, 11	TTS	323 N. H.	
		1 Quiz	10	T	423 N. H.	
		2 Quiz	10	Th	229 N. H.	
		3 Quiz	2	T	229 N. H.	
		4 Quiz	2	Th	229 N. H.	
		(5)[1] Quiz	1	M	229 N. H.	
		(6)[1] Quiz	2	M	229 N. H.	

7. Evolution.—With special reference to the biological processes in which man is involved. *Prerequisite:* 30 hours of university work, including one university semester of laboratory science or its equivalent in high-school courses.

Zool. 7	3	Lect.	11	TT	228 N. H.	ZELENY
		A Quiz	2	M	423 N. H.	and others
		B Quiz	10	T	435 N. H.	
		C Quiz	10	M	229 N. H.	
		D Quiz	9	T	423 N. H.	
		E Quiz	8	F	229 N. H.	

15. Genetics.—(For students in the College of Agriculture). *Prerequisite:* Two years of university work and Botany 1 or 5, and Zoology 1 or Entomology 1.

Zool. 15	3	Lect.	11	MW	228 N. H.	ZELENY
		A Disc.	9	Th	423 N. H.	and
		B Disc.	11	F	241 N. H.	assistants
		C Disc.	11	Th	423 N. H.	
		D Quiz	9	M	423 N. H.	

Courses for Advanced Undergraduates and Graduates

11. Animal Ecology and Geography.—*Prerequisite:* One year of zoology and senior standing.

Zool. 11	3-5	Lect.	4	MWF	229 N. H.	SHELFORD
		Lab. or Field	8-12	S	202 Viv.	

Three hours' credit requires the lectures and field all day September 26, October 3, October 17, and one selected day. 4 and 5 hours' credit require additional field work, or the laboratory work, or both as arranged for the individual.

17. Field Zoology.—*Prerequisite:* One year in zoology. (3). 2, 3, 4 TT; 420 N. H. Professor VAN CLEAVE.

19. Advanced Ornithology.—*Prerequisite:* Zool. 1, 2, and 16. (2 or 3).* Assistant Professor CAHN.

31. Introduction to Parasitology.—*Prerequisite:* Zool. 1 and 2 and junior standing. (2). 1, 2 TT; 330 N. H. Assistant Professor THOMAS.

63. Ontogeny of Vertebrates.—*Prerequisite:* One year of zoology and senior standing. (2-4).* Time to be arranged. Professor SHUMWAY.

22. Morphology of Vertebrates.—*Prerequisite:* Zoology 3.

Zool. 22	2-4*	Lect.	4	W	419 N. H.	ADAMS
		Lab.	1, 5	TT	419 N. H.	

20a. Current Investigation.—Required of all graduate students majoring in zoology; may be elected by seniors majoring in zoology with consent of instructor. (1). 3 F; 229 N. H. Members of the department.

21a. Introduction to Zoological Research.—*Prerequisite:* One year in zoological courses and senior standing. (2-5).* Time to be arranged. 314 N. H. Professor WARD.

8a. Thesis Investigation.—*Prerequisite:* Two years of zoology. (3-5).* Time to be arranged. Members of the department.

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[1]Will not be opened until other sections have been filled.

Courses for Graduates

Students entering on graduate study in the department of zoology should have had two years of undergraduate work in the subject. When chosen as a minor the courses listed for graduates and undergraduates must be preceded by at least one full year's undergraduate work in zoology. Work done at other institutions will be evaluated on conference with the head of the department.

102. Evolution of the Vertebrates.—(½ unit). Time to be arranged. Assistant Professor ADAMS.

106. Topics in Vertebrate Embryology.—(1 unit). Time to be arranged. Professor SHUMWAY.

111. Experimental and Field Ecology.—(½-2 units).* Time to be arranged. Professor SHELFORD.

115. Factors of Individual and Racial Development.—(1 unit). Twice a week. Time to be arranged. Professor ZELENY.

117. Advanced Field and Faunistic Zoology.—(1 unit). 8-12 TT; 420 N. H. Professor VAN CLEAVE.

127. Theories of Animal Phylogeny.—(1 unit). 3 MW; 229 N. H. Professor WARD.

Individual Research Courses

121. Invertebrate Morphology and Parasitology.—(1-2 units).* Time to be arranged. Professor WARD.

122. Vertebrate Morphology.—(1-2 units).* Time to be arranged. Assistant Professor ADAMS.

123. Faunistic and Systematic Zoology.—(1-2 units).* Time to be arranged. Professor VAN CLEAVE.

124. Experimental Zoology and Genetics.—(1-2 units).* Time to be arranged. Professor ZELENY.

125. Animal Ecology and Behavior.—Time and credits to be arranged. Professor SHELFORD.

126. Embryology and Cytology.—(1-2 units).* Time to be arranged. Professor SHUMWAY.

ANATOMY

1. Anatomy.—(For students in Athletic Coaching only.) *Note:* A laboratory fee of $5.

Subject	Credits	Section	Hours	Days	Room	Instructor
Anat. 1	3	Lect.	2	T	228 N. H.	DEPUE
		A1 Quiz	8	F	434 N. H.	and
		Lab.	8, 9	MW	405 N. H.	assistants
		A2 Quiz	9	F	303 Chem.	
		Lab.	8, 9	MW	408 N. H.	
		B1 Quiz	8	S	229 N. H.	
		Lab.	8, 9	TT	405 N. H.	
		B2 Quiz	9	S	229 N. H.	
		Lab.	8, 9	TT	408 N. H.	
		C1 Quiz	10	F	229 N. H.	
		Lab.	10, 11	MW	405 N. H.	
		C2 Quiz	11	F	423 N. H.	
		Lab.	10, 11	MW	408 N. H.	
		D1 Quiz	10	S	423 N. H.	
		Lab.	10, 11	TT	405 N. H.	
		D2 Quiz	11	S	423 N. H.	
		Lab.	10, 11	TT	408 N. H.	
		E1 Quiz	1	F	241 N. H.	
		Lab.	1, 2	MW	405 N. H.	
		E2 Quiz	2	F	241 N. H.	
		Lab.	1, 2	MW	408 N. H.	
		(F1)[1] Quiz	3	F	241 N. H.	
		Lab.	3, 4	MW	405 N. H.	
		(F2)[1] Quiz	4	F	241 N. H.	
		Lab.	3, 4	MW	408 N. H.	

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[1]Will not be opened until other sections have been filled.

031/32
pt. 2

UNIVERSITY OF ILLINOIS BULLETIN

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TIME TABLE

SECOND SEMESTER
1931-1932

This Time Table is issued early, for the convenience of faculty members and students, in accordance with the action of the University Senate on October 19, 1931.

Preserve your copy for use during the period of registration, as there will not be a supply of copies for general distribution at that time.

PUBLISHED BY THE UNIVERSITY OF ILLINOIS
URBANA

REGISTRATION CALENDAR

SECOND SEMESTER, 1931-32

1932	
Feb. 5-6, Fri.-Sat.	Registration for Graduate Students
Feb. 8-9, Mon.-Tues.	Registration for Undergraduate Students
Feb. 10, Wed., 8 a.m.	**Instruction begun**
Feb. 15, Mon., 8 a.m.	Earliest date for special examinations
Feb. 15, Mon., 12 m.	Latest date for change of study-lists without fee
Feb. 20, Sat., 12 m.	Latest date for rebates in full
Mar. 24, Thurs., 11 a.m.	**Easter recess begun**
Mar. 29, Tues., 1 p.m.	**Instruction resumed**
April 9, Sat., 12 m.	Latest date for rebates of one-half fees, and latest date for seniors to make substitutions in courses or to remove failures of the first semester
May 16, Mon.	Latest date for special examinations
May 26, Thurs.	Military Day
May 27, Fri.	Semester examinations begun
June 6, Mon.	**Semester examinations ended**
June 12, Sun.	Baccalaureate address
June 13, Mon.	Sixty-first Annual Commencement

SUMMER SESSION, 1932

June 20, Mon.	Registration Day
June 21, Tues.	**Instruction begun**
Aug. 12-13, Fri.-Sat.	**Final examinations**

FIRST SEMESTER, 1932-33

Sept. 16-17, Fri.-Sat.	Registration for Freshmen and Graduate Students
Sept. 19-20, Mon.-Tues.	Registration for Upperclassmen

TIME TABLE FOR COURSES OF INSTRUCTION

SECOND SEMESTER, 1931-1932

EXPLANATION

The arrangement of subjects in the following Time Table is alphabetical by names of departments. The connections of allied departments are indicated by cross references.

Following the title of each course of instruction will be found the requirements, if any, for admission to that particular course. The sequence indicated by these prerequisites must be followed. For instance, under Art 14b, Applied Design, the prerequisites given are Art 2a and 11a. These two courses must be completed before Course 14b may be taken.

If a course not required for graduation is selected by fewer than five students it may be withdrawn for the semester.

Credit for undergraduate students is reckoned in *semester hours*, or simply *hours*. An *hour* is one class period a week for one semester or the equivalent in laboratory, shop, or drawing room. The number of hours for which the course counts is shown in the parentheses after each course, thus, (2), except where the credits, sections, etc., are tabulated.

Credit for first-year graduate students, candidates for the master's degree, is counted in units. A unit course is one which requires ten hours of time per week through one semester, irrespective of the distribution of that time in class work, laboratory work, and private study; four such courses or their equivalent constitute a full minimum program for one semester. The unit values of graduate courses (numbered 100 and upwards) are indicated in parentheses following the titles of such courses. Courses of the intermediate groups "for graduates and advanced undergraduates" are in general (unless otherwise specified by the department concerned) evaluated as follows for graduate credit: (a) courses open only to students having at least senior standing, 1 unit for a 4-hour or a 5-hour course, ½ unit for a 1-hour, 2-hour, or 3-hour course; (b) courses open to juniors, ½ unit for a 4-hour or 5-hour course, ¼ unit for a 1-hour, 2-hour, or 3-hour course.

For second-year graduate students, candidates for the doctor's degree, no record of units is kept.

The various University buildings are designated by the following abbreviations:

Administration Building (East)	Adm. (E)
Agricultural Building	Agr.
Animal Pathology Laboratory	An. Path. L.
Applied Mechanics Laboratory	L. A. M.
Architectural Building	Arch.
Armory	Arm.
Astronomical Observatory	Obs.
Botany Annex	Bot. A.
Ceramics Laboratory	Cer.
Chemistry Annex	Chem. A.
Chemistry Building	Chem.
Civil Engineering Surveying Building	C. E. S. B.
Commerce Building	Com.
Dairy Manufactures Building	D. Mfrs.
Electrical Engineering Laboratory	E. E. L.
Engineering Hall	E. H.
Entomology Building	Entom.
Farm Mechanics Building	Farm Mech.
Floricultural Greenhouses	F. G.
Genetics Building	Gen. Bldg.
Gymnasium Annex	Gym. A.
Highway Laboratory	H. L.
Horticultural Building	H. B.
Horticultural Field Laboratory	H. F. L.
Law Building	Law
Library	Lib.
Lincoln Hall	L. H.
Materials Testing Laboratory	M. T. L.
Mathematics Building	Math.
Mechanical Engineering Laboratory	M. E. L.
Men's New Gymnasium	New Gym.
Men's Old Gymnasium	Old Gym.
Metal Shop	M. S.
Mining Engineering Laboratory	Min. L.
Morrow Hall	M. H.
Natural History Hall	N. H.
New Agricultural Building	New Agr.
Physics Laboratory	P. L.
Smith Memorial Hall	S. M. H.
Stock Judging Pavilion	S. P.
Transportation Building	T. B.
University Hall	U. H.
University High School	U. H. S.
Vegetable Greenhouse	V. G.
Vivarium Building	Viv.
Woman's Building	W. B.
Woman's Gymnasium	W. Gym.
Wood Shops	W. S.

ACCOUNTANCY

(See Business Organization and Operation.)

AGRICULTURAL COLLEGE EXTENSION

Agr. Coll. Ext. 6. Agricultural Extension.—*Prerequisite:* 60 hours of university work. (2). 10 TT; 111 New Agr. Professor MUMFORD and others.

AGRICULTURAL ECONOMICS

(See Economics.)

AGRICULTURAL EDUCATION

(See Education.)

AGRONOMY

Note: Certain courses in this department require laboratory fees varying from $1 to $4.

Courses for Undergraduates

Agron. 8. Forage Crops.—*Prerequisite:* Agron. 25.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	11	MW	205 Agr.	PIEPER
	Quiz	11	F	205 Agr.	

Agron. 14. Grain Grading and Marketing.—*Prerequisite:* Econ. 1 or 2; Agron. 25. (An inspection trip will be required in this course; expense of trip about $15.)

3	Lect.	2	MW	302 Agr.
	Lab.	2–4	F	600 Agr.

Agron. 18b-k. Investigation with Thesis.—(Continuous through the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to thesis problem; approval of the head of the department. (5). Arrange.

(b) **Soil Fertility.**—Professor DETURK.
(d) **Soil Physics.**—Professor R. S. SMITH.
(f) **Soil Biology.**—Associate Professor SEARS.
(h) **Plant Breeding.**—Professor WOODWORTH.
(k) **Field Crops.**—Professor BURLISON, Associate Professor DUNGAN.

Agron. 25. Farm Crops.—*Prerequisite:* Bot. 5.

3	Lect.	3	MW	205 Agr.	PIEPER
	A Lab.	1–3	Tu	600 Agr.	
	B Lab.	10–12	Th	600 Agr.	
	Quiz	3	F	205 Agr.	

Agron. 28. Soils.—*Prerequisite:* Chem. 5; Geol. 44. (Local field trip, cost not to exceed $1.)

5	A Lect.	8	MWF	205 Agr.	WIMER, CRANE, and STAUFFER
	A1 Quiz	8	TT	205 Agr.	
	A2 Quiz	8	TT	302 Agr.	
	B1 Quiz	10	TT	205 Agr.	
	B2 Quiz	10	TT	302 Agr.	
	A Lab.	1–4	Th	650 Agr.	
	B Lab.	1–4	F	650 Agr.	
	C Lab.	8–11	S	650 Agr.	

Courses for Advanced Undergraduates and Graduates

Agron. 10. Special Work in Soil Physics.—*Prerequisite:* Agron. 28, junior standing. (3). Lect., 1 MWF; 205 Agr. Professor R. S. SMITH.

Agron. 11. Soil Biology.—*Prerequisite:* Agron. 28; Bact. 5a, junior standing. (3). Lect., 8 MWF; 302 Agr. Associate Professor SEARS.

Agron. 13. Soil Management.—Cropping systems; fertilizers; systems of soil treatment and management; soil type response. *Prerequisite:* Agron. 28, senior standing. (3). 9 MWF; 302 Agr. Professor BAUER.

Agron. 22. Plant Breeding.—*Prerequisite:* Zool. 15, junior standing. (3). Lect., 10 MWF; 302 Agr. Professor WOODWORTH, Mr. BONNETT.

Courses for Graduates

Agron. 104. Seminar in Agronomy.—(¼ unit). Once a week. Heads of divisions.

Agron. 114. Crop Production.—(1 unit). Once a week. Arrange. Professor BURLISON, Associate Professor DUNGAN.

Agron. 118. Research.—(½ to 4 units).* Arrange.

(a) **Soil Fertility.**—Professor DETURK.
(b) **Soil Physics.**—Professor R. S. SMITH.
(c) **Soil Biology.**—Professor DETURK.
(d) **Plant Breeding.**—Professor WOODWORTH.
(e) **Field Crops.**—Professor BURLISON, Associate Professor DUNGAN.

Agron. 119. Experiment Station Problems.—(See Animal Husbandry 103.) Professor MUMFORD.

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ANATOMY

(See Zoology.)

ANIMAL HUSBANDRY

Note: Certain courses in this department require laboratory fees varying from $1 to $5.

Courses for Undergraduates

An. Husb. 1. Introduction to Animal Husbandry.—Required of students not having had livestock judging in high school. (No credit in this course allowed to juniors and seniors.) (2). 3-5 TT; S.P. Mr. CRAWFORD, Mr. GARRIGUS.

An. Husb. 6. Livestock Management.—*Prerequisite:* An. Husb. 21. (5). 10 MTWTF; S.P. Professor EDMONDS.

An. Husb. 9b-v. Investigation with Thesis.—(Continuous through the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to thesis problem, and approval of the head of the department. (5). Arrange.

(b) **Beef Cattle.**—Professor RUSK, Associate Professor SNAPP.
(d) **Horses.**—Professor EDMONDS.
(f) **Sheep.**—Assistant Professor KAMMLADE.
(h) **Swine.**—Professor CARROLL.
(k) **Poultry.**—Professor CARD.
(m) **Animal Nutrition.**—Professor MITCHELL.
(p) **Animal Genetics.**—Associate Professor ROBERTS.
(r) **Animal Pathology.**—Professor GRAHAM.
(t) **Meats.**—Associate Professor BULL.
(v) **Marketing.**—Associate Professor ASHBY.

An. Husb. 12. Special Problems.—*Prerequisite:* 90 hours of university work; approval of the head of the department. (5). Arrange. Members of the department.

An. Husb. 21. Principles of Feeding.—*Prerequisite:* Chem. 5; An. Husb. 1.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	2	W	553 Agr.	BULL and others
	A Quiz	2	MF	553 Agr.	
	B Quiz	2	MF	Meat Lab.	

An. Husb. 35. Animal Hygiene, Sanitation, Contagious Diseases of Farm Animals.—*Prerequisite:* An. Husb. 34; Bact. 5a. (2). 3 TT; An. Path. L. Professor GRAHAM.

An. Husb. 37. Poultry Management.—*Prerequisite:* An. Husb. 21. (3 or 4).* 9 MWF; Lab. 3-5 Th; 316 New Agr. Students may register for this course either with or without the laboratory. Professor CARD, Dr. SLOAN.

Courses for Advanced Undergraduates and Graduates

An. Husb. 10. Meat.—*Prerequisite:* An. Husb. 21 and 36. The class will visit a Chicago packing house. The cost of the trip will be about $15. (3). 1-4 TT; 128 Agr. Associate Professor BULL, Mr. OLSON.

An. Husb. 27. Sheep Husbandry.—*Prerequisite:* An. Husb. 3 and 6. (3). 11 MWF; 111 S.P. Assistant Professor KAMMLADE.

An. Husb. 28. History of Breeds of Live Stock.—*Prerequisite:* An. Husb. 3. It is recommended that this course precede An. Husb. 22. (3). 3 MWF; 316 New Agr. Heads of divisions.

An. Husb. 29. Systems of Live Stock Farming.—*Prerequisite:* Farm Man. 1; An. Husb. 6. The cost of farm inspection trips will be about $10. (2). 8 TT; 331 New Agr. Associate Professor WILCOX.

An. Husb. 31. Advanced Course in Animal Nutrition.—*Prerequisite:* 90 hours of university work, including An. Husb. 7. (3). Time to be arranged. Professor MITCHELL.

An. Husb. 32. Marketing Live Stock.—*Prerequisite:* 90 hours of university work; An. Husb. 3. *Prerequisite or concurrent:* An. Husb. 6. Inspection trip to a terminal market required; estimated cost of trip, $18. (2). 9 TT; 316 New Agr. Associate Professor ASHBY.

An. Husb. 33. Horse Production.—*Prerequisite:* An. Husb. 3 and 6. (3). 1 MWF; S.P. Professor EDMONDS.

An. Husb. 39. Poultry Production.—*Prerequisite:* An. Husb. 37. (3). Lect., 10 MW; Lab., 8-10 S; 316 New Agr. Professor CARD.

An. Husb. 41. Animal Genetics.—*Prerequisite:* Zool. 15. (3). 2 MWF; Gen. Bldg. Associate Professor ROBERTS.

Courses for Graduates

An. Husb. 103. Experiment Station Problems.—Once a week. (½ unit). Time to be arranged. Professor MUMFORD.

An. Husb. 112 a-f. Research.—(½ to 2 units).* Arrange.

(a) **Economic Factors in Meat Production.**—One to three times a week. Professor RUSK
(b) **Systems of Live Stock Farming.**—Twice a week. Professor CASE.
(d) **Animal Nutrition.**—Three to five times a week. Professor MITCHELL.
(e) **Animal Genetics.**—Three to five times a week. Associate Professor ROBERTS.
(f) **Poultry Husbandry.**—Three to five times a week. Professor CARD.

These courses may be taken during the summer by special permission.

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An. Husb. 117. Animal Genetics.—Two to five times a week. (1 unit). Associate Professor ROBERTS.

An. Husb. 118. Animal Nutrition Seminar.—Two hours a week. (½ unit). Professor MITCHELL.

An. Husb. 119. Laboratory Methods in Animal Nutrition.—Two to five times a week. (½ to 1 unit).* Professor MITCHELL.

An. Husb. 120. Laboratory Methods in the Diagnosis of Animal Diseases.—Two to five times a week. (½ to 1 unit).* Professor GRAHAM.

An. Husb. 121. Laboratory Methods in Animal Genetics.—(½ to 1 unit).* Two to five times a week. Time to be arranged. Associate Professor ROBERTS.

ARCHITECTURE

A. ARCHITECTURE

Arch. 12. History of Architecture.—*Prerequisite:* Arch. 11. Not open to students expecting a degree from the Department of Architecture. (3). 3 MWF; 120 Arch.

Arch. 14. History of Architecture.—*Prerequisite:* Arch. 13. (2). 11 MW; 120 Arch.

Arch. 16. History of Architecture.—*Prerequisite:* Arch. 15. (2). 11 TT; 120 Arch.

Arch. 18. History of Architecture.—*Prerequisite:* Arch. 16. (2). 8 WF; 120 Arch.

Arch. 22. Freehand Drawing.—*Prerequisite:* Arch. 21.

Credits	Section	Hours	Days	Room	Instructor
2	A	8–10	TT	410-A Arch.	
	B	10–12	TT	410-A Arch.	
	C	10–12	MF	410-A Arch.	
	D	8–10	W	410-A Arch.	
		2–4	F	410-A Arch.	

Arch. 24. Freehand Drawing.—*Prerequisite:* Arch. 23.

2	A	1–4	W	410-B Arch.	
		8–11	S	410-B Arch.	
	B	1–4	MF	410-B Arch.	
	C	1–4	TT	410-A Arch.	
	D	2–5	MW	410-A Arch.	

Arch. 26. Freehand Drawing.—*Prerequisite:* Arch. 25.

2	A	1–4	TT	410-B Arch.	
	B	9–12	MW	410-B Arch.	

Arch. 28. Freehand Drawing.—*Prerequisite:* Arch. 27. (2). 8-11 TT; 10 Arch.

Arch. 32a. Architectural Design.—*Prerequisite:* Arch. 31a.

3	Lect.	2	W	120 Arch.	
	A	1–4	TT	210 Arch.	
	B	8–11	MF	210 Arch.	
	C	1–4	MF	210 Arch.	
	D	8–11	TT	210 Arch.	

Arch. 34. Architectural Design.—*Prerequisite:* Arch. 33.

3	A	8–11	TT	210 Arch.	
		1–4	F	210 Arch.	
	B	1–4	TT	210 Arch.	
		8–11	S	210 Arch.	
	C	1–4	MWF	210 Arch.	
	D	8–11	MWF	210 Arch.	

Arch. 36. Architectural Design.—*Prerequisite:* Arch. 35 and registration in Arch. 66.

5	A	9–12	M	200 Arch.	
		1–4	MWF	200 Arch.	
	B	9–12	FS	200 Arch.	
		1–4	TT	200 Arch.	

Arch. 38. Architectural Design.—*Prerequisite:* Arch. 37.

7	A	8–11	S	200 Arch.	
		1–4	MTWTF	200 Arch.	

Arch. 44. Technology of Materials.—*Prerequisite:* Arch. 43.

3	Lect.	11	F	302 Arch.	
	A	1–4	TT	310 Arch.	
	B	8–11	TT	310 Arch.	

Arch. 46. Graphic Statics.—*Prerequisite:* Arch. 45.

3	Lect.	9	Tu	302 Arch.	
	A	9–12	WF	310 Arch.	
	B	1–4	MW	310 Arch.	

Arch. 55. Building Sanitation.—*Prerequisite:* Phys. 8a-8b; Arch. 44. (1). 10 TT; 302 Arch.

Arch. 60a. Reinforced Concrete.—*Prerequisite:* Senior standing in Architecture. (2). 11 TT; 302 Arch.

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Arch. 66. Theory of Architecture.—*Prerequisite:* Arch. 65 and registration in Arch. 36. (1). 9 Th; 301 Arch.

Arch. 67. Theory of Form.—*Prerequisite:* Senior standing in Architecture. (2). 9-12 MW; 20 Arch.

Arch. 72. Architectural Elements.—*Prerequisite:* Arch. 71. Not open to students expecting a degree from the Department of Architecture.

Credits	Section	Hours	Days	Room	Instructor
4	A	1–4	TT	210 Arch.	
		8–10	MF	410-A Arch.	
		2	W	120 Arch.	

Arch. 76. Masonry Construction Details.—*Prerequisite:* Arch. 75. Not open to students expecting a degree from the Department of Architecture.

3	A	1	TT	301 Arch.
		2–5	TT	310 Arch.

Courses for Graduates

Arch. 101. Architectural Construction.—(½ to 1 unit).* Two or three times a week. Time to be arranged. Professors PROVINE, PALMER.

Arch. 103. Advanced Architectural Graphics.—(1 to 2 units).* Two or three times a week. Time to be arranged. Professors PROVINE, PALMER.

Arch. 104. Architectural Design.—(1 to 4 units).* Time to be arranged. Professor DEAM.

Arch. 105. Architectural Practice.—(¼ to ½ unit).* Time to be arranged. Professor PROVINE.

Arch. 106. Architectural History.—(½ to 2 units).* Time to be arranged. Professor NEWCOMB.

B. ARCHITECTURAL ENGINEERING

A.E. 36. Architectural Design.—*Prerequisite:* A.E. 35.

3	C	1–4	MWF	210 Arch.
	D	8–11	MWF	210 Arch.

A.E. 46. Graphic Statics.—*Prerequisite:* A.E. 45.

3	Lect.	11	M	302 Arch.
	C	1–4	TT	310 Arch.
	D	8–11	TT	310 Arch.

A.E. 48. Architectural Engineering.—*Prerequisite:* A.E. 47 and registration in A.E. 58.

5	C	9–11	TT	300 Arch.
		1–4	MWF	300 Arch.

A.E. 58. Fireproof Construction.—*Prerequisite:* A.E. 57. (2). 1-4 TT; 300 Arch.

A.E. 67. Building Sanitation.—*Prerequisite:* Senior standing in Architectural Engineering. (2). 10 MW; 302 Arch.

A.E. 68. Estimates and Specifications.—*Prerequisite:* Senior standing in Architectural Engineering. (4). 11 MTWT; 301 Arch.

ART

Art 1a. Cast and Still Life Drawing.—(3). 9-12 MW; Hall of Casts, Arch. Assistant Professor NEARPASS.

Art 1b. Cast Drawing.—*Prerequisite:* Art 1a.

2	A	9–12	MW	403 Arch.	DONOVAN
2	B	9–12	TT	403 Arch.	DONOVAN

Art 2a. Design.—*Prerequisite:* Art 1a. (2). 2 MF; 302 Arch. Associate Professor LAKE.

Art 2b. Composition.—*Prerequisite:* Art 2a.

2	A	9–12	F	403 Arch.	NEARPASS
2	B	1–4	M	403 Arch.	NEARPASS

Art 2d. Composition.—*Prerequisite:* Art 2c. (2). 9-12 Th; 403-B Arch. Assistant Professor NEARPASS.

Art 2f. Composition and Illustration.—*Prerequisite:* Art 2e. (2). 9-12 Th; 403-B Arch. Assistant Professor NEARPASS.

Art 2h. Composition (Mural).—*Prerequisite:* Art 2g. (3). 9-12 Th; 403-B Arch. Assistant Professor NEARPASS.

Art 3b. Anatomy and Sketch.—*Prerequisite:* Art 3a.

2	Lect.	9	S	403-B Arch.	NEARPASS
	A	10–12	S	403-B Arch.	NEARPASS
	B	1–4	W	403 Arch.	NEARPASS

Art 4a. Modeling.—*Prerequisite:* Art 1a.

2	A	9–12	TT	20 Arch.	LAKE
2	B	1–4	TT	20 Arch.	LAKE

Art 4b. Modeling.—*Prerequisite:* Art 4a. (2). 1-4 TT; 20 Arch. Associate Professor LAKE.

Art 4d. Modeling.—*Prerequisite:* Art 4c. (2). 1-4 TT; 20 Arch. Associate Professor LAKE.

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Art 5b. **Life Drawing.**—*Prerequisite:* Art 5a. (3). 1-4 MWF; 403-B Arch. Associate Professor BRADBURY.

Art 5d. **Life Drawing.**—*Prerequisite:* Art 5c. (3). 1-4 MWF; 403-B Arch. Associate Professor BRADBURY.

Art 5f. **Life Painting.**—*Prerequisite:* Art 5e. (3). 1-4 MWF; 403-B Arch. Associate Professor BRADBURY.

Art 6b. **Portrait.**—*Prerequisite:* Art 6a. (2). 9-12 MW; 403-B Arch. Associate Professor BRADBURY.

Art 6d. **Portrait.**—*Prerequisite:* Art 6c. (2). 9-12 MW; 403-B Arch. Associate Professor BRADBURY.

Art 6f. **Portrait.**—*Prerequisite:* Art 6e. (3). 9-12 MWF; 403-B Arch. Associate Professor BRADBURY.

Art 7b. **Still Life.**—*Prerequisite:* Art 7a. (2). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

Art 8b. **Sketch.**—*Prerequisite:* Art 8a. (1). 9-12 Tu; 403-B Arch. Associate Professor BRADBURY.

Art 8d. **Sketch.**—*Prerequisite:* Art 8c. (1). 9-12 Tu; 403-B Arch. Associate Professor BRADBURY.

Art 9b. **Commercial Art.**—*Prerequisite:* Art 9a. (2). 9-12 S; 403 Arch. Assistant Professor DONOVAN.

Art 10b. **Landscape.**—*Prerequisite:* Art 10a. (2). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

Art 10d. **Landscape.**—*Prerequisite:* Art 10c. (3). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

Art 11b. **Water Color.**—*Prerequisite:* Art 11a. (2). 1-4 Th; 403-B Arch. Assistant Professor NEARPASS.

Art 11d. **Water Color.**—*Prerequisite:* Art 11c. (2). 1-4 Th; 403-B Arch. Assistant Professor NEARPASS.

Art 13a. **Design.**—(2). 3-5 TT; 342 L.H. Miss ANDERSON.

Art 13b.[1] **Design.**—*Prerequisite:* Art 13a.

Credits	Section	Hours	Days	Room	Instructor
2	A	10–12	MW	342 L.H.	ANDERSON
	B	1–3	MW	342 L.H.	ANDERSON
	C	10–12	TT	342 L.H.	ANDERSON
	D	10–12	FS	342 L.H.	ANDERSON

[1]Sections A, B, C, D for Home Economic students. Sections A and C for Fine Arts students.

Art 14b. **Interior Design.**—*Prerequisite:* Art 2a and 11a. (2). 1-3 TT; 342 L.H. Miss ANDERSON.

Art 15b. **Course for Teachers.**—*Prerequisite:* Art 2a. (3). 9 MWF; 342 L.H. Miss ANDERSON.

Art 16b. **History of Fine Arts.**—*Prerequisite:* Art 16a. (2). 4 MW; 120 Arch. Associate Professor LAKE.

Art 16d. **History of Fine Arts.**—*Prerequisite:* Art 16c. (2). 4 TT; 120 Arch. Assistant Professor NICHOLSON.

Art 16f. **History of Modern Art.**—*Prerequisite:* Junior standing. (3). 10 MWF; 120 Arch. Assistant Professor NICHOLSON.

Art 16h. **History of Medieval Art.**—*Prerequisite:* Junior standing. (3). 9 MWF; 120 Arch. Assistant Professor NICHOLSON.

Art 18. **Technical Elective.**—*Prerequisite:* For senior Art students only. (2). Hours to be arranged.

ASTRONOMY

Course for Undergraduates

Astron. 2. **Descriptive Astronomy.**—Continuation of Astron. 1. The sun, stars, nebulae; the galactic system. *Prerequisite:* Astron. 1. (3). 11 MWF, 229 N.H.; one hour Wednesday evening, Observatory. Assistant Professor MERRILL.

Course for Undergraduates and Graduates

Astron. 16. **Variable Stars.**—Types and causes of variation; methods of observation; construction of mean light curves. *Prerequisite:* Astronomy 1 and 2. (3). 11 TTS; Observatory. Assistant Professor MERRILL.

Course for Graduates

Astron. 102. **Seminar.**—(1 unit). 1 MWF; Observatory. Assistant Professor MERRILL.

ATHLETIC COACHING

(See Education, E.)

BACTERIOLOGY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $8.

For students entering prior to September, 1929

Major: 20 hours chosen from the courses offered by this department. Five hours may be chosen from the following courses offered by other departments: Dairy bacteriology (dairy husbandry).

Minors: 20 hours chosen from one or two of the following: Chemistry, botany, zoology, physiology.

For students entering after September 1, 1929

Major: 20 hours chosen from the courses offered by this department. Dairy Husbandry 10 (advanced dairy bacteriology) may be offered in partial satisfaction of this requirement. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: Chemistry and botany. At least eight hours must be offered in each subject if two are chosen.

Bact. 5a. Introductory Bacteriology and Sanitary Science.—*Prerequisite:* Sophomore standing; or consent of the instructor.

Credits	Section	Hours	Days	Room	Instructor
3	A[1] Quiz	9	MWF	213 U.H.	WALLACE
	B Quiz	9	MWF	300 Chem.	WHEATON
[1]Sections A and G are for advanced students in science.	C Quiz	10	MWF	303 Chem.	MILLER
	D Quiz	11	MWF	300 Chem.	CLARK
	E Quiz	2	MWF	300 Chem.	WHEATON
	F Quiz	3	MWF	300 Chem.	REHM
	G[1] Quiz	9	TTS	303 Chem.	WALLACE
	H Quiz	10	TTS	241 N.H.	REHM

Bact. 5b. Introductory Bacteriology, Laboratory.—*Prerequisite:* Bact. 5a or concurrent registration in it.

2	Lab. A	8–10	MW	367 Chem.	CLARK
	Lab. B	10–12	MW	367 Chem.	WHEATON
	Lab. C	1–3	MW	367 Chem.	REHM
	Lab. D	10–12	TT	367 Chem.	CLARK
	Lab. E	1–3	TT	367 Chem.	MILLER

Bact. 7b. Research and Special Problems for Undergraduates.—*Prerequisite:* 10 hours of bacteriology or consent of the instructor. (3 to 5).* Time to be arranged. Professor TANNER, Dr. WALLACE.

Courses for Advanced Undergraduates and Graduates

Bact. 8. Food and Applied Bacteriology.—*Prerequisite:* Bact. 5a and 5b; junior standing; consent of the instructor.

5	Lect.	8	MW	229 N.H.	TANNER
	Lab.	8–10	TTS	367 Chem.	CLARK

Bact. 20. General Bacteriology.—*Prerequisite:* Two years of college chemistry; senior standing; consent of the instructor. Students with credit in Bact. 5a and 5b will not be allowed credit for Bact. 20.

5	Lect.	1	MW	301 Chem.	WALLACE
	Lab.	1–4	TT	367 Chem.	WALLACE

Courses for Graduates

Bact. 107. Research.—(½ to 4 units).* Time to be arranged. Professor TANNER.

Bact. 118b. Journal Meeting.—(Required of all graduate students who major in general bacteriology.) *Prerequisite:* Graduate standing and consent of instructor; 10 hours of bacteriology. (¼ unit). 8 Tu; 366 Chem. Professor TANNER.

BANDS

(See Military Bands.)

BANKING

(See Economics.)

BIOLOGY

(See Bacteriology, Botany, Entomology, Physiology, and Zoology.)

BOTANY

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

For students entering prior to September, 1929

Major: 20 hours of botany exclusive of courses 1, 5, and 11.

Minors: 20 hours chosen in consultation with the head of the department from not more than three subjects in the following list: Agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least 8 hours must be offered in one subject.

Credit for seniors who take Botany 1 or 5 will be reduced one hour.

For students entering after September 1, 1929

Major: 20 hours of botany exclusive of courses 1 and 5, and inclusive of courses 2a or 2b, 3, and at least 5 hours in courses listed for advanced undergraduates and graduates.

Minors: 20 hours in one or two departments chosen in consultation with the head of the department from the following list: Agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least eight hours must be offered in each department, if two are chosen.

Courses for Undergraduates

Bot. 1. General Botany.—

5[1]	Lect.	9	TT	228 N.H.	HOTTES, STEVENS, BUCHHOLZ, and VESTAL
[1]Seniors will receive only 4 hours credit.	A Lab.	8–10	MWF	258 N.H.	MOINAT and assistants
	B Lab.	10–12	MWF	258 N.H.	
	C Lab.	1–3	MWF	258 N.H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Bot. 1. (Concluded)

Credits	Section	Hours	Days	Room	Instructor
5[1]	1 Disc.	8	Tu	258 N.H.	HOTTES,
	2 Disc.	8	Tu	258 N.H.	BUCHHOLZ,
	3 Disc.	8	Th	258 N.H.	VESTAL,
	4 Disc.	8	Th	258 N.H.	HAGUE,
[1]Seniors will receive	5 Disc.	10	Tu	258 N.H.	MOINAT,
only 4 hours credit.	6 Disc.	10	Th	258 N.H.	BURK
	7 Disc.	10	Th	258 N.H.	
	8 Disc.	11	Tu	258 N.H.	
	9 Disc.	11	Th	258 N.H.	
	10 Disc.	1	Tu	258 N.H.	
	11 Disc.	1	Th	258 N.H.	
	12 Disc.	2	Tu	258 N.H.	

Bot. 2b. Morphology.—*Prerequisite:* Bot. 1 or 5. (3). 1-3 MWF; 204 Entom. Dr. HAGUE.

Bot. 5. Botany for students in Agriculture.—

3[1]	Lect.	9	Th	217 Chem.	HOTTES, STEVENS,
[1]Seniors will receive	A Lab.	10–12	TT	258 N.H.	BUCHHOLZ,
only 2 hours credit.	B Lab.	1–3	TT	258 N.H.	VESTAL, MOINAT, and assistants

Bot. 6. Introductory Systematic Botany.—The structure, identification and phylogeny of flowering plants with special reference to the local flora. *Prerequisite:* Bot. 1 or 5. (3). Lect. 1 F, Lab. 1-3 MW; 350 N.H. Miss BURK.

Bot. 9. Plant Parasites.—Life histories of thallophytic and cormophytic parasites. *Prerequisite:* Bot. 1 or 5. (1). 4 Th; 350 N.H. Visiting Professor PALM.

Bot. 13. Plant Physiology.—*Prerequisite:* Bot. 1 or 5.

3	Lect.	10	W	229 N.H.	
	Lab.	10–12	MF	153 N.H.	MOINAT

Bot. 14. Botany for Teachers.—*Prerequisite:* 15 hours of botany. (3). 11 TT and arrange additional hour; 216 N.H. Associate Professor VESTAL.

Bot. 15. Diseases of Plants.—*Prerequisite:* Bot. 7. (3). Lab. 8-10 MWF; 304 N.H. Professor STEVENS.

Bot. 16. Algae.—*Prerequisite:* Bot. 2a, and junior standing. (3). 8-10 TTS; 204 Entom. Dr. HAGUE.

Bot. 42. Fungi.—*Prerequisite:* Bot. 2a, and junior standing. (3 or 5).* 1-3 MWF; 304 N.H. Professor STEVENS.

Courses for Advanced Undergraduates and Graduates

Note: Time schedule is for 3 hours credit. For more credit arrange.

Bot. 20. Cytology.—*Prerequisite:* 15 hours of botany inclusive of 45, and junior standing. (3 or 5).* 8-10 MWF; 201 Entom. Professor BUCHHOLZ.

Bot. 34. Physiology.—*Prerequisite:* 15 hours of botany inclusive of Bot. 3, and junior standing. (3 or 5).* 1-3 MWF; 155 N.H. Professor HOTTES and assistant.

Bot. 77. Taxonomy of Pathogenic Fungi.—*Prerequisite:* 15 hours of botany inclusive of Bot. 7, and junior standing. (3 or 5).* 11 Tu; the rest arrange; 304 N.H. Professor STEVENS.

Bot. 88. Ecology.—Plant Communities. *Prerequisite:* 15 hours of botany inclusive of Bot. 8, and junior standing. (3 or 5).* 10-12 MWF; 216 N.H. Associate Professor VESTAL.

Bot. 90b. Thesis Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Time to be arranged.

Bot. 91b. Honors Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Time to be arranged.

Courses for Graduates

Bot. 110. Botanical Discussion.—No credit. Required of all graduate students in botany and members of the instructional staff. 4 Tu; 258 N.H.

Bot. 112. Discussions in Plant Morphology.—(¼ unit). 4 F; 205 Entom. Professor BUCHHOLZ.

Bot. 113. Discussions in Physiology.—(¼ unit). 4 Th; 155 N.H. Professor HOTTES.

Bot. 117. Discussions in Pathology and Mycology.—(¼ unit). 4 W; 304 N.H. Professor STEVENS.

Bot. 118. Discussions in Ecology.—(¼ unit). 4 M; 204 N.H. Associate Professor VESTAL.

Research Courses

Bot. 120. Embryology of Seed Plants.—(½ to 2 units).* (Bot. 112 to be taken concurrently.) 1 hour on either MWF from 1 to 3, the rest arrange; 201 Entom. Professor BUCHHOLZ.

Bot. 122. Experimental Morphology.—(½ to 2 units).* (Bot. 112 to be taken concurrently.) 1 hour on either MWF from 1 to 3, the rest arrange; 201 Entom. Professor BUCHHOLZ.

Bot. 130. Physiology.—(½ to 2 units).* (Bot. 113 to be taken concurrently.) 1 hour on either MWF from 1 to 3, the rest arrange; Bot. Annex. Professor HOTTES.

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Bot. 155. Plant Geography.—(½ to 2 units).* (Bot. 118 to be taken concurrently.) 1 hour on Tuesday from 1 to 3, the rest arrange. Associate Professor VESTAL.

Bot. 170. Pathology.—(½ to 2 units).* (Bot. 117 to be taken concurrently.) Arrange. 304 N.H. Professor STEVENS.

Bot. 171. Parasitism.—Anatomic, cytologic, and physiologic relationship between parasite and host. (Not thesis). (1 unit). Arrange. 350 N.H. Visiting Professor PALM.

Bot. 177. Mycology.—(½ to 2 units).* (Bot. 117 to be taken concurrently.) Arrange. 304 N.H. Professor STEVENS.

Bot. 180. Ecology.—(½ to 2 units).* (Bot. 118 to be taken concurrently.) 1 hour on Tuesday from 1 to 3, the rest arrange; 204 N.H. Associate Professor VESTAL.

BUSINESS LAW

(See Business Organization and Operation.)

BUSINESS ORGANIZATION AND OPERATION

(Including Accountancy and Business Law.)

A. ACCOUNTANCY

Courses for Undergraduates

Accy. 1a. Principles of Accounting.—Beginner's course. (Students who present one unit of bookkeeping for entrance will not be allowed credit in Accy. 1a and should register in Accy. 1e.)

Credits	Section	Hours	Days	Room	Instructor
3[1]	A	8	MWF	329 Com.	LUKAS
[1]Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above.	J	8	TTS	326 Com.	ANDERSON
	C	10	MWF	329 Com.	LUKAS
	L	10	TTS	326 Com.	ANDERSON
	D	11	MWF	329 Com.	LUKAS
	M	11	TTS	326 Com.	ANDERSON
	E	1	MWF	126 Com.	ALLEN
	F	2	MWF	222 Com.	ALLEN

Accy. 1b. Accounting Procedure.—A continuation of Accy. 1a. (Credit is given for Accy. 1a without Accy. 1b.) *Prerequisite:* Accy. 1a.

3	A1	8	MWF	123 Com.	KARRENBROCK
	A2	8	MWF	222 Com.	MOYER
	J1	8	TTS	123 Com.	KARRENBROCK
	J2	8	TTS	223 Com.	DIETERLE
	B	9	MWF	123 Com.	KARRENBROCK
	K1	9	TTS	123 Com.	KARRENBROCK
	K2	9	TTS	223 Com.	DIETERLE
	C1	10	MWF	119 Com.	BAILY
	C2	10	MWF	224 Com.	BENEDETTO
	L1	10	TTS	325 Com.	MCMAHAN
	L2	10	TTS	223 Com.	BENEDETTO
	D1	11	MWF	119 Com.	BAILY
	M1	11	TTS	325 Com.	MCMAHAN
	E1	1	MWF	305 Com.	MOYER
	E2	1	MWF	329 Com.	DUNHAM
	F1	2	MWF	119 Com.	BAILY
	F2	2	MWF	305 Com.	MOYER
	G1	3	MWF	329 Com.	DUNHAM

Accy. 1e. Principles of Accounting.—Similar to Accy. 1a. (Students who have one unit entrance credit in bookkeeping must take this course rather than Accy. 1a.) *Prerequisite:* One unit of entrance credit in bookkeeping.

2[1]	O	2	TT	326 Com.	ANDERSON
[1]Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above.	P	3	TT	326 Com.	ANDERSON

Accy. 2a. Elementary Cost Accounting.—*Prerequisite:* Accy. 1b; registration or credit in Econ. 1.

3	J	8	TTS	219 Com.	DELONG
	K1	9	TTS	219 Com.	DELONG
	K2	9	TTS	325 Com.	LUKAS
	D	11	MWF	219 Com.	DELONG
	F	2	MWF	219 Com.	DELONG
	G	3	MWF	219 Com.	DELONG

Accy. 2b. Intermediate Accounting.—*Prerequisite:* Accy. 2a.

3	A	8	MWF	111 Com.	GREEN
	J	8	TTS	122 Com.	HACKETT
	B	9	MWF	111 Com.	GREEN
	K	9	TTS	122 Com.	HACKETT
	C1	10	MWF	326 Com.	FRESK

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Accy. 2b (Concluded)

Credits	Section	Hours	Days	Room	Instructor
3	C2	10	MWF	123 Com.	NEWCOMER
	L	10	TTS	111 Com.	VAN ARSDELL
	D	11	MWF	326 Com.	FRESE
	E	1	MWF	122 Com.	HACKETT
	F	2	MWF	123 Com.	NEWCOMER
	G1	3	MWF	123 Com.	NEWCOMER
	G2	3	MWF	326 Com.	FRESE

Courses for Advanced Undergraduates and Graduates

Accy. 3a. Advanced Accounting.—*Prerequisite:* Accy. 2a-2b; Econ. 3; an average of "C" or better in Accy. 1 and 2.

3	D	11	MWF	123 Com.	NEWCOMER
	F	2	MWF	326 Com.	FRESE

Accy. 3b. Auditing.—*Prerequisite:* Accy. 3a.

3	A	8	MWF	317 Com.	FILBEY
	B	9	MWF	317 Com.	FILBEY
	C	10	MWF	115 Com.	THEISS
	D	11	MWF	115 Com.	THEISS
	F	2	MWF	115 Com.	LITTLETON

Accy. 4a. Cost Accounting.—*Prerequisite:* Accy. 2a-2b.

2	L	10	TT	219 Com.	SCHLATTER
	M	11	TT	219 Com.	SCHLATTER

Accy. 4b. Accounting Systems.—*Prerequisite:* Accy. 2a-2b; Econ. 3. (Credit is given for either 4a or 4b separately.)

2	J	8	TT	115 Com.	BAILY
	K	9	TT	115 Com.	BAILY

Accy. 5b. C.P.A. Problems.—*Prerequisite:* Accy. 5a.

3	C	10	MWF	317 Com.	SCOVILL
	D	11	MWF	317 Com.	SCOVILL

Accy. 13. Governmental Accounting.—*Prerequisite:* Accy. 3a. (2). 2 TT; 122 Com. Mr. HACKETT.

Accy. 20. Income Tax Procedure.—*Prerequisite:* Senior standing; registration or credit in Accy. 3b.

2	K	9	TT	317 Com.	FILBEY
	L	10	TT	317 Com.	FILBEY
	M	11	TT	317 Com.	FILBEY

Accy. 30. Budgets and Accounting Control.—*Prerequisite:* Accy. 2b. (3). 8 MWF; 115 Com. Associate Professor THEISS.

Accy. 90b. Thesis.—Primarily for candidates for honors. *Prerequisite:* Accy. 90a. (Credit is not given for Accy. 90a or 90b separately.) (2). Time to be arranged. Associate Professor THEISS.

Courses for Graduates

Accy. 103. Advanced Theory.—(1 unit). 3-5 Tu; 420 Com. Professor LITTLETON.

Accy. 104. Accounting Systems.—(1 unit). 3-5 Th; 209 Com. Professor SCOVILL.

Accy. 113. Governmental Accounting.—(1 unit). Arrange. Professor MOREY.

Accy. 129. Thesis.—(1 unit). 4-6 W; 420 Com. Professor LITTLETON and members of the staff.

B. BUSINESS ORGANIZATION AND OPERATION

Courses for Undergraduates

B.O.&O. 1. Industrial Organization and Management.—*Prerequisite:* Econ. 1 or Econ. 2; 45 credit hours. Junior and senior engineering students admitted with consent of instructor.

3	A	8	MWF	326 Com.	HUEGY
	J	8	TTS	312 Com.	MANDEVILLE
	B1	9	MWF	326 Com.	HUEGY
	B2	9	MWF	126 Com.	KRICK
	K	9	TTS	312 Com.	MANDEVILLE
	L	10	TTS	223 Com.	KRICK
	C1	10	MWF	306 Com.	ANDERSON
	C2	10	MWF	126 Com.	KRICK
	D1	11	MWF	306 Com.	ANDERSON
	D2	11	MWF	312 Com.	HUEGY
	E	1	MWF	325 Com.	KRICK
	F	2	MWF	325 Com.	MANDEVILLE
	G	3	MWF	312 Com.	HUEGY

B.O.&O. 2. Marketing Organization and Operation.—*Prerequisite:* Econ. 1; junior standing.

3	Lect. I	8	M	215 Com.	CONVERSE
	Lect. II	9	M	215 Com.	CONVERSE
	Quiz A1	8	WF	310 Com.	CONVERSE
	Quiz A2	8	WF	106 Com.	SCHENCK
	Quiz A3	8	WF	122 Com.	HESLIP
	Quiz B1	9	WF	106 Com.	SCHENCK
	Quiz B2	9	WF	115 Com.	CONVERSE

B.O.&O. 11. Survey Course in Business Organization.—*Prerequisite:* 45 credit hours. Not open to commerce students.

Credits	Section	Hours	Days	Room	Instructor
3	C	10	MWF	310 Com.	MANDEVILLE
	D	11	MWF	310 Com.	MANDEVILLE

Courses for Advanced Undergraduates and Graduates

B.O.&O. 3. Retail and Chain Store Organization and Operation.—*Prerequisite:* B.O.&O. 2. (3). 11 MWF; 322 Com. Mr. WHITLO.

B.O.&O. 4. Management in Manufacturing.—*Prerequisite:* B.O.&O. 1. (3). 8 MWF; 306 Com. Associate Professor ANDERSON.

B.O.&O. 7. Salesmanship.—*Prerequisite:* B.O.&O. 2.

2	K	9	TT	310 Com.	JONES
	L	10	TT	310 Com.	JONES
	N	1	TT	310 Com.	JONES
	O	2	TT	310 Com.	JONES

B.O.&O. 8. Advertising.—*Prerequisite:* B.O.&O. 2.

3	Lect.	11	W	215 Com.	RUSSELL
	D	11	MF	307 Com.	RUSSELL
	E	1	TT	326 Com.	SCHENCK
	F	2	TT	307 Com.	RUSSELL

B.O.&O. 9. Trade and Commercial Organizations.—*Prerequisite:* B.O.&O. 2; senior standing. (2). 11 TT; 222 Com. Dean THOMPSON, Mr. BRUCE.

B.O.&O. 17. Sales Management.—*Prerequisite:* B.O.&O. 7. (2). 11 TT; 322 Com. Mr. HESLIP.

B.O.&O. 18. Advertising Campaigns.—*Prerequisite:* B.O.&O. 8. (3). 9 MWF; 307 Com. Professor RUSSELL.

B.O.&O. 22. Marketing Policies and Problems.—*Prerequisite:* B.O.&O. 2; senior standing. (2). 8 TT; 310 Com. Professor CONVERSE.

B.O.&O. 90b. Thesis.—Primarily for candidates for honors. *Prerequisite:* B.O.&O. 90a. (Credit not given for B.O.&O. 90a or 90b separately.) (2). Time to be arranged. Members of the staff.

Courses for Graduates

B.O.&O. 102. Marketing Policies and Problems.—(1 unit). Time to be arranged. Professor CONVERSE.

B.O.&O. 104. Scientific Management.—(1 unit). Time to be arranged. Associate Professor ANDERSON.

B.O.&O. 107. Sales Campaigns.—(1 unit). Time to be arranged. Professor RUSSELL.

B.O.&O. 129. Thesis.—(1 unit). Time to be arranged. Professor RUSSELL and members of the staff.

C. BUSINESS LAW

Courses for Undergraduates

Bus. Law 1a. General Principles of Business Law.—*Prerequisite:* 60 hours of university credit.

3	A	8	MWF	119 Com.	ASHER
	B	9	MWF	119 Com.	ASHER
	L	10	TTS	119 Com.	ASHER
	M	11	TTS	119 Com.	ASHER

Bus. Law 1b. General Principles of Business Law.—*Prerequisite:* Bus. Law 1a.

3	A	8	MWF	223 Com.	ROBERTS
	B1	9	MWF	223 Com.	ROBERTS
	B2	9	MWF	222 Com.	CURTIS
	C	10	MWF	222 Com.	CURTIS
	D	11	MWF	223 Com.	ROBERTS
	E	1	MWF	222 Com.	CURTIS
	F	2	MWF	224 Com.	DILLAVOU
	J	8	TTS	119 Com.	ASHER
	K	9	TTS	222 Com.	CURTIS
	L	10	TTS	222 Com.	CURTIS

Bus. Law 3. Law for Engineering Students.—*Prerequisite:* Junior standing in the College of Engineering. (3). 2 MWF; 223 Com. Mr. ROBERTS.

Courses for Advanced Undergraduates and Graduates

Bus. Law 10. Law of Security Relations and Banking.—*Prerequisite:* Senior standing and registration or credit in Bus. Law 1b.

3	A	8	MWF	224 Com.	DILLAVOU
	B	9	MWF	224 Com.	DILLAVOU

CERAMIC ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2 to $7.50.

Cer.E. 4. Ceramic Materials.—*Prerequisite:* Cer. 1. (3). 1-4 MWF; 113 and 114 Cer.

Cer.E. 8. Glass Technology.—*Prerequisite:* Chem. 40 and Cer. 14. (2). Arrange.

Cer.E. 10. Cements.—*Prerequisite:* Chem. 40 and registration in Cer. 28. (3). 10 MWF; 214 Cer.

Cer.E. 11. Drying Clay Products.—*Prerequisite:* Phys. 1a-1b, 3a-3b; Cer. 1. (3). 11 MWF; 218 Cer.

Cer.E. 14. Glasses and Glazes.—*Prerequisite:* Cer. 5 and registration in Chem. 40. (3). 11 TT; 218 Cer.; 8-11 TT; 113 and 114 Cer.

Cer.E. 20. Refractory Materials.—*Prerequisite:* Chem. 40. (2). 4 TT; 218 Cer.

Cer.E. 24. Ceramic Engineering Design.—*Prerequisite:* Cer. 23; T.A.M. 3. (3). 1-4 MWF; 212 Cer.

Cer.E. 28. Pyrochemical Problems.—*Prerequisite:* Cer. 14; Chem. 40. (2). 9 MW; 214 Cer.

Cer.E. 98. Thesis.—(3-5).* Arrange.

Courses for Graduates

Cer.E. 101. Chemistry of the Compounds of Silicon.—*Prerequisite:* Elementary courses in organic and physical chemistry. (¾ unit). Arrange.

Cer.E. 102. General Technology of the Clay Industries.—*Prerequisite:* The elements of mineralogy and of physical chemistry. Lectures; seminar; laboratory. (1 or 2 units).* Arrange.

Cer.E. 104. Technology of Glass.—Lectures and laboratory. (1 or 2 units).* Arrange.

CHEMICAL ENGINEERING

(See Chemistry.)

CHEMISTRY

Note: Certain courses in this department require laboratory fees varying from $3 to $18.

For students entering prior to September, 1929

Students in the curricula of chemistry and chemical engineering, majors in chemistry, and all others who desire a thorough training in the fundamentals of chemistry and their applications to modern life, should select courses from the following, and usually in the sequence given: Chemistry 1 or 2, 6, 10, 24, 34a, 36b, 37b, 40, 41, 42b, 43b, 50a, and courses in the industrial, sanitary, and miscellaneous groups. Students in engineering should register for Chemistry 3 or 2, 4, 24. Students who are compelled to meet chemical requirements briefly may register for the following sequence: Chemistry 1 or 2, 5, 24, 32 or 33.

Students who find it impossible to take more than one semester's work are requested to register in Chemistry 1 or 2 in the second semester rather than in the first.

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, and 6 and inclusive of courses in qualitative, quantitative, and organic chemistry.

Minors: 20 hours, chosen from not more than three of the following: bacteriology, botany, geology, mathematics, philosophy, physiology, physics, entomology, and zoology.

For students entering after September 1, 1929

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, and 6 and inclusive of courses in qualitative, quantitative, and organic chemistry. At least five hours must be offered from the advanced group.

Minors: 20 hours, chosen from not more than two of the following: Bacteriology, botany, geology, mathematics, philosophy, physiology, physics, entomology, and zoology. At least eight hours must be offered in each subject if two are chosen.

Courses for Undergraduates

Chem. 1. Inorganic Chemistry.—*Prerequisite:* One unit of entrance credit in physics, or 2½ units of entrance credit in mathematics, or registration in Math. 1a, or 2, or 3.

Credits	Section	Hours	Days	Room	Instructor
5[1]	A Lect.	11	TT	100 Chem.	PEIRCE
	B Lect.	9	TT	100 Chem.	REED
	1 Quiz	9	MW	201, 163 Chem.	
	Lab.	8–10	TTS	101 Chem.A.	
	2 Quiz	8	TT	8 Chem.A., 301 Chem.	
	Lab.	8–10	MWF	212 Chem.A.	
	3 Quiz	10	TT	308 Chem.A.	
				300, 301, 303 Chem.	
	Lab.	10–12	MWF	1 Chem.A.	
	4 Quiz	11	MW	8 Chem.A., 210 Chem.A.	
	Lab.	2–5	TT	101 Chem.A.	
	5 Quiz	1	TT	8, 9 Chem.A., 162 Chem.	
	Lab.	1–3	MWF	101, 212 Chem.A.	
	6 Quiz	2	TT	9 Chem.A.	
	Lab.	10–12	MWF	212 Chem.A.	
	7 Quiz	9	MW	8, 9 Chem.A.	
	Lab.	3–5	MWF	212 Chem.A.	

[1]Students who have received entrance credit for high school chemistry are given only 3 hours credit for Chem. 1. Seniors allowed only 3 hours credit.

Chem. 2. Inorganic Chemistry.—(For all students who have had one year of high school chemistry.) *Prerequisite:* One unit of entrance credit in chemistry. *Note:* Students whose preparation in chemistry is inadequate are advised to register for Chem. 1 or Chem. 3, rather than Chem. 2.

3[1]	C Lect.	11	W	112 Chem.A.	WARD
	D Lect.	9	W	112 Chem.A.	COPLEY
	20 Quiz	3	MW	9 Chem.A.	
	Lab.	3–5	F	101 Chem.A.	
	21 Quiz	8	TT	303 Chem.	
	Lab.	8–10	S	212 Chem.A.	
	23 Quiz	11	TT	300, 301 Chem.	
	Lab.	10–12	F	212 Chem.A.	

[1]Seniors are allowed only 2 hours credit in Chem. 2. Students below the rank of sen-

(Continued on page 15)

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Chem. 2 (Concluded)

Credits	Section	Hours	Days	Room	Instructor
3[1]	24 Quiz	1	WF	8, 9 Chem.A.	
	Lab.	10–12	Tu	212 Chem.A.	
ior receive 5 hours	25 Quiz	2	TT	8 Chem.A.	
credit, provided their	Lab.	3–5	Tu	212 Chem.A.	
high school chemistry	26 Quiz	10	MW	8 Chem.A.	
has not been used for	Lab.	10–12	Th	212 Chem.A.	
entrance and their fi-	27 Quiz	10	TT	111, 204 Chem.	
nal grade in Chem. 2	Lab.	10–12	F	201 Chem.A.	
is "C" or above.	28 Quiz	11	MF	301 Chem.	
	Lab.	3–5	W	1 Chem.A.	
	29 Quiz	11	TT	8 Chem.A.	
	Lab.	10–12	M	212 Chem.A.	
	30 Quiz	11	MF	303 Chem.	
	Lab.	1–3	W	1 Chem.A.	
	31 Quiz	9	MW	162 Chem.	
	Lab.	8–10	F	101 Chem.A.	

Chem. 3. Inorganic Chemistry.—(For engineering students who have had no chemistry.) *Note:* Students who have credit for high school chemistry should register for Chem. 2.

4[1]	A Lect.	11	TT	100 Chem.	PEIRCE
	B Lect.	9	TT	100 Chem.	REED
[1]Students who have	41 Quiz	11	MW	9 Chem.A.	
used their high school	Lab.	1–3	MF	201 Chem.A.	
chemistry for entrance	42 Quiz	10	TT	210 Chem.A.	
credit are allowed only	Lab.	3–5	MF	201 Chem.A.	

3 hours credit for Chem. 3. Seniors are allowed only 3 hours credit.

Chem. 4. Qualitative Analysis and Chemistry of the Metallic Elements.—(Limited to students in the engineering curricula.) *Prerequisite:* Chem. 1, 2, or 3.

4[1]	E Lect.	10	MF	100 Chem.	STILLWELL
	F Lect.	11	MF	100 Chem.	PEIRCE
	80 Quiz	8	MW	9 Chem.A.	
	Lab.	1–3	MF	1 Chem.A.	
[1]Seniors are allowed	81 Quiz	9	MW	103 Chem.	
only 3 hours credit.	Lab.	1–3	TT	1 Chem.A.	
	82 Quiz	10	TT	103, 163 Chem.	
	Lab.	8–10	TT	1 Chem.A.	
	83 Quiz	9	TT	9 Chem.A.	
	Lab.	1–3	TT	1 Chem.A.	
	85 Quiz	11	TT	303 Chem.	
	Lab.	8–10	MW	1 Chem.A.	
	86 Quiz	8	TT	201 Chem.	
	Lab.	10–12	TT	1 Chem.A.	
	87 Quiz	1	TT	308 Chem.A.	
	Lab.	8–10	TT	1 Chem.A.	
	88 Quiz	11	MW	201 Chem.	
	Lab.	1–3	TT	1 Chem.A.	
	89 Quiz	2	TT	210 Chem.A.	
	Lab.	8–10	MW	1 Chem.A.	
	90 Quiz	11	MW	103, 204 Chem.	
	Lab.	1–3	MF	1 Chem.A.	
	93 Quiz	8	MW	8 Chem.A., 300 Chem.	
	Lab.	3–5	MF	1 Chem.A.	
	94 Quiz	10	TT	8, 9 Chem.A.	
	Lab.	3–5	MF	1 Chem.A.	

Chem. 5. Inorganic Chemistry and Qualitative Analysis.—(Limited to students in the agricultural, home economics, and pre-medical curricula.) *Prerequisite:* Chem. 1, 2, or 3.

5[1]	G Lect.	9	TT	112 Chem.A.	BAILAR
	H Lect.	11	TT	112 Chem.A.	BAILAR
[1]Seniors are allowed	51 Quiz	2	MW	301 Chem.	
only 3 hours credit.	Lab.	3–5	TT	201 Chem.A.	
		9–11	S		
	52 Quiz	3	TT	8, 210 Chem.A.	
	Lab.	3–5	MWF	201 Chem.A.	
	53 Quiz	2	MW	9 Chem.A.	
	Lab.	3–5	MWF	201 Chem.A.	
	55 Quiz	2	MW	201 Chem.	
	Lab.	10–12	MWF	201 Chem.A.	
	56 Quiz	11	TT	116 Chem.	
	Lab.	1–3	MWF	201 Chem.A.	
	58 Quiz	1	TT	201, 300 Chem.	
	Lab.	1–3	MWF	201 Chem.A.	
	59 Quiz	8	TT	204, 300 Chem.	
	Lab.	8–10	MWF	201 Chem.A.	
	61 Quiz	9	MW	425 N.H.	
	Lab.	10–12	MWF	201 Chem.A.	
	62 Quiz	9	WF	210 Chem.A.	
	Lab.	1–4	TT	201 Chem.A.	
[2]Sections 63 and 64 are	63 Quiz[2]	8	TT	9 Chem.A., 103 Chem.	
for home economics	Lab.	8–10	MWF	201 Chem.A.	
students only.	64 Quiz[2]	1	TT	116 Chem.	
	Lab.	1–3	MWF	212 Chem.A.	

Chem. 6. Inorganic Chemistry.—(General course for second semester students.) *Prerequisite:* Chem. 1, 2, or 3.

Credits	Section	Hours	Days	Room	Instructor
5[1]	Lect.	10	TT	100 Chem.	HOPKINS
	70 Quiz	3	TT	9 Chem.A.	
	Lab.	3–5	MWF	101 Chem.A.	
	71 Quiz	10	MW	9 Chem.A.	
	Lab.	2–5	TT	101 Chem.A.	
	72 Quiz	8	MW	210 Chem.A.	
	Lab.	8–10	TTS	101 Chem.A.	
	73 Quiz	1	TT	210 Chem.A., 303, 301 Chem.	
	Lab.	1–3	MWF	101 Chem.A.	
	74 Quiz	8	TT	210 Chem.A.	
	Lab.	8–10	MWF	101 Chem.A.	
	75 Quiz[2]	11	TT	210, 9 Chem.A., 201 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	76 Quiz[2]	9	TT	210, 308 Chem.A.	
	Lab.	8–10	MWF	101 Chem.A.	

[1]Seniors are allowed only 3 hours credit.

[2]Sections 75 and 76 are for students in the curricula of chemistry and chemical engineering.

Chem. 10. Qualitative Analysis.—(Required of students majoring in chemistry and of those registered in the curriculum of chemistry or of chemical engineering.) *Prerequisite:* Chem. 6.

5[1]	Lect.	8	F	112 Chem.A.	REEDY
	1 Quiz	8	MW	111 Chem.	
	Lab.	1–4	TT	310 Chem.A.	
		8–11	S		
	2 Quiz	8	MW	308 Chem.A., 161 Chem.	
	Lab.	1–4	MWF	310 Chem.A.	
	4 Quiz	8	MW	116 Chem.	

[1]Students who already have credit for the laboratory work of qualitative analysis may, with the consent of the instructor, register for lecture and quiz only, and receive a credit of 2 hours. Such students must register in Section 4.

Chem. 22. Elementary Quantitative Analysis.—*Prerequisite:* Chem. 4 or 5 (for all students who have not followed the sequence Chem. 1, 2 or 3, 6 and 10).

5	Lect.	11	M	112 Chem.A.	ENGLIS
	A Quiz	11	WF	308 Chem.A.	
	B Quiz	11	WF	111 Chem.	

Chem. 24. Quantitative Analysis.—*Prerequisite:* Chem. 10.

5	Lect.	9	W	100 Chem.	CLARK
	A Quiz	9	MF	303, 111 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	9	MF	116, 204 Chem.	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S		
	C Quiz	9	MF	308 Chem.A.	
	Lab.	8–11	TTS	301 Chem.A.	
	D Quiz	9	MF	301 Chem.	
	Lab.	1–5:30	TT	301 Chem.A.	

Chem. 32. Elementary Organic Chemistry.—(Especially for students in agriculture.) *Prerequisite:* Chem. 5 or 10.

3	Lect.	8	ThS	217 Chem.	FUSON and assistants
	Quiz	8	Tu	111, 162 Chem. 163 Chem.	
	Lab.	1–4	Tu	216 Chem.	

Chem. 33. Elementary Organic Chemistry.—(For students in home economics and pre-medical courses.) *Prerequisite:* Chem. 10 or 5.

5	Lect.	8	MW	100 Chem.	SHRINER
	Quiz	8	F	100, 111 Chem. 161, 163 Chem. 204, 300 Chem. 303, 301 Chem.	
	A Conf.	8	Tu	100 Chem.	
	Lab.	9–11	Tu	250 Chem.	
		8–11	Th	250 Chem.	
	B Conf.	1	Tu	100 Chem.	
	Lab.	2–4	Tu	250 Chem.	
		1–4	Th	250 Chem.	
	C Conf.	1	M	100 Chem.	
	Lab.	2–4	M	250 Chem.	
		1–4	W	250 Chem.	

Quiz section assignments will be made by the instructor after registration is complete.

(Section C is limited to 20 premedic students.)

Chem. 90b. Thesis.—(Required of seniors in chemistry and chemical engineering.) *Prerequisite:* Chem. 24, 34a, 40, 41, 42b, and 43b or the consent of the head of the department. (3 to 5).* A minimum of five hours required for graduation. The subjects available include inorganic, analytical, organic, physical, electro, food, x-ray, sanitary, physiological, industrial, metallurgical, ceramic, phyto-, and photo-, chemistry. Professor ADAMS, in charge.

Chem. 91b. Elements of Glass-blowing.—*Prerequisite:* Two years' work in chemistry. (1). Arrange. Mr. ANDERS.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Courses for Advanced Undergraduates and Graduates

Chem. 12b. Teachers' Course.—*Prerequisite:* 13 hours of chemistry and senior or graduate standing. Open to students who expect to teach. (3). No graduate credit to chemistry students. 8 WF; 103 Chem.; practice teaching to be arranged. Dr. R. M. PARR.

Chem. 27. Special Methods and Instruments in Quantitative Analysis.—*Prerequisite:* Chem. 24, 34a, and 40, 41 or registration in 40 and 41. (Limited to 20 students.)

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	11	Tu	111 Chem.	SMITH
	A Lab.	1–4	TT	305 Chem.	
	B Lab.	1–4	F	305 Chem.	
		8–11	S	305 Chem.	

Chem. 36b. Organic Chemistry.—(Second course). *Prerequisite:* Chem. 34a. (3). 9 MWF; 217 Chem. Professor MARVEL.

Chem. 37b. Organic Chemistry.—(Laboratory). (Second course). To accompany Chem. 36b. *Prerequisite:* Chem. 34a, and 36b or registration in 36b.

2	A Conf.	1	W	217 Chem.	FUSON
	A Lab.	1–4	M	250 Chem.	
		2–4	W	250 Chem.	
	B Conf.	1	Th	217 Chem.	
(Section B is limited to 48 students.)	B Lab.	1–4	Tu	218 Chem.	
		2–4	Th	218 Chem.	

Chem. 40. Elementary Physical Chemistry.—*Prerequisite:* Chem. 24; Physics 1a-1b or 7a-7b; Math. 7 or 8. (3). 10 MWF; 161 Chem. Professor RODEBUSH.

Chem. 41. Elementary Physical Chemistry.—(Laboratory). To accompany Chem. 40.

1	A Lab.	1–4	Tu	124 Chem.	PHIPPS and
	B Lab.	1–4	Th	124 Chem.	assistants
	C Lab.	1–4	F	124 Chem.	

Chem. 42b. Elementary Physical Chemistry.—*Prerequisite:* Chem. 40. (3). 8 TTS; 161 Chem. Associate Professor PHIPPS, Dr. COPLEY.

Chem. 43b. Elementary Physical Chemistry.—(Laboratory). *Prerequisite:* Chem. 40, 41 and registration in 42b.

1	A Lab.	1–4	M	124 Chem.	PHIPPS and
	B Lab.	1–4	Tu	124 Chem.	assistants
	C Lab.	1–4	W	124 Chem.	
	D Lab.	1–4	Th	124 Chem.	
	E Lab.	1–4	F	124 Chem.	

Chem. 44b. Advanced Physical Chemistry.—*Prerequisite:* Chem. 40, 41. (2). 10 TT; 161 Chem. Professor RODEBUSH.

Chem. 49b. Chemistry of Colloids.—*Prerequisite:* Chem. 24 and 40 or consent of the instructor. (3). 10 MWF; 116 Chem. Professor BUSWELL and assistant.

Chem. 51b. Problems of Metabolism.—*Prerequisite:* Chem. 50a.

3	Lect.	11	M	163 Chem.	DU VIGNEAUD
	Lab.	1–4	TT	450 Chem.	and assistants

Chem. 61b. Principles of Chemical Engineering.—*Prerequisite:* Chem. 42b and 60a.

4	Lect.	9	MWF	161 Chem.	KRASE
	A Lab.	1–6	M	50 Chem.	KISTLER
	B Lab.	1–6	Tu	50 Chem.	KISTLER
	C Lab.	1–6	W	50 Chem.	KISTLER

Chem. 62b. Principles of Research and Development.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (2). Lect., 10 MW; 111 Chem. Professor KEYES.

Chem. 63. Fuels and Their Combustion.—*Prerequisite:* Senior standing. (3). Lectures to be arranged. Mr. HOWARD.

Chem. 65b. Industrial Stoichiometry.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (3). Lect., 11 MWF; 161 Chem. Assistant Professor KISTLER.

Chem. 74b. Metallurgy and Metallography.—*Prerequisite:* Chem. 24.

3	Lect.	11	TT	161 Chem.	HOWARD
	A Lab.	1–6	W	53 Chem.	
	B Lab.	1–6	Th	53 Chem.	

Chem. 92b. Chemical Literature and Reference Work.—(Required of juniors in chemistry and chemical engineering; expected also of juniors taking major work in chemistry.) *Prerequisite:* 18 hours of chemistry; one year of French or German; junior standing.

1	A	10	Th	201 Chem.	BARTOW
	B	8	F	201 Chem.	
	C	10	Tu	201 Chem.	

Chem. 97b. Food Analysis.—*Prerequisite:* Chem. 24 and 33 or 34a.

5	Lect.	8	TT	116 Chem.	ENGLIS
	Quiz	1	M	116 Chem.	
	Lab.	2–4	M	216 Chem.	
		1–4	WF	216 Chem.	

Courses for Graduates

Graduate students whose major subject is in some department other than chemistry must have had the equivalent of 15 university credits in chemistry, and the ground covered should include satisfactory work in general chemistry and in qualitative and quantitative analysis and elementary organic chemistry. Such students are advised to make selections from the following courses: Chemistry 40, 41, 42b, 43b, 27, 34a, 36b and 37b, 50a, 15a, and 97b. Courses of a more special nature will not as a rule be accepted for graduate work unless preceded by one of the courses above. Graduate students who are candidates for an advanced degree in chemistry must have had the equivalent of 25 university credits in chemistry, properly distributed.

Graduate students whose major subject is in some department other than chemistry and who intend to take a first minor in chemistry or any branch of chemistry toward the Ph.D. degree must include among the courses taken Chemistry 40 and 41, or must have had the equivalent.

Graduate students who are candidates for the A.M. or M.S. degree in chemistry must include in the courses taken Chemistry 40 and 41, or must have had the equivalent. Graduate students who are candidates for the Ph.D. degree in any branch of chemistry must include among their courses Chemistry 40, 41, 42b and 43b, or must have had the equivalent. Those courses (with the exception of Chemistry 12b) listed under the heading "Advanced Undergraduate and Graduate Courses" may be all counted toward advanced degrees in chemistry.

Chem. 101b. Inorganic Chemistry.—The less familiar elements and their relationship in the periodic system. (½ unit). (For laboratory work see Chem. 102b.) Twice a week. 8 MW; 303 Chem. Professor HOPKINS.

Chem. 102b. Inorganic Chemistry.—Inorganic preparations and qualitative analysis of the less familiar elements. (Laboratory work to accompany or follow Chem. 101b.) Arrange. (¼ to ¾ unit).* Professor HOPKINS.

Chem. 105b. Inorganic Seminar and Special Topics.—(¼ to 1 unit).* Once, twice, or three times per week. Seminar, 11 S; 162 Chem. Special topic: Structure of Inorganic Molecules (Dr. BAILAR). 9 MW; 105 Chem.A. Professor HOPKINS.

Chem. 124b. Quantitative Analysis.—A modern survey of advanced principles, calculations, experimental methods and applications. Lectures with or without laboratory. Twice a week. (½ to 1¼ units).* 11 MF; 116 Chem. Associate Professor REEDY, Assistant Professor SMITH.

Chem. 125b. Analytical Chemistry.—(Seminar). (Required of all students taking a major or minor in analytical chemistry.) Once a week. (¼ to 1 unit).* 9 S; 217 Chem. Additional meetings arrange. Professor CLARK.

Chem. 127b. Modern Application of Radiation to Chemical and Industrial Problems.—(X-rays, radio activity, optical spectroscopy.) (½ to 1 unit).* Twice a week. 10 TT; 217 Chem. Laboratory, arrange; 308 Chem. Professor CLARK.

Chem. 133b. Organic Chemistry.—(¾ unit). Twice a week. 11 TT; 217 Chem. Professor ADAMS.

Chem. 134. Organic Chemistry.—Chiefly laboratory work. (½ to 1 unit).* Arrange. 219 Chem. Professor MARVEL.

Chem. 135b. Organic Chemistry.—(Seminar). (¼ unit). Once a week 10 W; 217 Chem. Professor ADAMS.

Chem. 145b. Physical Chemistry.—(Seminar). (¾ unit). Twice a week. 10-12 S; 176 Chem. Professor RODEBUSH.

Chem. 150b. Physiological Chemistry.—(¾ unit). Twice a week. 9 TT; 111 Chem. Professor ROSE.

Chem. 152b. Physiological Chemistry.—(½ to 1 unit).* Chiefly laboratory. Arrange. 463 Chem. Professor ROSE, Assistant Professor DU VIGNEAUD.

Chem. 155b. Physiological Chemistry.—(Seminar). Required of all students majoring in physiological chemistry. (¾ unit). Two hours a week. 9-11 F; 456 Chem. Professor ROSE.

Chem. 160b. Chemical Engineering.—*Prerequisite:* Chem. 61a and 61b. (¾ unit). Lect., 1 MW; 162 Chem. Professor KEYES.

Chem. 161b. Chemical Plant Design.—*Prerequisite:* Chem. 61a and 61b. (¾ unit). Twice a week. 9 TT; 162 Chem. Associate Professor KRASE.

Chem. 186b. Sanitary Chemistry.—(½ to 1¼ units).* Arrange. One to five times a week. 60-B Chem. Professor BUSWELL.

Chem. 190b. Research.—Work may be taken in the following subjects:

Physical and Electrochemistry.—Professor RODEBUSH, Associate Professor PHIPPS, Dr. COPLEY.

Inorganic Chemistry.—Professor HOPKINS, Associate Professor REEDY, Dr. BAILAR, Dr. STILLWELL, Dr. COPLEY.

Analytical Chemistry.—Professor CLARK, Associate Professor REEDY, Assistant Professors SMITH, ENGLIS.

Food and Phyto-Chemistry.—Assistant Professor ENGLIS.

Applied X-rays.—Professor CLARK.

Organic Chemistry.—Professors NOYES, ADAMS, MARVEL, Associate Professors SHRINER, FUSON, Dr. BAILAR.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Chem. 190b. (Concluded)

Sanitary Chemistry.—Professor BUSWELL.

Physiological Chemistry.—Professor ROSE, Assistant Professor DU VIGNEAUD.

Industrial Chemistry.—Professor KEYES, Associate Professor KRASE.

Ceramic Chemistry.—Professor PARMELEE.

CIVIL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $2.50.

C.E. 1. Plane Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

Credits	Section	Hours	Days	Room	Instructor
3	E	8–10	MWF	C.E.S.B.	

C.E. 2. Topographic Surveying.—*Prerequisite:* C.E. 1.

3	E	8–10	MF	C.E.S.B.	
		1–5	W	C.E.S.B.	
	F	1–3	MF	C.E.S.B.	
		1–5	W	C.E.S.B.	
	G	9–11	TuF	C.E.S.B.	
		8–12	W	C.E.S.B.	
	H	10–12	MTh	C.E.S.B.	
		8–12	W		

C.E. 3. Railway and Highway Surveying.—*Prerequisite:* C.E. 2, 15, or 18.

4	E	11	TT	208 E.H.	
		1–4	MF	419 E.H.	
	F	11	TT	102 E.H.	
		1–4	MF	407 E.H.	
	G	11	TT	205 E.H.	
		1–4	MF	419 E.H.	

C.E. 15. General Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

3	E	8–11	MF	C.E.S.B.	
	F	1–4	MF	C.E.S.B.	
	G	8–11	TT	C.E.S.B.	
	H	1–4	TT	C.E.S.B.	

C.E. 16. Elementary Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

2	E	1–3	TT	C.E.S.B.	

C.E. 18. Surveying for Landscape Architects.—*Prerequisite:* C.E. 17.

3	E	1–3	MWF	C.E.S.B.	

C.E. 19. Construction Surveying.—*Prerequisite:* C.E. 3, Math. 7.

3	E	Time to be arranged.			

C.E. 20. Highway Construction.—*Prerequisite:* C.E. 1.

2	E	9	TT	101 E.H.	
	F	9	TT	102 E.H.	

C.E. 21. Highway Construction.—*Prerequisite:* C.E. 20.

2	E	8	TT	101 E.H.	
	F	8	TT	102 E.H.	

C.E. 23. Highway Administration.—*Prerequisite:* C.E. 20 and 21 or 28a or 40 and 41.

3	E	10	MWF	102 E.H.	

C.E. 28a. Highway Location and Construction.—*Prerequisite:* Junior standing in Landscape Architecture, Architecture, or Engineering except Civil Engineering.

3	E	8	MWF	102 E.H.	

C.E. 29. Municipal Transportation.—*Prerequisite:* C.E. 20 and 21 or 28a or 52.

3	E	8	MWF	306 E.H.	

C.E. 30a. Highway Materials Laboratory.—*Prerequisite:* C.E. 20 and 21 or 40 and 41 or 52.

1	E	1–4	Th	201 M.T.L.	

C.E. 31a. Advanced Highway Materials.—*Prerequisite:* C.E. 30a, 42 or 53 and 95.

2	E	10	Tu	102 E.H.	
		1–4	Th	207 M.T.L.	

C.E. 35. Plain Concrete.—*Prerequisite:* Sophomore standing in Engineering or Architecture.

2	E	9	W	212 M.T.L.	
		1–4	Tu	M.T.L.	
	F	10	W	212 M.T.L.	
		1–4	Th	M.T.L.	
	G	11	F	212 M.T.L.	
		9–12	M	M.T.L.	
	H	8	M	212 M.T.L.	
		8–11	F	M.T.L.	

C.E. 41a. Sewerage.—*Prerequisite:* C.E. 40a.

3	E	9	TT	208 E.H.	
		1–4	Tu	211 E.H.	
	F	10	TT	205 E.H.	
		1–4	Tu	309 E.H.	
	G	10	TT	208 E.H.	
		1–4	Tu	214 E.H.	

C.E. 43. Sewage Treatment.—*Prerequisite:* C.E. 42a and registration in C.E. 41a.

4	E	9	MWF	208 E.H.
		2–5	Th	214 E.H.

C.E. 51. Drainage and Flood Control.—*Prerequisite:* C.E. 50.

3	E	11	MWF	208 E.H.

C.E. 55a. Water Power.—*Prerequisite:* T.A.M. 4 and 64.

3	E	8	MWF	101 E.H.

C.E. 60a. Bridge and Building Construction.—*Prerequisite:* Sophomore standing in Engineering.

3	E	9	MWF	305 E.H.

C.E. 61a. Structural Stresses.—*Prerequisite:* Credit or registration in T.A.M. 3.

4	E	10	MWF	101 E.H.
		1–4	Tu	419 E.H.

C.E. 62. Elementary Structural Design.—*Prerequisite:* Credit or registration in C.E. 61a.

3	E	10–12	MWF	400 E.H.
				419 E.H.
	F	8–10	MWF	405 E.H.
				419 E.H.
	G	8–10	MWF	407 E.H.
				419 E.H.
	H	10–12	MWF	405 E.H.
				419 E.H.

C.E. 63a. Theory o Reinforced Concrete.—*Prerequisite:* T.A.M. 3.

2	E	9	TT	405 E.H.
	F	9	TT	400 E.H.
	G	10	TT	400 E.H.
	H	10	TT	405 E.H.

C.E. 65. Structural Design.—*Prerequisite:* C.E. 64a.

5	E	8	TT	405 E.H.
		1–4	MWF	211 E.H.
	F	8	TT	407 E.H.
		1–4	MWF	309 E.H.
	G	8	TT	205 E.H.
		1–4	MWF	214 E.H.

C.E. 66. Masonry Construction.—*Prerequisite:* 61a and 63a.

3	E	8	MWF	205 E.H.
	F	9	MWF	205 E.H.

C.E. 87a. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 86.

4	E	10	MW	408 E.H.
		8–10	MWF	408 E.H.

C.E. 88a. Mine Structures.—*Prerequisite:* Credit or registration in T.A.M. 3.

2	E	8–10	WF	419 E.H.

C.E. 90a. Contracts and Specifications.—*Prerequisite:* Senior standing in Engineering.

2	E	10	TT	101 E.H.
	F	11	TT	101 E.H.

C.E. 91. Estimates and Costs.—*Prerequisite:* Senior standing in Engineering.

2	E	11	MW	407 E.H.

C.E. 98. Thesis.—(2 or 3).* Arrange. *Prerequisite:* High standing and approval of head of department.

Courses for Graduates

C.E. 102. Sewerage.—(1 unit). 11 TT; 204 E.H. Professor BABBITT.

C.E. 104. Municipal Engineering.—(1 unit). 11 MW; 308 E.H. Professor CRANDELL.

C.E. 108. Bridge Design.—(1 unit). 4 MW; 205 E.H. Professor CROSS.

C.E. 110. Sewage and Waste Disposal.—(1 unit). 8 MW; 204 E.H. Professor BABBITT.

C.E. 112. Masonry Construction.—(1 unit). 10 MW; 306 E.H. Professor HUNTINGTON.

C.E. 125. Design of Industrial Structures.—(1 unit). 9-11 Tu; 103 E.H. Dean KETCHUM.

C.E. 131. Water Power.—(1 unit). 8 TT; 306 E.H. Associate Professor DOLAND.

CLASSICS

For students entering prior to September, 1929

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, 17, and 55.

Minors: 20 hours chosen from not more than two of the following: Foreign language (Latin being especially recommended), English literature, history, and philosophy.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Latin

Major: 20 hours, excluding Latin 11a-11b, 6, 1a-1b, 13, 20, 56 and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours, chosen from not more than two of the following: Foreign language (Greek being especially recommended), English literature, history, and philosophy.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17, 55, and Latin 11a-11b, 6, 1a-1b, 9, 13, 20, and 56. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours chosen from not more than two of the following: Foreign language, English literature, history, and philosophy.

For students entering after September 1, 1929

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, and 17.

Minors: 20 hours chosen from not more than two of the following: Foreign language (Latin being especially recommended), English literature, history, and philosophy. At least eight hours must be taken in each subject, if two are chosen.

Latin

Major: 20 hours, excluding Latin 11a-11b, 6, 1a-1b, 13, and 20, and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours chosen from not more than two of the following: Foreign language (Greek being especially recommended), English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17 and Latin 11a-11b, 6, 1a-1b, 9, 13, 20. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours chosen from not more than two of the following: Foreign language, English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

GREEK

Courses for Undergraduates

Greek 1b. Elementary Greek (continuation of 1a).—(4). 8 TWTF; 114 L.H. Dr. MYLONAS.

Greek 4. Homer.—Selections from the Iliad. *Prerequisite:* Greek 3 or an equivalent. (3). 11 MWF; 114 L.H. Mr. DUNKIN.

Greek 17. Greek Drama in English Translation.—*Prerequisite:* Presupposes no knowledge of Greek and is open to all students except freshmen. (2). 2 TT; 114 L.H. Associate Professor PERRY.

Course for Advanced Undergraduates and Graduates

Greek 8. Greek Oratory; Aristotle and Theocritus.—*Prerequisite:* Greek 4 and 5. (3). 9 TTS; 114 L.H. Dr. MYLONAS.

Courses for Graduates

Preparation for graduate work in Greek must include at least two years of preparatory Greek, two years of college Greek, and two years of college Latin.

Greek 105b. Aristotle's Ethics.—(1 unit). Twice a week. Arrange. Professor OLDFATHER.

Greek 106b. Greek Drama, Comedy.—(1 unit). Twice a week. Arrange. Associate Professor PERRY.

Greek 110b. See Latin 110b.

LATIN

Courses for Undergraduates

Latin 11b. Elementary Latin (continuation of 11a).—(4). Three hours credit for seniors. 8 TWTF; 120 L.H. Mr. RAPP.

Latin 1b. Vergil.—*Prerequisite:* Three entrance units in Latin or Latin 6. (4). 1 TWTF; 114 L.H. Mr. DUNKIN.

Latin 12b. Sallust and Cicero (De Senectute).—*Prerequisite:* Four entrance units in Latin or Latin 1a-1b. (4). 9 TWTF; 120 L.H. Mr. RAPP.

Latin 4. Horace and Vergil.—*Prerequisite:* Latin 12a-12b or an equivalent. (3). 10 MWF; 120 L.H. Associate Professor PERRY.

Latin 5b. Latin Composition.—*Prerequisite:* Three entrance units in Latin or Latin 6. Required to secure the department's recommendation to teach. (1). 4 Th; 120 L.H. Professor CANTER.

Latin 9. Teachers' Course.—*Prerequisite:* 14 hours of Latin acceptable for a major. Required to secure the department's recommendation to teach. (2). 11 TT; 114 L.H. Professor CANTER.

Roman Life and History; Roman Archaeology

Latin 13. Roman Life.—*Prerequisite:* Sophomore standing. Knowledge of Latin not required. (1). 3 Th; 202 L.H. Dr. MYLONAS.

Roman History.—See History 56, Professor OLDFATHER; and History 57b, Associate Professor SWAIN.

Courses for Advanced Undergraduates and Graduates

Latin 22. Martial, Suetonius, and Apuleius.—*Prerequisite:* 12 hours of Latin acceptable for a major. (3). 2 MWF; 120 L.H. Professor CANTER.

Latin 10. Latin Composition.—*Prerequisite:* 12 hours of Latin acceptable for a major, including Latin 5a-5b or an equivalent. Required to secure the department's recommendation to teach. (2). 10 TT; 120 L.H. Associate Professor PERRY.

Latin 18. Roman Archaeology.—(2). 2 TT; 120 L.H. Dr. MYLONAS.

Latin 30b. Honors Course.—Thesis or a special course of study approved by the department. *Prerequisite:* Senior standing; 14 hours of Latin acceptable for a major. (2). Time to be arranged. Professor CANTER.

Courses for Graduates

Students desiring to take graduate work in Latin should have had at least three years of college Latin in addition to the Latin prescribed to meet entrance requirements.

Latin 110b. Bibliography and Criticism.—The same as Greek 110b. (1 unit). Arrange. 114 Lib. Professor OLDFATHER.

Latin 106. Terence.—(1 unit). Arrange. Professor OLDFATHER.

Latin 107. Latin Epigraphy.—(1 unit). 4-6 Tu; 114 L.H. Professor CANTER.

COMMERCIAL LAW

(See Business Organization and Operation.)

DAIRY HUSBANDRY

Note: Certain courses in this department require laboratory fees varying from $2 to $4.

Courses for Undergraduates

D.H. 2. Dairy Cattle.—*Prerequisite:* D. H. 24a; An. Husb. 21.

Credits	Section	Hours	Days	Room	Instructor
5		8	MWF	127 New Agr.	YAPP
		8–10	TT	S.P.	NEVENS

D.H. 6b. Dairy Plant Operations.—*Prerequisite:* D. H. 1, 11, 12, or registration therein. (3). Arrange. D. Mfrs. Associate Professor TRACY, Mr. TUCKEY.

D.H. 8. City Milk Supply.—*Prerequisite:* D. H. 1, 11, and 12. (3). 9 M, 8-10 WF; D. Mfrs. Accompanied by an inspection trip costing $15 to $20. Associate Professor TRACY, Mr. RAMSEY.

D.H. 9. Dairy Products Judging.—*Prerequisite:* D. H. 24b. (2). Arrange. D. Mfrs. Accompanied by an inspection trip costing about $10. Associate Professor TRACY, Mr. TUCKEY.

D.H. 11. General Dairy Bacteriology.—*Prerequisite:* 30 hours of university work. (2). 11 TT; 553 Agr. Professor PRUCHA.

D.H. 12. General Dairy Bacteriology.—*Prerequisite:* D. H. 11 or registration therein. (2). 3-5 TT; 455 Agr. Professor PRUCHA, Assistant Professor BRANNON.

D.H. 23b-k. Investigation with Thesis.—(Continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to thesis problem and approval of the head of the department. (5). Arrange.

(b) Dairy Bacteriology.—Professor PRUCHA. Assistant Professor BRANNON.

(d) Dairy Chemistry.—Assistant Professor OVERMAN.

(f) Dairy Farming and Economic Milk Production.—Professor FRASER.

(h) Dairy Manufactures.—Professor RUEHE, Associate Professor TRACY.

(k) Dairy Production.—Professors GAINES, YAPP, Associate Professor NEVENS.

D.H. 24a. Elementary Dairy Production.—*Note:* Juniors and seniors allowed only 2 hours credit.

3	Lect.	9	M	127 New Agr.	NEVENS
	Lab.	8–10	W	S.P.	
	Quiz	9	F	127 New Agr.	KUHLMAN
				206 Agr.	SHAW

D.H. 24b. Elementary Testing and Manufacture of Dairy Products.—*Prerequisite:* Credit or registration in Chemistry 1 or 2. *Note:* Juniors and seniors allowed only 2 hours credit. (3). 3-5 MW (Lect., Quiz, Lab.); D. Mfrs. Mr. TUCKEY.

Courses for Advanced Undergraduates and Graduates

D.H. 5. Composition of Dairy Products.—*Prerequisite:* Chem. 32. (3). 10-12 MWF; 502 Agr. Assistant Professor OVERMAN.

D.H. 7. Creamery Buttermaking and Factory Management.—*Prerequisite:* D. H. 1, 11, 12; 60 hours of university work. (5). Lect. 1 MF; Lab., 1-3 TT, 2-6 F; D. Mfrs. Accompanied by an inspection trip costing about $30. Professor RUEHE, Mr. TUCKEY.

D.H. 14. Milk Condensing.—*Prerequisite:* D. H. 1, 11, and 12; 60 hours of university work. (3). Lect. 9 TT; Lab. 1-5 W; D. Mfrs. Accompanied by an inspection trip costing about $30. Associate Professor TRACY, Mr. RAMSEY.

D.H. 21. Systems of Dairy Farming.—*Prerequisite:* 60 hours of university work. (3). 11 MWF; 302 Agr. Accompanied by a three-day inspection trip costing about $15. Professor FRASER.

D.H. 26. Marketing Dairy Product.—*Prerequisite:* 60 hours of university work. (2). Arrange on MS; D. Mfrs. Accompanied by an inspection trip costing about $15. Mr. C. A. BROWN.

Courses for Graduates

D.H. 101. Economic Milk Production.—(½ to 2 units).* Twice a week. Arrange. Professor FRASER.

D.H. 104. Dairy Bacteriology.—(½ to 1 unit).* Arrange. Professor PRUCHA.

D.H. 105. Dairy Manufactures.—(½ to 2 units).* Arrange. Professor RUEHE, Associate Professor TRACY.

D.H. 106. Dairy Bacteriology.—(½ to 2 units).* Arrange. Professor PRUCHA.

D.H. 107. Dairy Chemistry.—(½ to 2 units).* Arrange. Assistant Professor OVERMAN.

D.H. 108. Physiology of Lactation.—(½ to 2 units).* Once a week. Arrange. Professor GAINES.

D.H. 112a-f. Research.—(1 to 4 units).* Arrange. *Note:* Graduate students writing a thesis should so indicate when registering in Dairy Husbandry 112.

(a) **Dairy Bacteriology.**—Professor PRUCHA.
(b) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(c) **Dairy Cattle Breeding.**—Professor YAPP.
(d) **Dairy Cattle Feeding.**—Associate Professor NEVENS.
(e) **Milk Production.**—Professor GAINES.
(f) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.

DRAWING, GENERAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $1.50.

G.E.D. 1. Elements of Drawing.—*Prerequisite:* Plane geometry.

Credits	Section	Hours	Days	Room	Instructor
4	A	8-11	MF	316 T.B.	Department staff
		8-10	W	316 T.B.	
	B	1-4	MF	316 T.B.	
		1-3	W	316 T.B.	
	C	8-11	TT	316 T.B.	
		8-10	S	316 T.B.	

G.E.D. 2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry.

4	A	8-11	MF	To be assigned at registration time.	Department staff
		8-10	W		
	B	1-4	MF		
		1-3	W		
	C	8-11	TT		
		8-10	S		
	D	1-4	TT		
		10-12	S		

G.E.D. 4. Advanced Drawing.—*Prerequisite:* To be determined by the department at registration time. Three years of work in the better high schools or equivalent in commercial practice necessary basis for consideration.

4	C	8-11	TT	201 T.B.	DOTY
		8-10	S	201 T.B.	

G.E.D. 6. Elements of Drawing.—*Prerequisite:* Plane Geometry. (For students in chemical engineering.) (3). Sec. D, 1-4 TT; 316 T.B. Mr. JORGENSEN.

G.E.D. 8. Architectural Projections.—Continuation of G. E. D. 7. *Prerequisite:* G. E. D. 7. (Student completing G. E. D. 7 and 8 may substitute them for G. E. D. 2.)

2	A	8-11	MF	103 T.B.	PORTER and LENDRUM
	B	2-5	MF	103 T.B.	
	C	9-12	TT	103 T.B.	
	D	2-5	TT	103 T.B.	

ECONOMICS

(See also Business Organization and Operation, and Public Utilities and Transportation.)

Major: For students in the College of Liberal Arts and Sciences, 20 hours made up of Economics 1 and other courses in economics for which it is a prerequisite.

Minors: 20 hours in any one or two of the following subjects excluding courses taken during the freshman year: Geography, history, philosophy, political science, and sociology.

Note: Economics 22 and 27 are open only to freshmen without previous requirements.

Note: Economics 1 is the fundamental course in economics. It is a prerequisite for most of the advanced courses, and students expecting to do advanced work in economics should take it in their sophomore year.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Courses for Undergraduates

Econ. 1. Principles of Economics.—*Prerequisite:* 30 hours of university work.

Credits	Section	Hours	Days	Room	Instructor
5	Lect. I[1]	9	TT	114 Com.	NICKOLEY
	A Quiz	8	MWF	108 Com.	WHITLO
	B1 Quiz	9	MWF	101 Com.	HOOVER
	B2 Quiz	9	MWF	305 Com.	ALYEA
	B3 Quiz	9	MWF	219 Com.	BEHLING
	B4 Quiz	9	MWF	122 Com.	BRUCE
	B5 Quiz	9	MWF	306 Com.	JONES
	Lect. II[1]	10	TT	114 Com.	NICKOLEY
	C1 Quiz	10	MWF	328 Com.	NICKOLEY
	C2 Quiz	10	MWF	122 Com.	BRUCE
	C3 Quiz	10	MWF	305 Com.	ALYEA
	C4 Quiz	10	MWF	101 Com.	HOOVER
	C5 Quiz	10	MWF	219 Com.	BEHLING

[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II.

Econ. 2. Elements of Economics.—*Prerequisite:* 30 hours of university work.

3	C1 Quiz	10	MWF	307 Com.	LOUNSBURY
	C2 Quiz	10	MWF	108 P. L.	TANDY
	C3 Quiz	10	MWF	125 Com.	SUBLETTE
	C4 Quiz	10	MWF	223 Com.	SANFORD
	E1 Quiz	1	MWF	328 Com.	SANFORD
	E2 Quiz	1	MWF	306 Com.	TANDY
	F Quiz	2	MWF	322 Com.	BERMAN
	K Quiz	9	TTS	125 Com.	SUBLETTE
	L Quiz	10	TTS	307 Com.	LOUNSBURY

Econ. 3. Money, Credit, and Banking.—*Prerequisite:* Econ. 1 or 2.

3	Lect. I[1]	8	W	114 Com.	LEE
	A1 Quiz	8	MF	125 Com.	SUBLETTE
	A2 Quiz	8	MF	307 Com.	LOUNSBURY
	A3 Quiz	8	MF	312 Com.	SANFORD
	A4 Quiz	8	MF	305 Com.	ALYEA
	A5 Quiz	8	MF	219 Com.	LOCKLING
	A6 Quiz	8	MF	328 Com.	FITZGERALD
	K1 Quiz	9	TT	328 Com.	FITZGERALD
	O1 Quiz	2	TT	312 Com.	SANFORD
	O2 Quiz	2	TT	305 Com.	ALYEA
	Lect. II[1]	8	Th	114 Com.	LEE
	J1 Quiz	8	TuS	307 Com.	LOUNSBURY
	J2 Quiz	8	TuS	328 Com.	FITZGERALD
	J3 Quiz	8	TuS	305 Com.	ALYEA
	J4 Quiz	8	TuS	125 Com.	SUBLETTE
	K2 Quiz	9	TuS	307 Com.	LOCKLING
	L Quiz	10	TuS	125 Com.	SUBLETTE
	B Quiz	9	MF	312 Com.	LEE
	D Quiz	11	WF	305 Com.	LOUNSBURY
	G Quiz	3	MW	322 Com.	SANFORD

[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II, etc.

Econ. 27. Modern Industry.—Open to freshmen only.

3	Lect. I[1]	1	M	114 Com.	HUNTER
	E1 Quiz	1	WF	108 Com.	SHAW
	E2 Quiz	1	WF	310 Com.	COVER
	E3 Quiz	1	WF	101 Com.	CURTIS
	E4 Quiz	1	WF	111 Com.	BRAINARD
	E5 Quiz	1	WF	106 Com.	STALNAKER
	E6 Quiz	1	WF	113 Com.	GAY
	E7 Quiz	1	WF	125 Com.	MARTIN
	N1 Quiz	1	TT	307 Com.	COVER
	N2 Quiz	1	TT	113 Com.	GAY
	K1 Quiz	9	TT	224 Com.	LONG
	Lect. II[1]	2	M	114 Com.	HUNTER
	F1 Quiz	2	WF	111 Com.	BRAINARD
	F2 Quiz	2	WF	125 Com.	MARTIN
	F3 Quiz	2	WF	101 Com.	CURTIS
	F4 Quiz	2	WF	108 Com.	SHAW
	F5 Quiz	2	WF	106 Com.	STALNAKER
	F6 Quiz	2	WF	113 Com.	GAY
	F7 Quiz	2	WF	310 Com.	COVER
	F8 Quiz	2	WF	328 Com.	LONG
	O1 Quiz	2	TT	125 Com.	MARTIN
	K2 Quiz	9	TT	101 Com.	HOOVER
	Lect. III[1]	8	S	114 Com.	HUNTER
	J1 Quiz	8	TT	224 Com.	LONG
	J2 Quiz	8	TT	222 Com.	CURTIS
	J3 Quiz	8	TT	101 Com.	HOOVER
	J4 Quiz	8	TT	329 Com.	HECKMAN
	J5 Quiz	8	TT	106 Com.	STALNAKER
	J6 Quiz	8	TT	111 Com.	BRAINARD
	J7 Quiz	8	TT	108 Com.	SHAW
	K3 Quiz	9	TT	329 Com.	HECKMAN
	O2 Quiz	2	TT	101 Com.	HOOVER

Courses for Advanced Undergraduates and Graduates

Econ. 8. Foreign Exchange and the Money Market.—*Prerequisite:* Econ. 1 and 3; senior standing.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	8	W	215 Com.	WRIGHT
	A Quiz	8	MF	322 Com.	WRIGHT
	J Quiz	8	TT	322 Com.	WRIGHT
	K Quiz	9	TT	322 Com.	WRIGHT

Econ. 10. Corporation Finance and Management.—*Prerequisite:* Econ. 1 and 3; Accy. 1a and 1b.

3	Lect. I[1]	11	W	114 Com.	ROBINSON
	D1 Quiz	11	MF	106 Com.	BROWN
	D2 Quiz	11	MF	108 Com.	VAN ARSDELL
	D3 Quiz	11	MF	111 Com.	GREEN
	D4 Quiz	11	MF	101 Com.	BARTLETT
	D5 Quiz	11	MF	125 Com.	GRAY
	L1 Quiz	10	TT	108 Com.	BARTLETT
	N Quiz	1	TT	108 Com.	VAN ARSDELL
	O Quiz	2	TT	108 Com.	VAN ARSDELL
	Lect. II[1]	11	Th	114 Com.	ROBINSON
	K Quiz	9	TuS	108 Com.	VAN ARSDELL
	L2 Quiz	10	TuS	113 Com.	GREEN
	M1 Quiz	11	TuS	111 Com.	GREEN
	M2 Quiz	11	TuS	106 Com.	BROWN
	M3 Quiz	11	TuS	125 Com.	GRAY
	C Quiz	10	WF	111 Com.	VAN ARSDELL
	E Quiz	1	WF	219 Com.	WINAKOR

[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II.

Econ. 14. Cooperation in Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing. (2). 9 TT; 111 New Agr. Dr. BARTLETT.

Econ. 15. Financing Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 11 MWF; 111 New Agr. Assistant Professor NORTON.

Econ. 18. Land Economics.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 9 MWF; 111 New Agr. Associate Professor STEWART.

Econ. 20. Economic and Social Conditions in the Near East.—*Prerequisite:* Econ. 1 or 2, and junior standing. (3). 11 MWF; 328 Com. Visiting Professor NICKOLEY.

Econ. 23. Economic Problems.—*Prerequisite:* Econ. 1 or 2; junior standing. Not open to commerce students or L.A.S. students majoring in economics. (3). 10 MWF; 209 Com. Professor LEE.

Econ. 24. Economic Development of Modern Europe.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	9	W	215 Com.	BOGART
	B Quiz	9	MF	113 Com.	BOGART
	K Quiz	9	TT	113 Com.	BOGART

Econ. 29. Foreign Commerce and Commercial Policies.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 9 MWF; 322 Com. Professor LITMAN.

Econ. 30. World Markets.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	10	W	215 Com.	LITMAN
	C Quiz	10	MF	322 Com.	LITMAN
	L Quiz	10	TT	322 Com.	LITMAN

Econ. 36. Investments.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	10	W	114 Com.	ROBINSON
	C1 Quiz	10	MF	325 Com.	ROBINSON
	C2 Quiz	10	MF	106 Com.	BROWN
	B Quiz	9	MF	325 Com.	ROBINSON
	L Quiz	10	TT	106 Com.	BROWN

Econ. 42. Trade Unionism.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	1	F	215 Com.	BERMAN
	E Quiz	1	MW	322 Com.	BERMAN
	N Quiz	1	TT	322 Com.	BERMAN

Econ. 43. Personnel Administration.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	2	F	114 Com.	HELBING
	F1 Quiz	2	MW	306 Com.	HELBING
	F2 Quiz	2	MW	329 Com.	HECKMAN
	F3 Quiz	2	MW	307 Com.	LOCKLING
	J Quiz	8	TT	306 Com.	HELBING
	K Quiz	9	TT	306 Com.	HELBING
	L Quiz	10	TT	306 Com.	HELBING

Econ. 52. Modern Problems of Taxation.—*Prerequisite:* Econ. 51. (3). 9 MWF; 310 Com. Professor HUNTER.

Econ. 56. Property Insurance.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	8	F	215 Com.	DICKINSON
	A Quiz	8	MW	325 Com.	DICKINSON
	J Quiz	8	TT	325 Com.	DICKINSON

Econ. 61. Economic Theory.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	C Quiz	10	MWF	113 Com.	WASSERMAN
	D Quiz	11	MWF	113 Com.	WASSERMAN

Econ. 72. Economic Statistics.—*Prerequisite:* Econ. 71 or the permission of the instructor. (3). 10 TT; 305 Com. Practice 3-5 M; 317 Com. Assistant Professor DICKINSON.

Econ. 90. Thesis.—Primarily for candidates for honors. *Prerequisite:* Major in economics; senior standing. (2 to 4).* Time to be arranged. Assistant Professor WASSERMAN.

Courses for Graduates

Econ. 101. Economic Theory.—(1 unit). 3 MWF; 125 Com. Professor WESTON.

Econ. 102. Theory and History of Money, Credit, and Prices.—(1 unit). Time to be arranged. Assistant Professor WASSERMAN.

Econ. 103. The Distribution of Wealth.—(1 unit). 11 TT; 212 Com. Professor WESTON.

Econ. 104b. Organization of International Trade.—(1 unit).* 3 TT; 212 Com. Professor LITMAN.

Econ. 105. Public Finance.—(1 unit). 4-6 Tu; 212 Com. Professor HUNTER.

Econ. 106. International Exchange and the Money Markets.—(1 unit). Time to be arranged. Associate Professor WRIGHT.

Econ. 107. The Corporation in Economic Evolution.—(1 unit). Time to be arranged. Assistant Professor BROWN.

Econ. 110b. Finance and Investments.—(1 unit). 4-6 F; 212 Com. Professor ROBINSON.

Econ. 112d. Labor Problems: Labor and the Law.—(1 unit). 4-6 F; 209 Com. Associate Professor BERMAN.

Econ. 120. History of Economic Thought.—(1 unit). 9 TT; 212 Com. Professor WESTON.

Econ. 123. Industrial and Financial Organization of Society.—(1 unit). 4-6 W; 209 Com. Professor LEE.

Econ. 124. International Finance.—(1 unit). Time to be arranged. Professor BOGART.

Econ. 130. Theory of Agricultural Economics.—(1 unit). Time to be arranged. Associate Professor STEWART.

Econ. 131. Agricultural Resources and Prices.—(1 unit). Time to be arranged. Assistant Professor NORTON.

Econ. 143. Administration of Industrial Relations.—(1 unit). Time to be arranged. Dr. HELBING.

Econ. 144. Statistical Theory and Analysis.—(1 unit). Time to be arranged. Assistant Professor DICKINSON.

Econ. 118. Seminar.—Thesis Course. (All graduate students writing theses in economics register in Econ. 118; registration for others is optional). (1 to 4 units). 4-6 Th (alternate weeks); 420 Com.

(a) **Third Year Seminar.**—Professor WESTON.
(b) **First Year: General Economics.**—Assistant Professor BROWN.
(c) **First Year: Agricultural Economics.**—Associate Professor STEWART.
(d) **First Year: Public Utilities.**—Assistant Professor GRAY.

EDUCATION

A. GENERAL EDUCATION

Introductory Courses

Ed. 2. History of Education.—*Prerequisite:* Junior standing.

Credits	Section	Hours	Days	Room	Instructor
3	B	9	MWF	303 Adm. (E)	SEYBOLT
	C	10	MWF	303 Adm. (E)	SEYBOLT

Ed. 5. Comparative Education.—*Prerequisite:* Junior standing.

3	E	1	MWF	204 Adm. (E)	JOHNSTON
	F	2	MWF	204 Adm. (E)	JOHNSTON

Ed. 6. Principles of Secondary Education.—*Prerequisite:* Ed. 10 and 25.

3	J	8	TTS	206 Adm. (E)	WEBER
	K	9	TTS	206 Adm. (E)	WEBER
	L	10	TTS	206 Adm. (E)	JOHNSTON
	M	11	TTS	206 Adm. (E)	JOHNSTON
	D	11	MWF	206 Adm. (E)	PETERS
	E1	1	MWF	207 Adm. (E)	PUNKE
	E2	1	MWF	206 Adm. (E)	PETERS
	F1	2	MWF	208 Adm. (E)	BROWNE
	F2	2	MWF	207 Adm. (E)	PUNKE
	G	3	MWF	207 Adm. (E)	PUNKE

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Ed. 10. Technic of Teaching.—*Prerequisite:* Ed. 25.

Credits	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	307 Adm. (E)	PETERS
[1]Section A2 is for Home Economics students, though others may register in it.	A2[1]	8	MWF	117 W.B.	ROBINSON
	B1	9	MWF	307 Adm. (E)	PETERS
	B2	9	MWF	308 Adm. (E)	REAGAN
	C1	10	MWF	308 Adm. (E)	REAGAN
	C2	10	MWF	307 Adm. (E)	POTTHOFF
	D	11	MWF	307 Adm. (E)	POTTHOFF
	E	1	MWF	308 Adm. (E)	REAGAN
	F	2	MWF	308 Adm. (E)	REAGAN
	G	3	MWF	206 Adm. (E)	LAWSON

Ed. 25. Educational Psychology.—*Prerequisite:* Psych. 1 (or Ed. 28 in case of A.C. students).

3	J1	8	TTS	312 Adm. (E)	POTTHOFF
	J2	8	TTS	207 Adm. (E)	PUNKE
	K1	9	TTS	312 Adm. (E)	POTTHOFF
	K2	9	TTS	307 Adm. (E)	SANFORD
	L	10	TTS	307 Adm. (E)	SANFORD
	M	11	TTS	312 Adm. (E)	DOLCH
	E1	1	MWF	312 Adm. (E)	DOLCH
	E2	1	MWF	307 Adm. (E)	SANFORD
	F1	2	MWF	312 Adm. (E)	DOLCH
	F2	2	MWF	307 Adm. (E)	SANFORD
	G	3	MWF	312 Adm. (E)	DOLCH
	H	4	MWF	206 Adm. (E)	LAWSON

Ed. 28. Psychology of Athletics.—*Prerequisite:* Psych. 1, or consent of instructor. Open only to men in athletic coaching. May be substituted for Psych. 1 as a prerequisite for Ed. 25. (3). 11 MWF; 209 New Gym. Associate Professor GRIFFITH.

Ed. 91. Special Problems of Education in Rural Communities.—*Prerequisite:* Senior standing and at least 6 hours in education. (Same as Agr. Ed. 91.) (2). 2 TT; 122 Agr. Mr. LAWSON.

Courses for Advanced Undergraduates and Graduates

Ed. 7. School Program of Physical Education.—*Prerequisite:* Senior standing or consent of instructor. (3). 1 MWF; 209 New Gym. Professor STALEY.

Ed. 8. History, Systems, and Theories of Physical Education.—*Prerequisite:* Senior standing or consent of instructor. (2). 1 TT; 209 New Gym. Professor STALEY.

Ed. 18. Educational Measurements.—*Prerequisite:* Ed. 25. (3). 9 MWF; 206 Adm. (E). Associate Professor ODELL.

Ed. 27. High School Curricula.—*Prerequisite:* Ed. 6. (2). 2 TT; 312 Adm. (E). Professor CLEMENT.

Ed. 30. History of American Education.—*Prerequisite:* Senior standing; or Ed. 2 or 11. (2). 9 TT; 303 Adm. (E). Professor SEYBOLT.

Ed. 43. Mental Tests.—*Prerequisite:* Ed. 25.

3	Lect.	2	MW	202 Adm. (E)	GRIFFITH
	Lab.	1–3	F	202 Adm. (E)	GRIFFITH

Ed. 49. Principles of Intellectual Development.—*Prerequisite:* Senior standing, Psych. 1, Ed. 25, or the consent of the instructor. (3). 9 MWF; 207 Adm. (E). Associate Professor GRIFFITH.

Ed. 53. Problems of Industrial Education.—*Prerequisite:* Junior standing or consent of instructor. (Same as Ind. Ed. 50.) (3). 8 MWF; 204 Adm. (E). Professor MAYS.

Ed. 54a. Curriculum and Administration of Part-Time Schools.—*Prerequisite:* Senior standing. Same as Ind. Ed. 54a. (2). 9 TT; 204 Adm. (E). Professor MAYS.

Ed. 55. Problems of Vocational Guidance.—*Prerequisite:* Senior standing. Same as Ind. Ed. 55. (3). 9 MWF; 204 Adm. (E). Professor MAYS.

Ed. 99b. Thesis.—*Prerequisite:* Senior standing. (2). Time to be arranged. Dean BENNER and others.

Courses for Graduates

For a Master's degree in Education, course 125 is required. For students who have not taken a course in history of education as undergraduates, Education 11 or Education 30 is required. Education 6, 10, and 25, or their equivalents, are prerequisites for all courses for graduates.

Ed. 101. Educational Theory.—(1 unit). 4 TT; 204 Adm. (E). Professor CAMERON.

Ed. 102. Research in History of American Education.—(1 unit). Arrange. 311 Adm. (E). Professor SEYBOLT.

Ed. 104. Educational Administration.—(1 unit). 10-12 S; 308 Adm.(E). Associate Professor WEBER.

Ed. 119. Curriculum Construction.—*Prerequisite:* Ed. 125. (1 unit). 4-6 Th; 206 Adm.(E). Professor MONROE.

Ed. 120a. Seminar in the Supervision of Secondary Education.—*Prerequisite:* Ed. 106. (1 unit). 4 TT; 312 Adm.(E). Professor CLEMENT.

Ed. 121. Educational Measurements.—Seminar. (1 unit). 4-6 F; 207 Adm.(E). Associate Professor ODELL.

Ed. 124. Reading in Educational Research.—(1 unit). 4-6 W; 207 Adm.(E). Professor MONROE.

Ed. 125. Educational Psychology.—(1 unit). 10-12 S; 204 Adm.(E). Professor CAMERON.

Ed. 129. The Junior College.—*Prerequisite:* 3 units of graduate work in education. (1 unit). 3 TT; 312 Adm.(E). Professor CLEMENT.

Ed. 131. Analysis and Evaluation of High School Texts.—*Prerequisite:* Ed. 127. (1 unit). 10-12 S; 303 Adm.(E). Professor CLEMENT.

Ed. 141. Problems in the Teaching of English in Secondary Schools.—(1 unit). 4-6 Tu; 322 L.H. Professor PAUL.

Ed. 150. Thesis.—(1 to 2 units).* Dean BENNER and others.

Ed. 184. Seminar in School Administration.—*Prerequisite:* 3 units of graduate work in education including Ed. 104 or 106 and consent of instructor. (1 unit). Arrange. 302 Adm.(E). Associate Professor WEBER.

Ed. 185. Seminar in Educational Psychology.—*Prerequisite:* Ed. 125 and consent of instructor. (1 unit). Arrange. 203 Adm.(E). Professor CAMERON.

Ed. 190. Research in Education.—*Prerequisite:* 3 units of graduate work in Education and consent of instructor. (1 unit). Dean BENNER and others.

B. METHODS COURSES IN SPECIAL SUBJECTS

The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 20 hours in Education for graduation; for the 15 hours in Education for the State High School Certificate; or for the hours of Education necessary as a qualification for teachers in the North Central Association accredited schools.

Art 15b. Course for Teachers.—*Prerequisite:* Art 2a. (3). (See Art). Miss ANDERSON.

Botany 14. Course for Teachers.—*Prerequisite:* 15 hours of botany. (3). (See Botany). Associate Professor VESTAL.

Chemistry 12b. Course for Teachers.—*Prerequisite:* 13 hours of chemistry and senior or graduate standing. (3). (See Chemistry). Dr. PARR.

English 41. Teaching of English Literature.—*Prerequisite:* 10 hours of English literature and junior standing. (2). (See English). Professor PAUL.

English 42. Teaching of English Composition.—*Prerequisite:* 9 hours of English composition. (2). (See English). Professor PAUL.

German 25. Teachers' Course.—*Prerequisite:* 3 years of college German or equivalent. (2) (See German). Assistant Professor GEISSENDOERFER.

History 18. Teaching of History.—*Prerequisite:* One year of college history and senior standing. (2). (See History). Assistant Professor WERNER.

Home Economics 11. Teachers' Course.—*Prerequisite:* Home Econ. 6, 29. Preregistration or concurrent registration in Education 10, Home Econ. 5, 10, 19. (3). (See Home Economics). Miss ROBINSON.

Industrial Education 57.—(3). (See Industrial Education). Professor MAYS.

Journalism 48. Teaching of Journalism.—*Prerequisite:* Junior standing and one course in journalism. (2). (See Journalism). Mr. HEITMAN.

Latin 9. Teachers' Course.—*Prerequisite:* 14 hours in Latin acceptable for a major. (2). (See Classics). Professor CANTER.

Mathematics 35. Teachers' Course.—*Prerequisite:* 18 hours in mathematics, including Math. 7 and 9. (3). (See Mathematics). Associate Professor LYTLE.

Music 25b. Public School Methods.—*Prerequisite:* The first semester of the third year of the curriculum in Public School Music Education, or consent of instructor. (3). (See Music). Mr. HOLMES.

Music 26b. Public School Methods.—*Prerequisite:* Senior standing in the curriculum in Public School Music Education or consent of instructor. (3). (See Music). Miss KITCHELL

Physical Education for Women 15b.—*Prerequisite:* Physical Education 15a; junior standing in the College of Education. (3). (See Physical Education for Women). Miss ROBERTSON.

Public Speaking 12. Teaching of Public Speaking.—*Prerequisite:* 10 hours in public speaking, junior standing. (2). (See Public Speaking). Associate Professor SANDFORD.

Spanish 25. Methods of Teaching Spanish.—*Prerequisite:* 20 hours in Spanish or 16 hours in Spanish plus 20 hours in French. (3). (See Spanish). Assistant Professor GULLETTE.

C. EDUCATIONAL PRACTICE

The following courses are open to seniors in the College of Education and in certain cases with the consent of the instructor to juniors. For Educational Practice in Athletic Coaching, Educational Practice, 1, 2, 3, and 4, see Mr. SOGOLOW and Mr. JACKSON at New Gymnasium. For Educational Practice in Agriculture, Educational Practice 5, see Associate Professor NOLAN at 116 Old Agriculture. For Educational Practice in Home Economics, Educational Practice 14, see Miss ROBINSON, Miss TODD, and Miss KING at 119 Woman's Building. Arrange for all other courses in Educational Practice at University High School with Principal L. W. WILLIAMS.

Ed. Prac. 1. Athletic Coaching.—(2 to 4).* Hours to be arranged.

Ed. Prac. 2. Athletic Coaching.—(2 to 4).* Hours to be arranged.

Ed. Prac. 3. Athletic Coaching.—(2 to 4).* Hours to be arranged.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Ed. Prac. 4. Athletic Coaching.—(2 to 4).* Hours to be arranged.

Ed. Prac. 5. Agricultural Education.—(3 to 5).* Hours to be arranged. (See Agr. Ed. 50.)

Ed. Prac. 6. Biology.—(5). Hours to be arranged.

Ed. Prac. 7. Chemistry.—(5). Hours to be arranged.

Ed. Prac. 8. Civics.—(5). Hours to be arranged.

Ed. Prac. 9. Drawing, Art and Design.—(3 to 5).* Hours to be arranged.

Ed. Prac. 10. Drawing, Mechanical.—(3 to 5).* Hours to be arranged.

Ed. Prac. 11. English.—(5). Hours to be arranged.

Ed. Prac. 11a. Public Speaking.—(5). Hours to be arranged.

Ed. Prac. 12. French.—(5). Hours to be arranged.

Ed. Prac. 13. General Science.—(5). Hours to be arranged.

Ed. Prac. 14. Home Economics Education.—*Prerequisite:* Home Econ. 11, or concurrent registration in Home Econ. 11. (5). Hours to be arranged.

Ed. Prac. 15. History.—(5). Hours to be arranged.

Ed. Prac. 16. Industrial Education.—(3 to 5).* Hours to be arranged.

Ed. Prac. 17. Latin.—(5). Hours to be arranged.

Ed. Prac. 19. Mathematics.—(5). Hours to be arranged.

Ed. Prac. 20. Music.—(3 to 5).* Hours to be arranged.

Ed. Prac. 21. Physics.—(5). Hours to be arranged.

Ed. Prac. 24. Stenography and Typewriting.—(3 to 5).* Hours to be arranged.

Ed. Prac. 25. Elementary Education.—(5). Hours to be arranged.

Ed. Prac. 26. Bookkeeping.—(5). Hours to be arranged.

Ed. Prac. 27. Economics.—(5). Hours to be arranged.

Ed. Prac. 28. German.—(5). Hours to be arranged.

D. AGRICULTURAL EDUCATION

Agr. Ed. 1. Introduction to Agricultural Education.—*Prerequisite:* Sophomore standing and 10 hours of technical agriculture. (2). 11 TT; 122 Agr. Associate Professor NOLAN.

Agr. Ed. 50. Teaching.—*Prerequisite:* Ed. 10 and senior standing. (See Ed. Prac. 5.)

2 to 5*	A	8:30- 9:52 10:44-12:06	Daily	Tolono H.S.	HENDERSON
	B	9:40-11:10 2:10- 3:34	Daily	St. Joseph H.S.	RUCKER
	C	Apprentice teaching in State			NOLAN

One conference hour per week with staff teacher for all student teachers.

Agr. Ed. 51. Teachers' Course in Agriculture.—*Prerequisite:* Ed. 10, 25, and senior standing. (3). 4 MWF; 122 Agr. Associate Professor NOLAN.

Agr. Ed. 91. Special Problems of Education in Rural Communities.—(Same as Ed. 91.) *Prerequisite:* Senior standing and at least 6 hours in Education. (2). 2 TT; 122 Agr. Mr. LAWSON.

Agr. Ed. 92. Adult Education in Vocational Agriculture.—*Prerequisite:* 25 hours of technical agriculture, Ed. 25, Ed. 10, and senior standing. (Subject-matter and methods in part-time and evening classes, and other extension service in vocational agriculture.) (2). 11 MW; 122 Agr. Associate Professor NOLAN.

E. ATHLETIC COACHING

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

First Year

A.C. 2. Calisthenics, Dancing, Tumbling, and Marching.

4	A	8–10	MTWTF	New Gym.	PRICE
	B	8–10	MTWTF	New Gym.	MCCRISTAL

A.C. 30. Football.—(2nd half semester.)

2	A	10–12	MTWTF	New Gym.	Department Staff
	B	10–12	MTWTF	New Gym.	
	C	2–4	MTWTF	New Gym.	
	D	2–4	MTWTF	New Gym.	

A.C. 40. Basketball.—(1st half semester.)

2	A	10–12	MTWTF	New Gym.	Department Staff
	B	10–12	MTWTF	New Gym.	
	C	2–4	MTWTF	New Gym.	
	D	2–4	MTWTF	New Gym.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Second Year

Note: Education 28 is open only to men in Athletic Coaching who may substitute it for Psychology 1 as a prerequisite for Education 25.

A.C. 7. Boxing and Wrestling.—(1st half semester.) *Prerequisite:* Sophomore standing.

Credits	Section	Hours	Days	Room	Instructor
2	A	8–10	MTWTF	Wrestling Rm.	KENNEY and assistants
	B	8–10	MTWTF	Wrestling Rm.	
	C	8–10	MTWTF	Wrestling Rm.	

A.C. 31. Football.—(2nd half semester.) *Prerequisite:* A.C. 30.

2	A	8–10	MTWTF	Armory Field	Department Staff
	B	8–10	MTWTF	Armory Field	
	C	8–10	MTWTF	Armory Field	

A.C. 50. Baseball.—*Prerequisite:* Sophomore standing.

4	A	10–12	MTWTF	221 E.H.	LUNDGREN and JORDAN
	B	10–12	MTWTF	221 E.H.	
	C	1–3	MTWTF	221 E.H.	

Third Year

A.C. 15. Recreational Activities.—(1st half semester.) *Prerequisite:* Junior standing. (2). 1-3 MTWTF; New Gym. Mr. JACKSON.

A.C. 20. Track and Field Athletics.—*Prerequisite:* Junior standing

4	A	10–12	MTWTF	Field and Armory	WERNER
	B	1–3	MTWTF	Field and Armory	

A.C. 32. Football Theory.—*Prerequisite:* A.C. 30 and 31.

2	Lect.	11	TT	209 New Gym.	ZUPPKE and Department Staff
	Quiz A	3	TT	204 New Gym.	
	B	9	TT	204 New Gym.	
	C	10	TT	204 New Gym.	

A.C. 41. Basketball.—(2nd half semester.) *Prerequisite:* A.C. 40 and junior standing. (2). 1-3 MTWTF; 204 New Gym. Mr. RUBY and Mr. SABO.

A.C. 70. Health Education and Corrective Gymnastics.—*Prerequisite:* Anat. 1 and 2, Physiol. 1 and 2. (4). 9 MTWTF; 209 New Gym. Associate Professor STAFFORD.

Fourth Year

A.C. 4. Apparatus and Tumbling Stunts.—*Prerequisite:* A.C. 2 and senior standing. (4). 1-3 MTWTF; Old Gym. Mr. PRICE.

A.C. 16. Training and First Aid.—*Prerequisite:* Senior standing or consent of instructor.

2	A	9	TT	119-22 New Gym.	BROWN
	B	10	TT	119-22 New Gym.	BULLOCK

A.C. 17. Organization and Administration.—*Prerequisite:* Senior standing. (3). 10 MWF; 204 New Gym. Professor HUFF and Assistant Professor OLANDER.

A.C. 60. Swimming.—*Prerequisite:* Senior standing or consent of instructor. (2). 8 MTWTF; Pool, Old Gym. Mr. MANLEY.

F. INDUSTRIAL EDUCATION

Ind. Ed. 1. Manual Arts—First Course.

4	Lect.	10	TT	U.H.S.	BRAUCHER and assistant
	Shop A	8–10	MWF	U.H.S.	
	Shop B[1]	8–10	TTS	U.H.S.	

Ind. Ed. 2. Advanced Manual Arts.

4	Lect.	9	TT	U.H.S.	BRAUCHER and assistant
	Shop A	10–12	MWF	U.H.S.	
	Shop B[1]	10–12	TTS	U.H.S.	

Ind. Ed. 2a. Problems of House Construction.

4	Lect.	2	TT	U.H.S.	BRAUCHER and assistant
	Shop A	2–4	MWF	U.H.S.	
	Shop B[1]	2–4	TTS	U.H.S.	

[1]Shop B will not be opened until Shop A is filled.

Ind. Ed. 3. Mechanical Drawing.—Same as G.E.D. 1.

Ind. Ed. 4. Pattern and Foundry Work.—Same as M.E. 85.

Ind. Ed. 7. Machine Work.—Same as M.E. 87.

Ind. Ed. 8. Printing and Publishing.—Same as Journ. 9b.

Courses for Advanced Undergraduates and Graduates

Ind. Ed. 50. Problems of Industrial Education.—Same as Ed. 53. *Prerequisite:* Junior standing or consent of instructor. (3). 8 MWF; 204 Adm.(E). Professor MAYS.

Ind. Ed. 54a. Curriculum and Administration of Part-Time Schools.—Same as Ed. 54a and Ind. Ed. E. 54. *Prerequisite:* Junior standing. (2). 9 TT; 204 Adm.(E). Professor MAYS.

Ind. Ed. 55. Problems of Vocational Guidance.—Same as Ed. 55 and Ind. Ed. E. 55. *Prerequisite:* Senior standing. (3). 9 MWF; 204 Adm.(E). Professor MAYS.

Ind. Ed. 57. Methods of Trade Teaching.—(3). Arrange. 310 Adm.(E). Professor MAYS.

Ind. Ed. 62. History and Organization of Manual Arts.—(3). 11 MWF; 310 Adm.(E). Professor MAYS.

Extra-mural Courses

Ind. Ed. E. 41. Survey of Vocational Education.—Same as Ed. 41 and Ind. Ed. 41. Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 50. Survey of Industrial Education.—Same as Ed. 53 and Ind. Ed. 50. Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 52. Teaching Related Trade Subjects.—(1 to 3).* Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 54. Principles and Methods of Part-Time Teaching.—Same as Ed. 54 and Ind. Ed. 54. Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 54a. Continuation of Ind. Ed. E. 54.

Ind. Ed. E. 55. Problems of Vocational Guidance.—Same as Ed. 55 and Ind. Ed. 55. Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 55a. Continuation of Ind. Ed. E. 55.

Ind. Ed. E. 56. Teaching Shopwork.—*Prerequisite:* (a) Two years of trade or industrial experience beyond apprenticeship; (b) completion of elementary school curriculum. (1 to 3).* Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 56a. Continuation of Ind. Ed. E. 56.

ELECTRICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.50 to $2.50.

E.E. 2. Elementary Electrical Engineering.—*Prerequisite:* One year of college Physics; junior standing.

Credits	Section	Hours	Days	Room	Instructor
3		9	TT	305 E.H.	
	Lab.	9-12	S	214 E.E.L.	

E.E. 12. Alternating Current Apparatus.—*Prerequisite:* E.E. 11, 61.

3	Ch1	8	MWF	202 E.H.	
	Ch2	8	TTS	403 P.L.	
	Ch3	8	TTS	305 E.H.	
	Ch4	11	TTS	305 E.H.	
	J	11	MWF	305 E.H.	
	P1	1	MWF	305 E.H.	
	P2	1	MWF	109 E.H.	
	Q1	10	MWF	109 E.H.	
	Q2	10	MWF	305 E.H.	
	X	8	MWF	305 E.H.	

E.E. 26. Alternating Currents.—*Prerequisite:* E.E. 25; Phys. 44a; registration in E.E. 76.

4	K	8	MTWTF	400 E.H.	
	L	11	MTWTF	104 P.L.	
	M	11	MTWTF	111 E.H.	
	N	8	MTWTF	111 E.H.	
	Y	10	MWF	111 E.H.	
		9	TT	111 E.H.	

E.E. 36. Alternating Current Apparatus.—*Prerequisite:* E.E. 35, 85.

4	K	8	MTWTF	208 E.H.	
	L	8	MTWTF	109 E.H.	
	M	11	MTWTF	108 P.L.	
	N	11	MTWTF	109 E.H.	
	Y	10	MTWTF	104 P.L.	

E.E. 52. Radio Communication.—*Prerequisite:* E.E. 51.

3		10	TT	111 E.H.	
		2-5	Tu	311 E.E.L.	

E.E. 54. Vacuum Tubes and Controls.—*Prerequisite:* E.E. 26.

1-3*		4	M	111 E.H.	
		9	S	111 E.H.	
		Laboratory—arrange			

E.E. 56. Electrical Design.—*Prerequisite:* E.E. 35; M.E. 2 or 3.

4	Lect. KLMNY	9	Th	119 P.L.	
	Quiz K1	8	MWF	314 E.H.	
	Quiz K2	8	TTS	314 E.H.	
	Quiz L	9	MWF	314 E.H.	
	Quiz M	10	MWF	314 E.H.	
	Quiz N	11	MWF	314 E.H.	
	Quiz Y	1	MWF	314 E.H.	

E.E. 58. Power and Communication Networks.—*Prerequisite:* E.E. 26.

3		9	MF	111 E.H.	
	Lab.	2-5	Th	311-A E.E.L.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

E.E. 62. Alternating Current Laboratory.—*Prerequisite:* E.E. 11, 61; registration in E.E. 12.

Credits	Section	Hours	Days	Room	Instructor
1	Ch1	1–4	W	214 E.E.L.	
	Ch2	1–4	F	214 E.E.L.	
	Ch3	1–4	M	214 E.E.L.	
	Ch4	8–11	Th	214 E.E.L.	
	Ch5	8–11	Th	214 E.E.L.	
	Ch6	8–11	S	214 E.E.L.	
	J1	9–12	Tu	200 E.E.L.	
	Q1	1–4	Tu	200 E.E.L.	
	Q2	1–4	Tu	214 E.E.L.	
	R1	1–4	Th	200 E.E.L.	
	R2	1–4	Th	214 E.E.L.	
	X1	9–12	Th	214 E.E.L.	
	X2	9–12	Th	214 E.E.L.	

E.E. 72. Electrical Engineering Laboratory.—(Elective for juniors and seniors.) *Prerequisite:* E.E. 25. (1 to 3).* Arrange.

E.E. 76. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 25, 75; registration in E.E. 26.

2	KMY	9	W	215 E.E.L.	
	LN	1	W	119 P.L.	
	K1	9–12	M	214 E.E.L.	
	K2	9–12	F	214 E.E.L.	
	L	1–4	M	200 E.E.L.	
	M	2–5	W	214 E.E.L.	
	N1	1–4	Tu	214 E.E.L.	
	N2	1–4	Th	200 E.E.L.	
	Y1	1–4	F	200 E.E.L.	
	Y2	1–4	F	214 E.E.L.	

E.E. 86. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 85; registration in E.E. 36.

2	KLMNY	9	Tu	119 P.L.	
	K1	8–11	M	200 E.E.L.	
	K2	9–12	W	200 E.E.L.	
	L	1–4	M	200 E.E.L.	
	M	1–4	W	200 E.E.L.	
	N1	2–5	Tu	200 E.E.L.	
	N2	2–5	Th	200 E.E.L.	
	Y	1–4	F	200 E.E.L.	

E.E. 96. Seminar.—*Prerequisite:* Senior standing in E.E.

1	K	10	Tu	119 P.L.	
	L	10	Th	119 P.L.	
	M	1	Tu	305 E.H.	
	N	1	Th	305 E.H.	
	Y	10	F	119 P.L.	

E.E. 98. Thesis.—(3). Arrange.

Courses for Graduates

E.E. 101. Advanced Course in Alternating Currents.—(1½ units). Twice a week. Professor PAINE, Associate Professor KNIGHT, Assistant Professors REICH, KEENER, KRAEHENBUEHL.

E.E. 102. Electric Waves and Oscillations.—(½ to 1 unit).* 10 S; 306 E.E.L. Laboratory arrange. Assistant Professor REICH.

E.E. 103. Electrical Design.—(1 unit). Once a week. Associate Professor WALDO.

E.E. 104. Advanced Course in Vacuum Tubes and Control Devices.—(1 unit).* 4 M, 9 S; 111 E.H. Laboratory arrange. Assistant Professor REICH.

E.E. 105. Electrical Engineering Research.—(1 to 3 units).* Twice a week. Professors PAINE, TYKOCINER, Associate Professor KNIGHT, Assistant Professors BROWN, REICH, KEENER, KRAEHENBUEHL.

ENGINEERING

(See Ceramic, Chemical, Civil, Electrical, General, Mechanical, Mining, and Railway Engineering.)

ENGLISH

(Including English Language and Literature, Rhetoric, Public Speaking, and Scandinavian Languages.)
For students entering prior to September, 1929

Major: 20 hours in English excluding Rhetoric 1, 2, 10, 12, English 10, 20, 41, 42, and including at least 10 hours in English literature, at least 3 hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours in either (a) Latin or Greek or French or German; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history.

Major in Public Speaking

Major: 10 hours in public speaking, inclusive of courses 7 and 8 and either 4 or 6, and 10 hours of English exclusive of English 10, 11, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, and 22, and inclusive of one course in English literature from the advanced group.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Minors: 20 hours in any one or two of the following subjects: Psychology, philosophy, Greek, Latin, French, German, history, political science, economics, sociology.

Credit for seniors who take English 10, 11, Rhetoric 1, 2, will be reduced one hour.

For students entering after September 1, 1929

Major: 20 hours in English *excluding* Rhetoric 1, 2, 10, 12, 21, 22, English 10a, 10b, 20a, 20b, 41, 42, and *including* at least 10 hours in English literature, at least 3 hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours in (a) Latin or Greek or French or German or Spanish; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history. No language courses may be regarded as satisfying the minor requirement if they are excluded from the major of that department (excepting elementary courses in Greek, Latin, French 2a and Spanish 2a). At least eight hours must be offered in each subject.

Major in Public Speaking

Major: 10 hours in public speaking inclusive of courses 7 and 8 and either 4 or 6, and 10 hours of English exclusive of English 10a, 10b, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, 22, and inclusive of one course in English literature from the advanced group.

Minors: 20 hours, in any one or two of the following subjects: Psychology, philosophy, Greek, Latin, French, German, history, political science, economics, law, or sociology. At least eight hours must be offered in each subject if two are chosen.

A. ENGLISH LANGUAGE AND LITERATURE

Elementary Courses

Engl. 7. Ideas and Forms in English Literature.—(For students in Athletic Coaching only.) *Prerequisite:* Rhet. 1 and registration in Rhet. 2. (Credit not given for Engl. 7 in addition to Engl. 10a, 10b, 20a, or 20b.)

Credits	Section	Hours	Days	Room	Instructor
2	C1	10	TT	213 U.H.	FISHER
	C2	10	TT	312 U.H.	SIMPSON
	G1	3	TT	407 U.H.	LANG
	G2	3	TT	207 U.H.	SIMPSON

Engl. 10a. An Introduction to Literature.—Forms of poetry, mainly narrative. *Prerequisite:* The minimum entrance requirement in English. (Credit is not given for Engl. 10a in addition to 20a and 20b.) *Note:* Seniors will receive credit for two hours only.

3	A	8	MWF	212 U.H.	MILLER
	C	10	MWF	204-A L.H.	ZEITLIN
	D	11	MWF	104 L.H.	SECORD
	E	1	MWF	203 U.H.	KORN

Engl. 10b. An Introduction to Literature.—Forms of poetry, mainly lyrical. (Credit is not given for Engl. 10b in addition to 20a and 20b.) *Prerequisite:* The minimum entrance requirements in English.

3	A1	8	MWF	204-A L.H.	KELSO
	A2	8	MWF	206 Adm.(E)	GOLDMAN
	B1	9	MWF	211 U.H.	GETTMAN
	B2	9	MWF	204-A L.H.	RINAKER
	B3	9	MWF	219 L.H.	TUPPER
	C1	10	MWF	203 U.H.	FRENCH
	C2	10	MWF	232 L.H.	RINAKER
	C3	10	MWF	206 L.H.	RAPP
	D1	11	MWF	235 L.H.	WEIRICK
	D2	11	MWF	204-A L.H.	BUSEY
	D3	11	MWF	206 L.H.	TUPPER
	E1	1	MWF	123 L.H.	BLOOM
	E2	1	MWF	302 L.H.	KELLEY
	F1	2	MWF	104 L.H.	SANDIN
	F2	2	MWF	412 U.H.	HASKELL
	G1	3	MWF	211 U.H.	GRISWOLD
	G2	3	MWF	219 L.H.	PARRY
	H1	4	MWF	123 L.H.	E. H. PETERSON
	K1	8	TTS	413 U.H.	BRAWNER
	K2	8	TTS	227 L.H.	COLEMAN
	L1	9	TTS	213 U.H.	GIBSON
	M1	10	TTS	211 U.H.	SUMMERS
	N1	11	TTS	211 U.H.	MOOD

Engl. 20a. Chief English Writers of the Nineteenth Century.—Intended for students in professional and technical courses such as law, medicine, commerce, engineering, etc. *Prerequisite:* One year of college work. (Credit is not given for Engl. 20a in addition to Engl. 10a and 10b.)

4	A1	8	MTWT	406 U.H.	SLOW
	A2	8	MTWT	407 U.H.	HAMILTON
	B1	9	MTWT	406 U.H.	BLAIR
	C1	10	MTWT	406 U.H.	HARRIS
	C2	10	MTWT	407 U.H.	DAVIDSON
	D1	11	MTWT	123 L.H.	BELSLEY
	E1	1	MTWT	139 L.H.	SANDIN
	F1	2	MTWT	213 U.H.	E. H. PETERSON
	G1	3	MTWT	406 U.H.	J. D. PETERSEN

Engl. 20b. **Chief English Writers Before 1800.**—*Prerequisite:* English 20a. (Credit is not given for the course in addition to Engl. 10a and 10b.)

Credits	Section	Hours	Days	Room	Instructor
4	A	8	MTWT	207 U.H.	GLENN
	B	9	MTWT	207 U.H.	JEFFERSON
	C	10	MTWT	310 U.H.	TRELEASE
	D	11	MTWT	139 L.H.	KELSO
	E	1	MTWT	204 U.H.	FRENCH
	F	2	MTWT	312 U.H.	TEMPLEMAN

Intermediate Courses

Engl. 2. **Survey of English Literature.**—(A course primarily for English majors.) *Prerequisite:* Engl. 1 and 10a-10b, or consent of instructor.

3	B	9	MWF	123 L.H.	GLENN
	D	11	MWF	303-A L.H.	FINNEY
	F	2	MWF	123 L.H.	PARRY

Engl. 13. **American Literature.**—*Prerequisite:* English 10a-10b, or junior standing. (2). 1 TT; 103 New Agr. Professor PAUL, Mrs. SWENEY, Miss STUTZMAN.

Engl. 22. **Literary Study of the Bible.**—*Prerequisite:* Six hours of English literature, or Engl. 20a or 20b with a grade of B. (3). 11 MWF; 103 New Agr. Professor E. C. BALDWIN.

Engl. 23. **Introduction to Shakespeare.**—*Prerequisite:* Engl. 10a and 10b; or 20a-20b with a grade of B, or junior standing.

3	B	9	MWF	109 L.H.	SECORD
	D	11	MWF	311 U.H.	TEMPLEMAN
	E	1	MWF	109 L.H.	FINNEY

Engl. 27. **Shakespeare's Non-dramatic Poetry.**—*Prerequisite:* Nine hours of English literature. (3). 2 MWF; 114 L.H. Assistant Professor RINAKER.

Engl. 44. **Contemporary Poetry.**—*Prerequisite:* Ten hours of English literature, or junior standing. (3). 1 MWF; 103 New Agr. Assistant Professor WEIRICK.

Courses for Advanced Undergraduates and Graduates

Prerequisite: Junior or senior standing and either ten hours of English literature or the consent of the instructor.

Engl. 3. **The Poetry of Milton.**—(3). 9 MWF; 304 L.H. Professor E. C. BALDWIN.

Engl. 4. **English Versification.**—(2). 9 TT; 311 U.H. Dr. GOLDMAN.

Engl. 9. **Old English (Anglo-Saxon).**—Beowulf. (3). 11 MWF; 305 L.H. Professor JONES.

Engl. 17. **History of the English Language.**—(Consent of the instructor must be obtained.) (3). 9 MWF; 104 L.H. Professor JONES.

Engl. 30. **Tendencies in American Fiction Since 1870.**—(Consent of the instructor must be obtained.) (3). 10 MWF; 238 L.H. Dr. TUPPER.

Engl. 36. **The English Drama (exclusive of Shakespeare) from 1600 to 1700.**—(3). 2 MWF; 109 L.H. Professor HILLEBRAND.

Engl. 38. **The Development of the Arthurian Tradition.**—(3). 1 MWF; 133 L.H. Associate Professor PARRY.

Engl. 41. **The Teaching of English Literature.**—(2). 3 TT; 306 L.H. Professor PAUL, Mrs. SWENEY.

Engl. 42. **The Teaching of English Composition.**—(2). 2 TT; 202 L.H. Professor PAUL, Mrs. SWENEY.

Engl. 43. **Browning.**—(3). 10 MWF; 109 L.H. Professor GRAHAM.

Engl. 50. **Prose of the First Half of the Seventeenth Century.**—(Consent of the instructor must be obtained.) (3). 11 MWF; 120 L.H. Professor ZEITLIN.

Engl. 54b. **Introduction to Comparative Literature.**—*Prerequisite:* English 54a. Survey of the greatest French, German, and English authors.

3	Lect.	10	WF	218 U.H.	BERNBAUM ARON CARNAHAN
	A Disc.	10	M	136 L.H.	PARRY
	B Disc.	10	M	211 U.H.	BUSEY

Engl. 60b. **Thesis.**—(Primarily for candidates for honors.) (2). Time to be arranged. Dr. TUPPER.

Courses for Graduates

Engl. 101. **Research in Special Topics.**—(1 to 2 units).* Professors GRAHAM, BERNBAUM, PAUL, ZEITLIN, E. C. BALDWIN, JONES, HILLEBRAND, JEFFERSON; Associate Professors PARRY, FLETCHER, SANDFORD; Assistant Professors RINAKER, SECORD, FINNEY.

Engl. 114. **Development of the Essay.**—(1 unit). 11 TT; 311 Lib. Professor ZEITLIN.

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Engl. 120. The History and Principles of Literary Criticism.—Twice a week. (1 unit). Arrange. 135 L.H. Assistant Professor FINNEY.

Engl. 128. Literature of the Sixteenth Century.—(1 unit). 10 TT; 113 L.H. Professor JONES.

Engl. 130. Tragedy.—(1 unit). 1 TT; 120 L.H. Professor HILLEBRAND.

Engl. 135. Problems in American Literature.—Whitman and Lowell. (1 unit). 8 TT; 113 L.H. Professor PAUL.

Engl. 138. The Romantic Movement.—(1 unit). 2 TT; 306 L.H. Professor BERNBAUM.

Engl. 140. Investigations in Modern English Literature.—(1 to 3 units).* Three hours once a week. Arrange. 220 L.H. Professor BERNBAUM.

Engl. 141. Literature of the Seventeenth Century.—(1 unit). 3 TT; 302 L.H. Professor E. C. BALDWIN.

Engl. 143. Seminar in the History and Theory of Prose Fiction.—(1 unit). 1 WF; English Seminar. 321 Lib. Professor BERNBAUM.

Engl. 145. Studies in the Eighteenth Century Literature.—(1 unit). 2 MW; 113 L.H. Professor GRAHAM.

Engl. 146. The Text of Milton.—(1 unit). Arrange. 304 U.H. Associate Professor FLETCHER.

B. RHETORIC

Rhet. A. Review Rhetoric.—Review for students in Rhet. 1 and 2 who need special drill in the mechanics of writing. No credit. Sections to open soon after the beginning of the semester.

Credits	Section	Hours	Days	Room	Instructor
0	A	8	MW	404 U.H.	MILLHOUSE
	C	10	MW	318 U.H.	MILLHOUSE
	E	1	MW	218 U.H.	OLDHAM
	H	4	MW	318 U.H.	OSENBURG
	K1	8	TT	318 U.H.	OSENBURG
	K2	8	TT	211 U.H.	WHEELER
	P	2	TT	318 U.H.	WHEELER
	Q	3	TT	318 U.H.	RIEBEL
	R1	4	TT	318 U.H.	RIEBEL
	R2	4	TT	404 U.H.	OLDHAM

Rhet. 1. Rhetoric and Composition.—*Prerequisite:* The minimum entrance requirements in English. (Two hours credit for seniors.)

Credits	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	203 U.H.	FAIN
	A2	8	MWF	104 L.H.	MAXWELL
	A3[1]	8	MWF	411 U.H.	MOELLER
	B1	9	MWF	411 U.H.	JOHNSON
	B2[1]	9	MWF	203 U.H.	DOLK
	C1	10	MWF	206 Adm.(E)	CHARLES
	C2[1]	10	MWF	204 Adm.(E)	FOLEY
	D1	11	MWF	207 Adm.(E)	MILLHOUSE
	D2[1]	11	MWF	407 U.H.	OLDHAM
	E1	1	MWF	136 L.H.	PEIRCE
	E2[1]	1	MWF	411 U.H.	KENNEDY
	F1	2	MWF	203 U.H.	NOBLE
	F2[1]	2	MWF	406 U.H.	WASHBURN
	G1	3	MWF	311 U.H.	SCHEERER
	G2[1]	3	MWF	123 L.H.	MARTIN
	H	4	MWF	224 L.H.	STUTZMAN
	K1	8	TTS	411 U.H.	GRESS
	K2[1]	8	TTS	212 U.H.	OWEN
	L	9	TTS	411 U.H.	LOCKARD
	M	10	TTS	204 U.H.	ORLOVICH
	N	11	TTS	219 L.H.	FIELDER

[1]For students who are repeating Rhet. 1.

Rhet. 2. Rhetoric and Composition.—*Prerequisite:* Rhet. 1. (Two hours credit for seniors.)

Credits	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	412 U.H.	CHARLES
	A2	8	MWF	213 U.H.	TEMPLEMAN
	A3	8	MWF	207 Adm.(E)	GETTMAN
	A4	8	MWF	413 U.H.	DAVIDSON
	A5	8	MWF	302 U.H.	SECORD
	A6	8	MWF	123 L.H.	BELSLEY
	A7	8	MWF	312 Adm.(E)	HARRIS
	A8[2]	8	MWF	214 U.H.	BLAIR
	A9[2]	8	MWF	310 U.H.	JOHNSON
	B1	9	MWF	114 L.H.	BELSLEY
	B2	9	MWF	407 U.H.	MOELLER
	B3	9	MWF	413 U.H.	SLOW
	B4	9	MWF	208 Adm.(E)	KELLEY
	B5	9	MWF	204 U.H.	FRENCH
	B6	9	MWF	312 U.H.	TRELEASE
	B7[2]	9	MWF	412 U.H.	CHARLES

[2]For students who have received a grade of D in Rhet. 1.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Rhet. 2 (Concluded)

Credits	Section	Hours	Days	Room	Instructor
3	B8[2]	9	MWF	404 U.H.	MILLHOUSE
	C1	10	MWF	207 U.H.	BLAIR
	C2	10	MWF	212 U.H.	PEIRCE
	C3	10	MWF	204 U.H.	MILLER
	C4	10	MWF	413 U.H.	KELLEY
	C5	10	MWF	412 U.H.	MOELLER
[2]For students who have received a grade of D in Rhet. 1.	C6	10	MWF	312 U.H.	SIMPSON
	C7	10	MWF	311 U.H.	GETTMAN
	C8[2]	10	MWF	411 U.H.	RIEBEL
	C9[2]	10	MWF	213 U.H.	HAMILTON
	D1	11	MWF	312 Adm.(E)	FOLEY
	D2	11	MWF	207 U.H.	MILLER
	D3	11	MWF	411 U.H.	JEFFERSON
	D4	11	MWF	315 U.H.	HAMILTON
	D5	11	MWF	318 U.H.	GLENN
	D6	11	MWF	412 U.H.	RAPP
	D7	11	MWF	404 U.H.	SIMPSON
	D8[2]	11	MWF	323 New Agr.	MAXWELL
	D9[2]	11	MWF	213 U.H.	DAVIDSON
	E1	1	MWF	213 U.H.	OSENBURG
	E2	1	MWF	407 U.H.	E. H. PETERSON
	E3	1	MWF	413 U.H.	NOBLE
	E4	1	MWF	214 U.H.	WASHBURN
	E5	1	MWF	304 Adm.(E)	J. D. PETERSEN
	E6	1	MWF	302 U.H.	HASKELL
	E7[2]	1	MWF	406 U.H.	ROBERTS
	E8[2]	1	MWF	219 L.H.	HURLEY
	F1	2	MWF	302 U.H.	DOLK
	F2	2	MWF	204 U.H.	KORN
	F3	2	MWF	219 L.H.	BLOOM
	F4	2	MWF	413 U.H.	J. D. PETERSEN
	F5	2	MWF	207 U.H.	FISHER
	F6	2	MWF	311 U.H.	MARTIN
	F7[2]	2	MWF	318 U.H.	FAIN
	F8[2]	2	MWF	212 U.H.	SCHEERER
	G1	3	MWF	224 L.H.	STUTZMAN
	G2	3	MWF	212 U.H.	ROBERTS
	G3	3	MWF	203-A L.H.	HURLEY
	G4	3	MWF	213 U.H.	SANDIN
	G5	3	MWF	411 U.H.	FAIN
	G6	3	MWF	204 U.H.	KENNEDY
	G7	3	MWF	413 U.H.	KORN
	G8[2]	3	MWF	407 U.H.	OSENBURG
	G9[2]	3	MWF	207 U.H.	OLDHAM
	H1	4	MWF	214 U.H.	GRISWOLD
	H2	4	MWF	202 U.H.	DOLK
	H3	4	MWF	211 L.H.	BLOOM
	H4	4	MWF	203-A L.H.	WASHBURN
	H5[2]	4	MWF	213 U.H.	NOBLE
	K1	8	TTS	203 U.H.	SUMMERS
	K2	8	TTS	302 U.H.	GIBSON
	K3	8	TTS	214 U.H.	FIELDER
	K4	8	TTS	310 U.H.	LOCKARD
	K5[2]	8	TTS	213 U.H.	ORLOVICH
	L1	9	TTS	312 U.H.	ORLOVICH
	L2	9	TTS	123 L.H.	GRESS
	L3	9	TTS	407 U.H.	BRAWNER
	L4	9	TTS	203 U.H.	OWEN
	L5[2]	9	TTS	318 U.H.	WHEELER
	M1	10	TTS	207 U.H.	FIELDER
	M2	10	TTS	412 U.H.	LOCKARD
	M3	10	TTS	411 U.H.	RIEBEL
	M4[2]	10	TTS	212 U.H.	GRISWOLD
	N1	11	TTS	411 U.H.	WHEELER
	N2	11	TTS	412 U.H.	BRAWNER
	N3	11	TTS	203-A L.H.	SUMMERS
	N4	11	TTS	413 U.H.	GRESS
	N5[2]	11	TTS	203 U.H.	GIBSON

Rhet. 3. Exposition.—*Prerequisite:* Rhet. 1 and 2, except for sections F and G.[3]

Credits	Section	Hours	Days	Room	Instructor
3	B	9	MWF	312 Adm.(E)	GOLDMAN
[3]Freshmen exempted from Rhetoric 1 and 2 may enter sections F and G of Rhetoric 3.	D	11	MWF	208 Adm.(E)	HURLEY
	F[3]	2	MWF	204-A L.H.	BUSEY
	G[3]	3	MWF	114 L.H.	HASKELL

Rhet. 4. Narration and Description.—*Prerequisite:* Rhet. 1 and 2.

Credits	Section	Hours	Days	Room	Instructor
3	B	9	MWF	113 L.H.	RAPP
	C	10	MWF	303-A L.H.	KELSO
	D	11	MWF	302 U.H.	TRELEASE
	F	2	MWF	224 L.H.	ROBERTS

Rhet. 7. Advanced Narrative Composition.—*Prerequisite:* Rhet. 6. (3). 3 MWF; 204-A L.H. Assistant Professor WEIRICK.

Rhet. 10. Business Letter Writing.—*Prerequisite:* Rhet. 1 and 2.

Credits	Section	Hours	Days	Room	Instructor
2	A1 Eng.	8	MW	318 U.H.	LANG
	A2 Com.	8	TT	126 Com.	MOOD
	B1 Com.	9	MW	329 Com.	ANDERSON
	B2 LAS, Agr., Ed.	9	MW	323 New Agr.	TARPLEY
	B3 Eng.	9	TT	204 U.H.	LANG
	C1 Com.	10	MW	104 L.H.	TARPLEY
	C2 Com.	10	MW	312 Com.	ANDERSON
	C3 Com.	10	TT	312 Com.	TARPLEY
	C4 Com.	10	MW	100 Com.	SCHENCK
	C5 LAS, Agr., Ed.	10	TT	413 U.H.	MOOD
	C6 Com.	10	TT	328 Com.	SCHENCK
	D1 LAS, Agr., Ed.	11	MW	413 U.H.	LANG
	D2 Eng.	11	TT	212 U.H.	TARPLEY
	D3 Com.	11	TT	329 Com.	ANDERSON
	E1 Com.	1	MW	312 Com.	SAUNDERS
	E2 Com.	1	MW	326 Com.	COLEMAN
	E3 LAS, Agr., Ed.	1	TT	204 Adm.(E)	COLEMAN
	F1 Com.	2	MW	312 Com.	SAUNDERS
	F2 Com.	2	TT	306 Com.	SAUNDERS
	F3 Eng.	2	TT	203 U.H.	COLEMAN

Rhet. 21. Advanced Business Writing.—(Sales letter campaigns and advertising copy). *Prerequisite:* Grade of A or B in Rhet. 10. (2). 11 TT; 105 L.H. Associate Professor SAUNDERS.

Rhet. 22. Special Types of Business Writing.—(Business reports and articles for business magazines). *Prerequisite:* Rhet. 10. (2). 10 TT; 329 Com. Assistant Professor C. R. ANDERSON.

Course for Advanced Undergraduates and Graduates

Rhet. 46. Dramatic Composition.—(3). 3 MWF; 302 L.H. Professor HILLEBRAND.

C. PUBLIC SPEAKING

Pub. Spk. 1. Principles of Effective Speaking.—*Prerequisite:* Rhet. 1 and 2.

3	A1	8	MWF	142 L.H.	HUSTON
	A2	8	MWF	202 Entom.	MCCARTY
	B1	9	MWF	148 L.H.	HUSTON
	B2	9	MWF	202 Entom.	HENDERSON
	C1	10	MWF	202 Entom.	HENDERSON
	C2	10	MWF	148 L.H.	SWANSON
	D1	11	MWF	148 L.H.	MCCARTY
	D2	11	MWF	202 Entom.	BURGLUND
	E1	1	MWF	148 L.H.	SWANSON
	E2	1	MWF	202 Entom.	HENDERSON
	F1	2	MWF	148 L.H.	NELSON
	F2	2	MWF	142 L.H.	WALTZ
	G	3	MWF	202 Entom.	MCCARTY
	K	9	TTS	202 Entom.	MCCARTY

Pub. Spk. 2. Business and Professional Speaking.—*Prerequisite:* Pub. Spk. 1.

2	J	8	TT	142 L.H.	HUSTON
	K	9	TT	142 L.H.	SANDFORD
	L	10	TT	142 L.H.	SANDFORD
	M	11	TT	142 L.H.	WALTZ

Pub. Spk. 3. Elements of Debating.—*Prerequisite:* Pub. Spk. 1.

3	B	9	MWF	142 L.H.	WALTZ
	D	11	MWF	142 L.H.	HUSTON

Pub. Spk. 10. Oral Interpretation of Literature.—*Prerequisite:* Pub. Spk. 1.

2	K	9	TT	148 L.H.	NELSON
	L	10	TT	148 L.H.	NELSON
	M	11	TT	148 L.H.	HENDERSON
	N	1	TT	148 L.H.	NELSON

Courses for Advanced Undergraduates and Graduates

Pub. Spk. 4. Advanced Debating.—*Prerequisite:* Pub. Spk. 3, junior standing. (3). 10 MWF; 142 L.H. Mr. WALTZ.

Pub. Spk. 7. Masters of Public Address.—*Prerequisite:* Pub. Spk. 2 or 3, junior standing. (3). 1 MWF; 142 L.H. Associate Professor SANDFORD.

Pub. Spk. 8. Dramatization.—*Prerequisite:* Pub. Spk. 9 or 10, junior standing. (3). 1 MWF; L.H. Theatre. Miss NELSON.

Pub. Spk. 11. Play Production.—*Prerequisite:* Pub. Spk. 8, junior standing. (Laboratory fee $5.)

3	F	2	MWF	L.H. Theatre	SWANSON
	G	3	MWF	L.H. Theatre	BURGLUND

Pub. Spk. 12. The Teaching of Public Speaking.—*Prerequisite:* 10 hours of public speaking, junior standing. (2). 1 TT; 142 L.H. Associate Professor SANDFORD.

D. SCANDINAVIAN LANGUAGES AND LITERATURE

Scand. 22b. Elementary Swedish.—(Not open to freshmen.) (3). Arrange. 209 L.H. Mr. JOHNSON. Professor FLOM on leave of absence 1931-1932.

ENTOMOLOGY

Note: Certain courses in this department require laboratory fees varying from $1.50 to $5.

For students entering prior to September, 1929

Major: 20 hours from courses offered in the department, except Entom. 1, 2, and 31.

Minors: 20 hours in not more than three of the following: Zoology, botany, physiology, chemistry, horticulture, and agronomy.

Entomology 1 is open to freshmen, without prerequisite, and may be followed by any of the other courses for undergraduates or by 6, 10, 20, or 21 in the senior year. Agricultural students and others desiring strictly practical work may take 1, 8, and 20 in sequence. Students preparing for service as economic entomologists should take as many of the courses offered as possible and should consult the head of the department.

For students entering after September 1, 1929

Major: 20 hours exclusive of Entomology 1, 2, 31. At least five hours must be offered from the advanced group.

Minors: 20 hours in not more than two of the following, with not less than eight hours in either department, if two subjects are chosen: Zoology, botany, chemistry, physiology, horticulture, and agronomy.

Entomology 1 is open to freshmen, without prerequisite, and may be followed by any of the other courses for undergraduates or by 6, 10, 20, or 21 in the senior year. Agricultural students and others desiring strictly practical work may take 1, 8, and 20 in sequence. Students majoring in entomology should take as many of the courses offered as possible, including some work in classification, morphology, and control, and should consult the head of the department.

Entom. 1. Destructive and Useful Insects.—

Credits	Section	Hours	Days	Room	Instructor
3[1]	A Lect.	10	MF	309 Entom.	METCALF
[1]Seniors will receive only 2 hours credit.	A Lab.	11 10–12	MF and W	309 Entom.	BALDUF and KUTCHKA
	B Lect.	1	MF	309 Entom.	METCALF
	B Lab.	2 1–3	MF and W	309 Entom.	MILUM and KEARNS

Entom. 2. Insects: Their Ways and Their Relations to Man.—A non-technical, cultural course. *Prerequisite:* 30 hours of university work. (Not open to students who have taken Entomology 1.)

2	A Lect.	11	TT	310 Entom.	BALDUF and staff
	B Lect.	2	TT	310 Entom.	

Entom. 3b. Classification of Insects: Orders with complete metamorphosis.—*Prerequisite:* Entomology 1 and 30 hours of university work. (5). Lab., 8-11 TT; Lect., to be arranged; 310 Entom. Assistant Professor BALDUF.

Entom. 8b. Insect Pests of Animals and Man.—*Prerequisite:* Entom. 1 and 30 hours of university work. (3 or 5).* 1-4 TT; 312 Entom. Professor METCALF.

Entom. 22. Methods and Technic in the Study of Insects.—*Prerequisite:* Entom. 1 and 30 hours of university work. (3). 1-4 MW; 312 Entom. Associate Professor HAYES.

Entom. 31. Essentials of Beekeeping.—*Prerequisite:* 30 hours of university work. (2). 1-3 TT; 104 Viv. Assistant Professor MILUM.

Entom. 32. Advanced Beekeeping.—*Prerequisite:* Entom. 31 or consent of instructor and 30 hours of university work. (2). 3-5 TT; 104 Viv. Assistant Professor MILUM.

Courses for Advanced Undergraduates and Graduates

Entom. 6. Special Problems.—*Prerequisite:* Any of the following: Entom. 3, 7, 8, 10, 20, 21, 22, or 31; senior standing. (2 to 5).* Saturday morning; additional hours to be arranged. Various instructors.

Entom. 10b. Taxonomy of Immature Insects.—*Prerequisite:* Entom. 3, 7a and senior standing. (3). 8-10 MWF; 312 Entom. Associate Professor HAYES.

Entom. 21. Insect Bionomics.—*Prerequisite:* Entom. 1 and senior standing. (3). 11 MWF; 312 Entom. Professor METCALF.

Courses for Graduates

The prerequisite for graduate work in entomology is two years of undergraduate biology, including zoology and entomology.

Entom. 102. Research in the Morphology and Embryology of Insects.—(½ to 2 units).* Time to be arranged. Associate Professor HAYES.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Entom. 108. Research in Economic Entomology.—(½ to 2 units).* Time to be arranged. Professor METCALF.

Entom. 109. Research in Systematic Entomology.—(½ to 2 units).* Time to be arranged. Professor METCALF, Assistant Professor BALDUF.

Entom. 110. Research in the Biology and Ecology of Insects.—(½ to 2 units).* Time to be arranged. Professor METCALF.

FARM MECHANICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $8.

Farm Mech. 1. Elementary Farm Mechanics.—

Credits	Section	Hours	Days	Room	Instructor
3[1]	Lect.	8	WF	201 Farm Mech.	ALBRECHT
[1]Seniors will receive only 2 hours credit.	B Quiz	9	W		REED
	J Quiz	8	Tu		
	N Quiz	1	Tu		
	S Quiz	9	F		
	A Lab.	8–10	M		
	J Lab.	8–10	Th		
	N Lab.	1–3	Th		

Farm Mech. 3. Gas Engines and Tractors.—*Prerequisite:* Farm Mech. 1. An inspection trip estimated to cost $15 to $20 is required.

3	Lect.	11	TT	201 Farm Mech.	SHAWL
	K Quiz	9	Tu		
	O Quiz	2	Th		
	O Lab.	2–4	Tu		
	K Lab.	9–11	S		

Farm Mech. 4. Farm Buildings.—*Prerequisite:* Farm Mech. 1 or consent of instructor. (3). 1 MW; 202 Farm Mech. Laboratory time to be arranged. Assistant Professor FOSTER.

Farm Mech. 11. Dairy Machinery and Equipment.—*Prerequisite:* Farm Mech. 1. For students specializing in dairy manufactures. Others see instructor. (2). Time to be arranged. 204 Farm Mech. Mr. YOUNG.

Farm Mech. 12. Farm Home Equipment.—*Prerequisite:* Farm Mech. 1 or 60 hours of university work. (2). Lect. 1 Tu; Lab. 1-3 Th; 204 Farm Mech. Professor LEHMANN.

Farm Mech. 21. Farm Shop Work.—*Prerequisite:* Farm Mech. 1. (2). 3-5 MW; 201 Farm Mech. Mr. ALBRECHT.

Courses for Advanced Undergraduates and Graduates

Farm Mech. 17. Harvesting Machinery.—*Prerequisite:* Farm Mech. 2. (3). Lect. 11 MW, Lab. 2-5 Tu; 201 Farm Mech. Assistant Professor SHAWL.

Farm Mech. 18b. Investigation with Thesis.—*Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. Continuous throughout the year; credit is not given for either semester separately. (5). Time to be arranged. Professor LEHMANN, Assistant Professor SHAWL.

Farm Mech. 51. Special Power and Field Machinery.—*Prerequisite:* Farm Mech. 17 or 28. Consult instructor before registering. (3). Time to be arranged. Professor LEHMANN, Assistant Professor SHAWL.

FARM ORGANIZATION AND MANAGEMENT

Courses for Undergraduates

F.O.M. 1. Elementary Farm Management.—*Prerequisite:* Econ. 1 or 2; 60 hours of university work. Local field trips will be arranged. Estimated cost $5.

3	Lect. and Disc.	10	TT	316 New Agr.	WILCOX
	S Lab.	1–3	Th	331 New Agr.	WILLS
	T Lab.	1–3	F	331 New Agr.	

F.O.M. 10b. Investigation with Thesis.—*Prerequisite:* 90 hours of university work including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. This course is continuous throughout the year; credit is not given for either semester separately. (5). Time to be arranged. Professor CASE and others.

Courses for Advanced Undergraduates and Graduates

F.O.M. 3. Farm Business Analysis.—Analysis of factors influencing farm earnings in Illinois based on farm financial records and cost accounts; measures of farm and enterprise efficiency; standards of accomplishment; evaluation of practices through their influence on earnings. Lectures and quiz. Local field trips will be arranged; cost not to exceed $10. *Prerequisite:* Farm Management 1 and Accountancy 1a. (3). 11 MWF; 316 New Agr. Assistant Professor JOHNSTON.

F.O.M. 5. Farm Organization.—*Prerequisite:* Farm Mgt. 1. Local field trips will be arranged; estimated cost not to exceed $10. (3). 8 MWF; 331 New Agr. Professor CASE, Assistant Professor JOHNSTON.
(See also Animal Husbandry 29, Systems of Live Stock Farming.)

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Courses for Graduates

F.O.M. 101. Farm Management Principles and Investigation Methods.—(1 unit). Twice a week. Time to be arranged. Professor CASE.

F.O.M. 110. Farm Organization and Management Research.—Only those who write acceptable theses will receive credit. (All graduate students majoring in Farm Organization and Management should register in this course.) Once a week; both semesters. (1 to 2 units).* Time to be arranged. Professor CASE.

FINE ARTS

(See Art, Landscape Architecture, and Music.)

FLORICULTURE

(See Horticulture.)

FRENCH

(See Romance Languages and Literature, A.)

GENERAL ENGINEERING DRAWING

(See Drawing, General Engineering.)

GEOGRAPHY

(See Geology, B.)

GEOLOGY

(Including Mineralogy, Paleontology, and Geography.)

Note: Certain courses in this department require a laboratory fee varying from $1 to $2.50.

A. GEOLOGY

For students entering prior to September, 1929

Major: 20 hours in Geology exclusive of Geology 1, 43, and 44, and including Geology 2b and 4, he field course.

Minors: 20 hours selected from any one or two of the following departments: Astronomy, botany, chemistry, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology.

For students entering after September 1, 1929

Major: 20 hours in Geology exclusive of Geology 1, 43, and 44, and inclusive of Geology 3 and 4 (the field trip), and at least 5 hours of courses not open to freshmen or sophomores.

Minors: 20 hours of courses in one or two of the following named departments: Astronomy, botany, chemistry, geography, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology. At least eight hours must be offered in each subject if two are chosen.

Geol. 1. General Geology.—Discussions; quiz; 4 hours laboratory; one or two field trips.

Credits	Section	Hours	Days	Room	Instructor
5[1]	A Lect. and Quiz	8	TWTF	247 N.H.	SHEPARD
	B Lect. and Quiz	9	TWTF	247 N.H.	SAVAGE
	C Lect. and Quiz	10	TWTF	247 N.H.	CRICKMAY
	D Lect. and Quiz	2	MTWT	247 N.H.	DEWOLF
[1]Seniors receive only 4	1 Lab.	1–3	MF	251 N.H.	CRICKMAY
credits; students who	2 Lab.	1–3	TT	251 N.H.	WANLESS
have credit for Geog. 1	3 Lab.	8–10	TT	251 N.H.	DEWOLF
receive only 3 credits	4 Lab.	10–12	TT	251 N.H.	SHEPARD
for Geol. 1.	5 Lab.	3–5	MF	251 N.H.	CRICKMAY

Geol. 2a. Historical Geology.—*Prerequisite:* Geol. 1.

5[1]	A Lect.	9	MTWTF	241 N.H.	SUTTON
[1]Seniors receive only 4	B Lect.	11	MTWTF	241 N.H.	SAVAGE
hours credit.	C Lect.	2	MTWTF	241 N.H.	SUTTON

Geol. 4. Field Work.—*Prerequisite:* Geol. 2b or 3. Lecture and quiz 1 hour weekly, 3 field trips on Saturdays, and mapping of an area in northern Illinois during the week following the Easter recess. Credit will be given only upon the completion of a satisfactory written report. Estimated traveling expense about $40.00. Required of majors in Geology. (3). 8 S; 150 N.H. Assistant Professor WANLESS.

Geol. 17. Geomorphology.—*Prerequisite:* Geol. 2a. (3). 3 MWF; 247 N.H. Assistant Professor SHEPARD.

Geol. 43. Engineering Geology.—*Prerequisite:* Sophomore standing in the College of Engineering. (3). 1 TT; 247 N.H. Lab. 1, 1-4 W; Lab. 2, 9-12 S; 251 N.H. Dr. KANIA.

Geol. 44. Agricultural Geology.—*Prerequisite:* Sophomore standing in the College of Agriculture.

3	Lect. and Quiz	1	MWF	247 N.H.	WANLESS
	Lab.	10–12	F	147 N.H.	WANLESS

Courses for Advanced Undergraduates and Graduates

Geol. 16. Stratigraphy.—*Prerequisite:* Geol. 9. (3). 8 MWF; 236 N.H. Lab. hours to be arranged. Assistant Professor SUTTON.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Geol. 22. Mountain and Continental Structures.—*Prerequisite:* Geol. 15 and senior standing. (3). 9 TTS; 134 N.H. Assistant Professor SHEPARD.

Geol. 48. Silicate Minerals.—*Prerequisite:* Geol. 47. (5). 10-12 MTWTF; 150 N.H. Dr. KANIA.

Geol. 49. Microscopic Mineralogy.—*Prerequisite:* Geol. 47 or 20. Designed for students of Ceramics or Chemistry. (5). 8-10 MWF, 1-3 TT; 254 N.H. Associate Professor HOWARD.

Geol. 96. Economic Geology.—*Prerequisite:* Geol. 2a or 43, and 20 or 48. (3). 9 MWF; 150 N.H. Dr. KANIA.

Geol. 60b. Introduction to Research.—Limited to seniors majoring in geology. (2). Members of the department.

Courses for Graduates

Geol. 101. Advanced Crystallography.—(1 unit). Twice a week. Hours to be arranged. 253 N.H. Associate Professor HOWARD.

Geol. 102. Igneous Petrography.—(1 unit). Twice a week. Hours to be arranged. 253 N.H Associate Professor HOWARD.

Geol. 135. Research.—(½ to 4 units).* Once a week. Hours to be arranged. Members of the department.

Geol. 142. Stratigraphic Paleontology: Paleozoic.—(1 unit). 1 MWF; 236 N.H. Professor SAVAGE.

Geol. 143. Stratigraphic Paleontology: Mesozoic and Cenozoic.—(1 unit). Hours to be arranged. 134 N.H. Assistant Professor SUTTON.

Geol. 152. Advanced Historical Geology.—(1 unit). 11 MWF; 134 N.H. Assistant Professor CRICKMAY.

Geol. 161. Applied Petroleum Geology.—(1 unit). Three times a week. Hours to be arranged. Professor DEWOLF.

Geol. 163. Geologic Development of the Continents.—(1 unit). Three times a week. Hours to be arranged. Associate Professor HOWARD.

B. GEOGRAPHY

For students entering prior to September, 1929

Major: 20 hours of courses that have prerequisites in geography, exclusive of Geography 1.

Minors: 20 hours selected from not more than two of the following: Economics, education, history, zoology, and botany.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, and 12 or 8 or 53.

For students entering after September 1, 1929

Major: 20 hours of courses that have prerequisites in geography, exclusive of Geography 1, and including at least 5 hours of courses not open to freshmen.

Minors: 20 hours selected from not more than two of the following named departments: Economics, education, history, zoology, botany, and geology. At least eight hours must be offered in each subject, if two are chosen.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, or 10 or 11, or 12 or 8 or 53.

Courses for Undergraduates

Geog. 1. Elements of Geography.—Lectures and discussions; two or three field trips.

Credits	Section	Hours	Days	Room	Instructor
5[1]	A Lect. and Disc.	8	MTWF	435 N.H.	PAGE
	A Lab.	8–10	Th	422 N.H.	
	B Lect. and Disc.	9	MWTF	435 N.H.	BURGY
	B Lab.	8–10	Tu	422 N.H.	
	C Lect. and Disc.	10	MWTF	435 N.H.	DOW
	C Lab.	10–12	Tu	422 N.H.	
	D Lect. and Disc.	10	MTWF	434 N.H.	BLOCK
	D Lab.	10–12	Th	422 N.H.	
	E Lect. and Disc.	11	MTWF	435 N.H.	BLOCK
	E Lab.	3–5	Th	422 N.H.	
	F Lect. and Disc.	1	MWTF	435 N.H.	DOW
	F Lab.	1–3	Tu	422 N.H.	
	G Lect. and Disc.	2	MTWF	435 N.H.	BLOCK
	G Lab.	1–3	Th	422 N.H.	

[1]Seniors receive only 4 credits; students who have credit for Geol. 1 receive only 3 credits for Geog. 1.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Geog. 2. Economic Geography.—*Prerequisite:* Geog. 1. Lectures and discussion.

Credits	Section	Hours	Days	Room	Instructor
5[1]	A	8	MTWTF	434 N.H.	DOW
[1]Seniors will receive	B	9	MTWTF	434 N.H.	POGGI
only 4 hours credit.	C	11	MTWTF	434 N.H.	POGGI

Geog. 5. Geography of South America.—*Prerequisite:* Geog. 2. (3). 1 MWF; 434 N.H. Dr. BURGY.

Geog. 7. Field Geography.—*Prerequisite:* Geog. 1. The field selected for study in 1932 is in northern Illinois and southern Wisconsin. Estimated expense about $40.00. (2). Week after Easter vacation. Assistant Professor PAGE.

Geog. 15. Physiography.—*Prerequisite:* Geog. 1. (3). 11 MWF; 422 N.H. Assistant Professor PAGE.

Courses for Advanced Undergraduates and Graduates

Geog. 8. Geography of Europe.—*Prerequisite:* Geog. 2 and senior standing. (3). 2 MWF; 422 N.H. Dr. POGGI.

Geog. 14a. Climates of the Continents.—*Prerequisite:* Geog. 14. (3). 10 MWF; 422 N.H. Assistant Professor PAGE.

Geog. 53b. Advanced Industrial and Commercial Geography.—*Prerequisite:* One regional course and senior standing. (3). 8 MWF; 422 N.H. Dr. BURGY.

Geog. 60b. Introduction to Research.—Limited to seniors majoring in Geography. (2). Time to be arranged. Members of the staff.

GERMAN

For students entering prior to September, 1929

Major: 20 hours in German, excluding courses 1 and 2, and including 6 hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list: Languages (not less than 8 hours in any one), education, history, philosophy, and psychology.
Seniors taking German 1-2 will receive only three hours credit.

For students entering after September 1, 1929

Major: 20 hours in German, excluding courses 1 and 2, and including 6 hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list, with not less than eight hours in each subject: Education, English (excluding Rhetoric 1, 2, and 12), French (excluding 1a), Greek, history, Italian, Latin, philosophy, Spanish (excluding 1a).
Seniors taking German 1-2 will receive only three hours credit.

Elementary and Intermediate Courses

German 1. Elementary Course.—

4[1]	A1	8	MTWT	238 L.H.	KRAUSS
	A2	8	MTWT	219 L.H.	MUNRO
[1]Seniors will receive	B	9	MTWT	310 U.H.	BALD
only 3 hours credit.	C1	11	MTWT	311 L.H.	SCHREIBER
	C2	11	MTWT	303 Adm.(E)	ROBINSON
	D	1	MTWT	205 L.H.	VOIGT
	E	3	MTWT	205 L.H.	JEHLE
	F	4	MTWT	406 U.H.	JUNG

German 2. Elementary Course (continued).—*Prerequisite:* German 1, German S1, or 1 year of high-school German.

4[1]	A1	8	MTWT	312 U.H.	BALD
	A2	8	MTWT	203-A L.H.	MOORE
	A3	8	MTWT	206 L.H.	ROBINSON
	A4	8	MTWT	205 L.H.	MUELLER
[1]Seniors will receive	B1	9	MTWT	205 L.H.	BROOKS
only 3 hours credit.	B2	9	MTWT	238 L.H.	SCHREIBER
	B3	9	MTWT	219 L.H.	MOORE
	C1	10	MTWT	233 L.H.	MUNRO
	C2	10	MTWT	206 L.H.	ROBINSON
	D1	11	MTWT	312 U.H.	KURTZ
	D2	11	MTWT	102 Entom.	JUNG
	E	1	MTWT	224 L.H.	KRAUSS
	F1	2	MTWT	205 L.H.	JEHLE
	F2	2	MTWT	232 L.H.	KUBITZ
	G1	3	MTWT	206 L.H.	VOIGT
	G2	3	MTWT	233 L.H.	GENSCHMER
	H	4	MTWT	232 L.H.	GENSCHMER

German 4. Intermediate Course.—*Prerequisite:* German 2, S2, or 2 years of high-school German, or equivalent.

4	A	8	MTWT	233 L.H.	SCHREIBER
	B	11	MTWT	310 U.H.	KOLLER
	C	1	MTWT	233 L.H.	MUELLER

German 5. Intermediate Course (continued).—Literary reading. *Prerequisite:* German 4, S4, or 3 years of high-school German, or equivalent.

Credits	Section	Hours	Days	Room	Instructor
4	A	8	MTWT	308 L.H.	GEISSENDOERFER
	B	9	MTWT	302 L.H.	GEISSENDOERFER
	C	11	MTWT	233 L.H.	MUNRO
	D	1	MTWT	207 U.H.	KURTZ
	E	3	MTWT	211 L.H.	KOLLER

German 6. Scientific Reading.—(Students may not take both 5 and 6 for more than a total of 4 hours credit without permission of department). *Prerequisite:* Same as for Course 5.

4	A	11	MTWT	326 L.H.	WILLIAMS
	B	4	MTWT	205 L.H.	MOORE

Courses for Advanced Undergraduates

German 7. Modern Fiction.—*Prerequisite:* German 5 or equivalent. (3). 2 MWF; 235 L.H. Assistant Professor KOLLER.

German 10. Introductory Goethe Course.—*Prerequisite:* German 5 or equivalent. (3). 11 MWF; 205 L.H. Professor ARON.

German 16b. Conversation and Writing.—*Prerequisite:* German 16a or equivalent. (2). 2 TT; 204-A L.H. Assistant Professor KOLLER.

German 24b. Nineteenth Century Drama.—*Prerequisite:* German 24a or equivalent. (2). 3 TT; 204-A L.H. Assistant Professor GEISSENDOERFER.

German 25. Teachers' Course.—*Prerequisite:* Three years of college German or equivalent. (2). Arrange. Assistant Professor GEISSENDOERFER.

German 28b. Lyrics and Ballads.—*Prerequisite:* German 28a or equivalent. (2). 9 TT; 204-A L.H. Associate Professor WILLIAMS.

German 29b. Advanced Conversation and Writing.—*Prerequisite:* 29a or equivalent. (2). 2 TT; 211 L.H. Assistant Professor GEISSENDOERFER.

German 30b. Senior Thesis and Honors Course.—*Prerequisite:* Senior standing; three years of college German or equivalent. (2). Arrange. Professor ARON and others.

Courses for Advanced Undergraduates and Graduates

German 19b. Goethe's Faust II.—*Prerequisite:* German 19a or equivalent. (2). 11 TT; 206 L.H. Professor BROOKS.

German 26b. German Literature in the Nineteenth Century.—*Prerequisite:* German 26a or equivalent. (3). 9 MWF; 233 L.H. Professor ARON.

German 54. Introduction to Comparative Literature.—(See English 54.)

Courses for Graduates

German 101. Seminar in the German Novel.—(1 unit). Twice a week. Arrange. Professor ARON.

German 102. Thesis.—(½ to 2 units).* Arrange. Professors ARON, BROOKS; Associate Professor WILLIAMS.

German 105. Old High German.—(1 unit). Twice a week. Arrange. Associate Professor WILLIAMS.

German 110. Early German Drama.—(1 unit). Twice a week. Arrange. Professor BROOKS.

German 121a. The Nibelungenlied.—(1 unit). Twice a week. Arrange. Associate Professor WILLIAMS.

GREEK

(See Classics.)

HISTORY

For students entering prior to September, 1929

Major: 20 hours, excluding History 1a and 2a, and including (a) either History 1b or 2b; (b) six hours selected from courses for advanced undergraduates and graduates; and (c) any other courses offered in the department.

Minors: 20 hours, selected from two of the following subjects: Economics, political science, law, sociology, English and American literature, and philosophy. Courses in any foreign language may be accepted in satisfaction of this requirement if the student can show his ability to read ordinary historical prose in that language.

For students entering after September 1, 1929

Major: 20 hours, including (a) ten hours in courses having junior standing as a prerequisite, and (b) any other courses offered by the department (except courses taken in the freshman year).

Minors: 20 hours selected from one or two of the following subjects: Economics, political science, geography, philosophy, law, sociology, and English and American literature (except such courses as are taken in the freshman year). Courses in one modern language (except such as are primarily designed for freshmen) will be accepted as one of two minor subjects.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Courses for Undergraduates

Hist. 1b. Continental European History.

Credits	Section	Hours	Days	Room	Instructor
4[1]	Lect. 1[2]	10	TT	Morrow Hall	JONES
[1]Seniors will receive only 3 hours credit.	Lect. 2[2]	2	TT	218 U.H.	JONES
[2]Students in lectures 1 and 2 must elect a discussion in the A-O group.	A Disc.	8	WF	211 U.H.	TOLO
	B Disc.	8	WF	335 L.H.	MAJOR
	C Disc.	9	WF	303-A L.H.	MAJOR
	D Disc.	10	WF	112 U.H.	MARTIG
	E Disc.	10	WF	211 L.H.	KING
	F Disc.	10	WF	211 U.H.	DAVENPORT
	G Disc.	10	WF	335 L.H.	SHAY
	H Disc.	1	WF	303-A L.H.	DAVENPORT
	I Disc.	1	WF	211 U.H.	ERICKSON
	J Disc.	2	WF	211 U.H.	TOLO
	K Disc.	2	WF	303-A L.H.	ERICKSON
	L Disc.	2	WF	335 L.H.	MARTIG
	M Disc.	3	WF	305 L.H.	MARTIG
	N Disc.	3	WF	335 L.H.	TOLO
	O Disc.	1	TT	305 L.H.	KING
	Lect. 3[3]	2	MW	228 N.H.	RONALDS
[3]Students in lecture 3 must elect a discussion in the P-V group.	P Disc.	1	TT	321 L.H.	LAFUZE
	Q Disc.	2	TT	321 L.H.	LAFUZE
	R Disc.	3	TT	311 L.H.	WRIGHT
	S Disc.	9	TT	335 L.H.	RONALDS
	T Disc.	10	TT	329 L.H.	RONALDS
	U Disc.	11	TT	321 L.H.	RONALDS
	V Disc.	2	TT	335 L.H.	SHAY

Hist. 2b. English History.

3[1]	Lect. 1	11	M	L.H. Theatre	DIETZ
	Lect. 2	2	M	Morrow Hall	DIETZ
	A Disc.	10	WF	321 L.H.	BAKER
	B Disc.	11	WF	321 L.H.	DIETZ
	C Disc.	11	WF	212 U.H.	SAGE
[1]Seniors will receive only 2 hours credit.	D Disc.	11	WF	329 L.H.	BAKER
	E Disc.	11	WF	224 L.H.	WRIGHT
	F Disc.	11	WF	335 L.H.	SHAY
	G Disc.	11	WF	203 U.H.	YOUNT
	H Disc.	11	WF	240 L.H.	WERNER
	I Disc.	1	WF	305 L.H.	SHAY
	J Disc.	2	WF	240 L.H.	SAGE
	K Disc.	2	WF	311 L.H.	SHAY
	L Disc.	2	WF	329 L.H.	WRIGHT
	M Disc.	2	TT	203 L.H.	BAKER
	N Disc.	3	TT	305 L.H.	YOUNT
	O Disc.	3	TT	211 U.H.	BAKER
	P Disc.	4	TT	305 L.H.	SHAY

Hist. 3b. History of the United States since 1828.—*Prerequisite:* One year of college work.

3	Lect. 1[1]	8	MF	218 U.H.	WERNER
	A Disc.	8	Tu	305 L.H.	WERNER
	B Disc.	8	Tu	311 L.H.	LAFUZE
	C Disc.	8	Tu	303-A L.H.	DAVENPORT
	D Disc.	8	W	305 L.H.	WERNER
[1]Students in Lecture 1 must elect a discussion in the A-H group. Students in Lecture 2 must elect a discussion in the I-P group. Students in Lecture 3 must elect a discussion in the Q-X group.	E Disc.	8	W	303-A L.H.	LAFUZE
	F Disc.	8	W	311 L.H.	DAVENPORT
	G Disc.	8	Th	305 L.H.	WERNER
	H Disc.	9	Th	303-A L.H.	WERNER
	Lect. 2[1]	11	MF	Morrow Hall	DUNBAR
	I Disc.	10	Tu	300 L.H.	DUNBAR
	J Disc.	11	Tu	305 L.H.	DUNBAR
	K Disc.	10	W	340 L.H.	MAJOR
	L Disc.	11	W	334 L.H.	DUNBAR
	M Disc.	11	W	300 L.H.	MAJOR
	N Disc.	10	Th	321 L.H.	DUNBAR
	O Disc.	11	Th	128 L.H.	DUNBAR
	P Disc.	1	Tu	311 L.H.	SAGE
	Lect. 3[1]	2	MF	218 U.H.	HANSEN
	Q Disc.	1	W	335 L.H.	KING
	R Disc.	2	Tu	311 L.H.	HANSEN
	S Disc.	2	W	110 L.H.	BAKER
	T Disc.	2	W	305 L.H.	HANSEN
	U Disc.	2	W	308 L.H.	KING
	V Disc.	2	W	321 L.H.	
	W Disc.	2	Th	303-A L.H.	SAGE
	X Disc.	3	W	303-A L.H.	HANSEN

Hist. 5b. The Ancient World.—*Prerequisite:* Sophomore standing.

3	Lect.	2	MF	303 L.H.	SWAIN
	A Disc.	2	Tu	240 L.H.	YOUNT
	B Disc.	2	W	340 L.H.	YOUNT
	C Disc.	2	W	105 L.H.	SWAIN
	D Disc.	2	Th	240 L.H.	YOUNT

Hist. 18. The Teaching of History.—*Prerequisite:* One year of college history and senior standing. (2). 3 TT; 308 L.H. Assistant Professor WERNER.

Hist. 22b. History of the West, 1790-1840.—*Prerequisite:* History 3a and junior standing. (2). 10 TT; 410 U.H. Professor PEASE.

Hist. 23b. The Puritan Revolution in England and America.—*Prerequisite:* Sophomore standing and one year of college history. (2). 11 TT; 410 U.H. Professor PEASE.

Hist. 33b. History of Russia in the Nineteenth and Twentieth Centuries.—*Prerequisite:* Junior standing and one year of college history. (3). 8 MWF; 105 L.H. Associate Professor RODKEY.

Hist. 34b. Development of Modern Europe, 1648-1848.—*Prerequisite:* Junior standing and one year of college history. (3). 11 MWF; 303 L.H. Dr. ERICKSON.

Hist. 42. Medieval Civilization.—*Prerequisite:* One year of college history. (3). 3 TT; 303 L.H. Professor LARSON.

Hist. 43. The British People in the Victorian Age.—*Prerequisite:* One year of college history. (2). 8 TT; L.H. Theatre. Dr. ERICKSON.

Hist. 45b. History of England in the Eighteenth and Early Nineteenth Centuries (1688-1837).—*Prerequisite:* Junior standing and one year of college history. (2). 2 TT; 303 L.H. Assistant Professor RONALDS.

Hist. 51b. Hebrew History.—*Prerequisite:* Junior standing. (2). 2 TT; 305 L.H. Associate Professor SWAIN.

Hist. 90b. Thesis.—*Prerequisite:* Senior standing. (2). Time to be arranged. Associate Professor RODKEY.

Hist. 91b. Honors Course.—*Prerequisite:* Senior standing. (2). Time to be arranged. Professor LYBYER.

Courses for Advanced Undergraduates and Graduates

(Open to seniors and juniors of high standing.)

Hist. 16b. The Foundations of American Society: The Colonies in the Eighteenth Century.—*Prerequisite:* History 3a. (3). 10 MWF; 311 L.H. Assistant Professor DUNBAR.

Hist. 17b. Social and Economic Forces in the Nineteenth Century (after 1850).—*Prerequisite:* History 3b. (3). 9 MWF; 303 L.H. Professor HANSEN.

Hist. 19b. The History of American Immigration.—*Prerequisite:* History 3. (2). 9 TT; 203 L.H. Professor HANSEN.

Hist. 20b. History of the South since 1850.—*Prerequisite:* History 3a-3b. (2). 8 TT; 335 L.H. Professor RANDALL.

Hist. 32b. The History of Europe, 1914-1932.—*Prerequisite:* One year of college history, economics, or political science. (3). 8 MWF; L. H. Theatre. Professor LYBYER.

Hist. 36b. The Development of Modern Germany.—*Prerequisite:* One year of college history. (3). 9 MWF; 211 L.H. Associate Professor RODKEY.

Hist. 37b. Introduction to the History of Eastern and Southern Asia.—*Prerequisite:* One year of college history. (3). 10 MWF; 202 L.H. Professor LYBYER.

Hist. 39b. The Renaissance and the Reformation.—*Prerequisite:* History 1a. (3). 9 MWF; 329 L.H. Professor JONES.

Hist. 44b. The Constitutional History of England.—*Prerequisite:* One year of college history. (3). 3 MWF; 303 L.H. Professor LARSON.

Hist. 47b. History of England in the Early Modern Period, 1399-1603.—*Prerequisite:* One year of college history. (3). 9 MWF; 335 L.H. Professor DIETZ.

Hist. 56. History of the Roman Republic.—*Prerequisite:* One year of college history. (3). 1 MWF; 303 L.H. Professor OLDFATHER.

Hist. 57b. Ancient Imperialism.—*Prerequisite:* One year of college history. (3). 11 MWF; 203 L.H. Associate Professor SWAIN.

Hist. 60. The United States in the World War.—*Prerequisite:* One year of college history. (3). 11 MWF; 304 L.H. Professor RANDALL.

Hist. 62b. Political and Constitutional Development of the United States.—*Prerequisite:* One year o college history. (3). 10 MWF; 329 L.H. Professor RANDALL.

Courses for Graduates

Hist. 101b. Seminar in American History: Introduction to Research.—(1 unit). 4-6 Tu. Professor RANDALL.

Hist. 102b. Seminar in English History.—(1 unit). 4-6 Tu. Professor DIETZ.

Hist. 104b. Seminar in European History.—(1 unit). 4-6 W. Professor LYBYER.

Hist. 105. Research in Special Topics (Thesis Course).—(1 to 2 units).* Professors LARSON, LYBYER, PEASE, JONES, RANDALL, DIETZ, HANSEN; Associate Professors SWAIN, RODKEY; Assistant Professors DUNBAR, RONALDS, WERNER.

Hist. 106b. Seminar in the History of the Later Middle Ages.—(1 unit). Time to be arranged. Professor LARSON.

Hist. 122d. The Westward Movement, 1774-1782.—(1 unit). 4 MTh; 416 L.H. Professor PEASE.

Hist. 133b. Studies in the History of Europe in the Nineteenth Century.—(1 unit). 9-11 S; 424-A Lib. Associate Professor RODKEY.

Hist. 138b. History of France during the Religious Civil Wars.—(1 unit). Time to be arranged. Professor JONES.

Hist. 150b. Research in Ancient History.—(1 unit). 3-5 M; 114 Lib. Associate Professor SWAIN.

HOME ECONOMICS

Note: Certain courses in this department require a laboratory fee varying from $1 to $16.

Courses for Undergraduates

Home Econ. 1. Foods.—*Prerequisite:* Chemistry 1, 5.

Credits	Section	Hours	Days	Room	Instructor
4	Lect.	11	Th	121 W.B.	WOODRUFF
	Quiz	11	Tu	121 W.B.	PICKENS
	E Lab.	1–3	MW	229 W.B.	PICKENS
	N Lab.	1–3	TT	229 W.B.	ZWERMANN

Home Econ. 2. Home Architecture.—*Prerequisite:* Art 13a and sophomore standing. *Prerequisite or concurrent:* Art 13b.

3	Lect.	9	TT	117 W.B.	FOSTER, WEAVER
	Lab.	10–12	S	300 Arch.	FOSTER, WEAVER

Home Econ. 3. Home Decoration.—*Prerequisite:* Art 13a, 13b, Home Economics 2.

3	Lect.	9	W	117 W.B.	WEAVER
	L Lab.	10–12	TT	309 W.B.	
	N Lab.	1–3	TT	309 W.B.	

Home Econ. 5. Dietetics.—*Prerequisite:* Chemistry 33; Home Economics 6 or 44; Physiology 4.

4	Lect.	9	M	210 W.B.	BARTO
	B1 Quiz	9	W	231 W.B.	BARTO
	B2 Quiz	9	F	121 W.B.	BARTO
	C Lab.	10–12	MW	229 W.B.	HONIG
	L Lab.	10–12	TT	229 W.B.	HONIG

Home Econ. 6. Foods.—*Prerequisite:* Home Economics 1.

4	Lect.	9	W	210 W.B.	WOODRUFF
	B1 Quiz	9	M	117 W.B.	ZWERMANN
	B2 Quiz	9	F	117 W.B.	PICKENS
	D Quiz	11	F	121 W.B.	WOODRUFF
	C Lab.	10–12	MW	235 W.B.	PICKENS
	E Lab.	1–3	MW	235 W.B.	ZWERMANN
	L Lab.	10–12	TT	235 W.B.	ZWERMANN
	N Lab.	1–3	TT	235 W.B.	PICKENS

Home Econ. 7. Textiles.

3[1]	Lect.	10	M	210 W.B.	JACOBSEN
	B Quiz	9	W	121 W.B.	
	C1 Quiz	10	W	117 W.B.	
	C2 Quiz	10	F	117 W.B.	
	D Quiz	11	F	117 W.B.	
	E Lab.	1–3	M	304 W.B.	
	L1 Lab.	10–12	Tu	304 W.B.	
	L2 Lab.	10–12	Th	304 W.B.	
	N Lab.	1–3	Tu	304 W.B.	

[1]Seniors will receive only 2 hours credit.

Home Econ. 9. Home Economics Extension.—*Prerequisite:* Senior standing in Home Economics; consent of the instructor.

3	Lect.	3–5	M	117 W.B.	BURNS
	Lect.	3	W	117 W.B.	

Home Econ. 10. Organization and Management of the Household.—*Prerequisite:* Econ. 1 or 2; Home Econ. 7, 6 or 44. *Prerequisite or concurrent:* Home Econ. 2.

3	Lect.	1	F	121 W.B.	MUNGER
	A Quiz	8	MW	117 W.B.	
	E Quiz	1	MW	117 W.B.	

Home Econ. 11. The Teaching of Home Economics.—*Prerequisite:* Home Econ. 6, 29. *Prerequisite or concurrent:* Education 10; Home Econ. 5, 10, 19. *Recommended:* Home Econ. 34. One inspection trip (approximate cost $3). Required of all who wish to be recommended to teach home economics. (Same as Home Econ. Ed. 1.) (3). Lecture and discussion, 2 TT; 121 W.B. Miss ROBINSON.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Home Econ. 11a. Supervised Teaching.—*Prerequisite or concurrent:* Home Econ. 11. (2). Time to be arranged, daily for twenty lessons. University High School, Urbana High School. Miss ROBINSON, Miss TODD, Miss KING.

Note: Students wishing a five-hour course in supervised teaching in home economics should take Educational Practice 14 (see Education). Credit is not allowed for supervised teaching in the College of Liberal Arts and Sciences.

Home Econ. 13. Home Economics in Education.—*Prerequisite or concurrent:* Home Econ. 10, 29. Recommended for all seniors in Home Economics. (Same as Home Econ. Ed. 2). (3). 3 TT; 117 W.B. Miss TODD.

Home Econ. 14. Practice House.—Lecture, conference, and laboratory work in practice apartment. The students reside in the apartment four weeks during the semester. *Prerequisite:* Home Econ. 5, 10; consent of instructor. (3). Conference, 4 Th, 117 W.B.; laboratory to be arranged with instructor, 317-319 W.B. Miss MUNGER.

Home Econ. 19. Costume Design.—*Prerequisite:* Art 13a, 13b; Home Econ. 29.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	11	F	210 W.B.	BARNES
	C Lab.	10–12	MW	309 W.B.	
	E Lab.	1–3	MW	309 W.B.	

Home Econ. 29. Clothing.—*Prerequisite:* Art 13a or 13b; Home Econ. 7.

4	Lect.	9	F	210 W.B.	JACOBSEN
	B Quiz	9	W	327 W.B.	BEAM
	D Quiz	11	W	121 W.B.	BEAM
	E Lab.	1–3	MW	327 W.B.	BEAM
	N Lab.	1–3	TT	327 W.B.	BEAM
	L Lab.	10–12	TT	327 W.B.	BEAM

Home Econ. 30. Clothing.—*Prerequisite or concurrent:* Home Econ. 19.

3	Lect.	2	F	121 W.B.	WHITLOCK
	E Lab.	1–3	MW	203-5 W.B.	
	N Lab.	1–3	TT	203-5 W.B.	

Home Econ. 38. Elementary Nutrition.—*Prerequisite:* Senior standing. (Open only to students not majoring in home economics.) (2). Lect., 2 MW; 121 W.B. Assistant Professor BARTO.

Home Econ. 40. Home Care of the Sick.—*Prerequisite:* Senior standing in Home Economics.

1	Lect.	2	M	210 W.B.	BROOKS

Home Econ. 46. Quantity Cookery.—*Prerequisite:* Home Econ. 6 or 44.

3	Quiz	4	W	117 W.B.	SMITH
	Lab.	8–11	Two mornings a week, to be arranged with instructor; students advised not to have eleven o'clock classes as they are required to serve at noon at least two days a week.		SMITH, BENNETT

Home Econ. 47. Institution Management.—*Prerequisite:* Econ. 1 or 2. *Prerequisite or concurrent:* Home Econ. 46.

3	Lect. and Disc.	2	MWF	117 W.B.	SMITH

Home Econ. 56a. Child Development.—(For students not majoring in Home Economics). *Prerequisite:* Senior standing or consent of the instructor.

2	Lect.	8	MW	210 W.B.	WALLS

Courses for Advanced Undergraduates and Graduates

Home Econ. 28. Organization and Management of the Household.—*Prerequisite:* Home Econ. 10.

2	Disc.	8	TT	117 W.B.	NICKELL, MUNGER

Home Econ. 31. Clothing.—*Prerequisite:* Home Econ. 30.

3	Quiz	11	F	203-5 W.B.	WHITLOCK
	Lab.	10–12	MW	203-5 W.B.	

Home Econ. 33. Diet in Disease.—*Prerequisite:* Home Econ. 5.

3	Lect.	3	F	121 W.B.	BARTO
	Quiz	3	W	121 W.B.	
	Lab.	3–5	M	229 W.B.	

Home Econ. 35. Problems in Foods.—*Prerequisite:* Home Econ. 5; consent of the instructor.

3	Conf.	8	F	117 W.B.	WOODRUFF
	Lab.	1–4	TT	113 W.B.	

Home Econ. 39b. Readings in Foods and Nutrition.—*Prerequisite:* Home Econ. 5; senior standing. *Prerequisite or concurrent:* Chemistry 50a, or Home Economics 20, 33, 41 or 55. (1). Seminar, 4 Th; 203 W.B. Associate Professor WOODRUFF, Assistant Professors OUTHOUSE and BARTO, Mrs. MEYER and Mrs. THORP.

Home Econ. 41. Problems in Nutrition.—*Prerequisite:* Chem. 50a; Physiol. 4; senior standing. (3 to 5).* Lab. and Conference, 9-12 MWFS; 215 W.B. Additional laboratory and conference to be arranged. Assistant Professor OUTHOUSE, Mrs. MEYER, and Mrs. THORP.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Home Econ. 43b. Problems in Textiles and Clothing.—*Prerequisite:* Econ. 1 or 2; Home Econ. 30 or 51. Individual problems may in some cases involve prerequisites of chemistry and physics.

Credits	Section	Hours	Days	Room	Instructor
3	Quiz	3	Tu	304 W.B.	JACOBSEN
	Lab.	To be arranged			WEAVER, WHITLOCK, BARNES

Home Econ. 45. Nutrition Classes.—*Prerequisite:* Home Econ. 5; senior standing and consent of the instructor.

2	Disc.	4	W	231 W.B.	BARTO, KING
	Observation and practice teaching	1:30 or 2:30	Th	Leal School, Urbana	

Home Econ. 48. Institution Dietaries and Administration.—*Prerequisite:* Home Econ. 5, 47. Three and one-half day field trip to Chicago (approximate cost $25).

4	Lect.	9	TT	121 W.B.	SMITH
	Lab.	8–12	S	207 W.B.	

Home Econ. 50. Costume Design.—*Prerequisite:* Home Econ. 30, 42.

3	Lab.	1–4	WF	309 W.B.	BARNES

Home Econ. 57b. Problems in Household Management.—*Prerequisite:* Home Econ. 10. (3). Time to be arranged. Assistant Professor NICKELL.

Courses for Graduates

Home Econ. 101. Home Economics.—(1 unit). Professor WARDALL.

Home Econ. 102. Research in Nutrition.—(½ to 3 units).* Assistant Professor OUTHOUSE.

Home Econ. 103. Seminar in Nutrition.—(½ unit). To be arranged. Assistant Professor OUTHOUSE.

Home Econ. 104. Research in Foods.—(½ to 3 units).* Associate Professor WOODRUFF.

Home Econ. 105. Seminar in Foods.—(½ unit). Associate Professor WOODRUFF.

HORTICULTURE

Note: Certain courses in this department require laboratory fees varying from $0.50 to $3.50.

Courses for Undergraduates

Hort. 1b. Elements of Horticulture.—(No credit in this course allowed to juniors and seniors.) A student is required to register in the same section for both laboratory and quiz.

2	E Quiz	1	MF	111 New Agr.	WEAVER
	Lab.	1–3	W	111 New Agr.	MCCOLLUM
	G Quiz	3	MF	203 V.G.	
	Lab.	3–5	W	203 V.G.	
	A Quiz	8	MF	203 V.G.	
	Lab.	8–10	W	203 V.G.	
	C Quiz	10	MF	203 V.G.	
	Lab.	10–12	W	203 V.G.	

Hort. 2. Small Fruit Culture.—*Prerequisite:* Hort. 1a and 1b. (2). 1-3 TT; 106 H.F.L. Professor COLBY.

Hort. 3. Commercial Vegetable Gardening.—*Prerequisite:* Hort. 1b or 60 hours of university work. (3). 1-3 MWF; 203 V.G. Professor LLOYD, Mr. WEAVER.

Hort. 4. Plant Houses.—(3). 3 MWF; F.G. Mr. DECKER.

Hort. 6b. Nursery Methods.—*Prerequisite:* Hort. 6a. (3). 10-12 TTS; F.G. Mr. DECKER.

Hort. 7. Spraying.—*Prerequisite:* Hort. 1a and 1b; Chem. 1. (3). Lect. and quiz, 3-5 W; 111 New Agr. Lab. 3-5 MF; 503 Agr. Professor RUTH.

Hort. 8b. Orcharding.—*Prerequisite:* Hort. 8a. (3). 1-3 MW; 1 F; H.F.L. Inspection trip required; expenses not to exceed $15. Mr. MCMUNN.

Hort. 15a. Greenhouse Management.—*Prerequisite:* Hort. 5, Bot. 5. (3). 10-12 MWF; F.G. Professor DORNER, Associate Professor HALL.

Hort. 15c. Commercial Floricultural Crops.—*Prerequisite:* Hort. 15b. (3). 8-10 TTS; F.G. Associate Professor HALL.

Hort. 22b-h. Investigation with Thesis.—*Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to the thesis problem, and the approval of the head of the department. Continuous throughout the year. Credit is not given for either semester separately. (5). Arrange.

(b) **Pomology.**—*Prerequisite:* Hort. 22a. Professors DORSEY, RUTH, COLBY, ANDERSON; Assistant Professor KELLEY.

(d) **Olericulture.**—*Prerequisite:* Hort. 22c. Professor LLOYD.

(f) **Floriculture.**—*Prerequisite:* Hort. 22e. Professor DORNER, Associate Professor WEINARD.

(h) **Plant Breeding.**—*Prerequisite:* Hort. 22g. Professor DORSEY.

Hort. 30. Tender Bedding Plants.—*Prerequisite:* Hort. 15a. (3). 8-10 MWF; F.G. Associate Professor HALL.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Hort. 31. Garden Flowers.—*Prerequisite:* Bot. 5. (3). Lect., 1 MWF; Lab., arrange; F.G. Professor DORNER, Mr. DECKER.

Hort. 32b. Floral Decoration.—*Prerequisite:* Hort. 32a. (3). 8-10 TTS; F.G. Professor DORNER.

Hort. 50. Vegetable Seed Production.—*Prerequisite:* Hort. 3 and Hort. 49; Zool. 15. (3). 8 MWF; 206 V.G. Associate Professor HUELSEN.

Hort. 52. Special Vegetable Crops.—*Prerequisite:* Hort. 3 and Hort. 49. (3). 10-12 TTS; 203 V.G. Professor LLOYD.

Courses for Advanced Undergraduates and Graduates

Hort. 44. Current Pomological Literature.—*Prerequisite:* 90 hours of university work. (1). 4 Tu; 211 New Agr. Professor RUTH.

Hort. 45. Plant Nutrition.—*Prerequisite:* Bot. 3; Agron. 9 or 28; Hort. 3 or 15a; senior standing. (3). 2 MWF; F.G. Associate Professor WEINARD.

Hort. 51. Fruit Diseases.—*Prerequisite:* 90 hours of university work including Botany 7a. (3). Lect., 3 Tu; 302 Agr. Lab., 10-12 TT; H.F.L. Professor ANDERSON.

Courses for Graduates

Hort. 103. Olericulture.—(1 to 2 units).* Time to be arranged. Professor LLOYD.

Hort. 105. Marketing Fruits and Vegetables.—(1 to 2 units).* Time to be arranged. Professor LLOYD.

Hort. 108. Pomology.—(1 to 4 units).* Time to be arranged.

(a) **Pomological Problems.**—Professor BLAIR.
(b) **Pomology and Fruit Breeding.**—Professor DORSEY.
(c) **Pomological Physiology.**—Professor RUTH, Assistant Professor KELLEY.
(d) **Small Fruits.**—Professor COLBY.
(e) **Pomological Pathology.**—Professor ANDERSON.

Hort. 115. Floriculture.—(1 to 2 units).* Time to be arranged.

(a) **Floricultural Problems.**—Professor DORNER.
(b) **Floricultural Physiology and Pathology.**—Associate Professor WEINARD.

Hort. 120. Pomology Seminar.—(¼ unit). Time to be arranged. Professors DORSEY, RUTH, ANDERSON.

Hort. 140. Advanced Small Fruit Culture.—(1 unit). Time to be arranged. Professor COLBY.

HYGIENE

Hyg. 3. Elementary Hygiene and Sanitation.—Required of all undergraduate men (except those in the colleges of Agriculture and Engineering) during their first year of residence.

Credits	Section	Hours	Days	Room	Instructor
½	A1	8	M	128 New Agr.	BEARD
	A3	8	W	128 New Agr.	CAIN
	A5	8	F	128 New Agr.	ROSS
	A6	8	S	128 New Agr.	BLACKSTONE
	B1	9	M	128 New Agr.	GEBHART
	B2	9	Tu	313 New Agr.	LEWIS
	B3	9	W	313 New Agr.	JUDAH
	B4	9	Th	313 New Agr.	BRUNER
	B5	9	F	313 New Agr.	
	B6	9	S	128 New Agr.	
	B7	9	M	313 New Agr.	
	B12	9	S	313 New Agr.	
	C1	10	M	128 New Agr.	
	C2	10	Tu	128 New Agr.	
	C3	10	W	128 New Agr.	
	C4	10	Th	128 New Agr.	
	C5	10	F	128 New Agr.	
	C6	10	S	128 New Agr.	
	C11	10	F	313 New Agr.	
	C12	10	S	313 New Agr.	
	D1	11	M	128 New Agr.	
	D2	11	Tu	128 New Agr.	
	D3	11	W	128 New Agr.	
	D4	11	Th	128 New Agr.	
	D5	11	F	128 New Agr.	
	D6	11	S	128 New Agr.	
	F1	2	M	313 New Agr.	
	F3	2	W	313 New Agr.	
	G1	3	M	128 New Agr.	
	G2	3	Tu	128 New Agr.	
	G4	3	Th	128 New Agr.	
	G5	3	F	128 New Agr.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Hyg. 5. Principles and Practice of Hygiene.—Completion of this course satisfies the requirement for Hygiene 1 and 3. *Prerequisite:* Registration in the Colleges of Engineering or Agriculture and others with proper approval.

Credits	Section	Hours	Days	Room	Instructor
2	A1	8	TT	319 E.H.	BEARD
	B1	9	WF	128 New Agr.	CAIN
	B2	9	TT	128 New Agr.	GEBHART
	C2	10	TT	109 E.H.	LEWIS
	D1	11	MW	102 E.H.	JUDAH
	D2	11	TT	400 E.H.	
	F1	2	TT	205 E.H.	
	G1	3	WF	305 E.H.	
	G3	3	TT	205 E.H.	

Hyg. 10. Advanced Hygiene.—*Prerequisite:* Three semesters of university work and consent of instructor.

3	Lect.	2	M	128 New Agr.	GEBHART and others
	Quiz	2	WF	128 New Agr.	

INDUSTRIAL EDUCATION

(See Education, F.)

ITALIAN

(See Romance Languages and Literature, B.)

JOURNALISM

Note: Certain courses in this department require laboratory fees varying from $1 to $2. Credit in journalism will be given for Rhet. 6., Engl. 45, Pol. Sci. 22, 27, 28, Law 2, 5, Hist. 21.

Courses for Undergraduates

Journ. 2. Introduction to Journalism.—Open to pre-journalism freshmen only.

1	N	1	Th	112 U.H.	BARLOW
	O	2	Th	112 U.H.	BARLOW
	P	3	Th	112 U.H.	BARLOW

Journ. 3. The Newspaper and the News.—A non-professional course for students in other colleges. Not open to students with credit in Journ. 1-2, or to students registered in Journ. 6. *Prerequisite:* 30 hours of university work.

2	L	10	TT	315 U.H.	DICKINSON
	M	11	TT	315 U.H.	HEITMAN

Journ. 4. Newspaper Reference Service.—*Prerequisite:* Sophomore standing. (2). 10 MW; two hours laboratory to be arranged; 113 U.H. Mr. HEITMAN.

Journ. 5. Reporting.—*Prerequisite:* Sophomore standing. (3). Three hours to be arranged. Mr. DAVIS.

Journ. 6. Reporting.—*Prerequisite:* Sophomore standing and Journ. 5. (Make out class cards for one lecture, one discussion, and one laboratory period.)

3	O1 Lect.	2	Tu	204 Adm.(E)	DAVIS
	O2 Disc.[1]	2	Th	113 U.H.	DAVIS
Sign for O1, O2, and O3; or O1, P2, and P3; or M1, L2, and L3; or M1, M2, and M3.	O3 Lab.[1]	Three hours to be arranged			LEITER
	P2 Disc.	3	Th	113 U.H.	DAVIS
	P3 Lab.	Three hours to be arranged			LEITER
	M1 Lect.	11	Tu	208 Adm.(E)	DAVIS
[1]Sections O2, O3, M2, and M3 are for students on the news staff of The Daily Illini.	L2 Disc.	10	Th	112 U.H.	DAVIS
	L3 Lab.	Three hours to be arranged			LEITER
	M2 Disc.[1]	11	Th	112 U.H.	DAVIS
	M3 Lab.[1]	Three hours to be arranged			LEITER

Journ. 8. Sports Writing.—(For students in Athletic Coaching.) *Prerequisite:* Journ. 7.

3	B	9	MWF	112 U.H.	DICKINSON
	E	1	MWF	113 U.H.	SCHOOLEY

Journ. 9b. History and Practice of Printing and Publishing.—*Prerequisite:* Sophomore standing and Journalism 9a. (See also Ind. Ed. 8.)

2 or 3[2]	Lect.	11	Th	208 Adm.(E)	ALLEN
[2]Three credits for Industrial Education students registering for 4 hours of laboratory work.	Lab. J1	8–10	Tu	126 U.H.	ALLEN
	Lab. A2	8–10	W	126 U.H.	ALLEN
	Lab. J2	8–10	Th	126 U.H.	ALLEN
	Lab. C1	10–12	M	126 U.H.	ALLEN

Courses for Advanced Undergraduates

Journ. 11. The Press, the Courts, and the Law.—*Prerequisite:* Junior standing. (2). 9 TT; 113 U.H. Assistant Professor SIEBERT.

Journ. 14. Copyreading, Head Writing, and Make-up.—*Prerequisite:* Journ. 13 and junior standing.

3	Lect.	3	M	315 U.H.	SIEBERT
[3]For students with desk experience. Consult adviser before registering.	Lab. N	1–3	TT	118 U.H.	SIEBERT
	Lab. E	1–3	WF	118 U.H.	SIEBERT
	Lab. P	3–5	TT	118 U.H.	SIEBERT
	Lab. G[3]	3–5	WF	118 U.H.	SIEBERT

Journ. 16. Special and Feature Articles.—*Prerequisite:* Junior standing. (2). 9 TT; 112 U.H. Mr. DAVIS.

Journ. 18. Ethics of Journalism.—*Prerequisite:* Junior standing. (3). 10 MWF; 315 U.H. Professor MURPHY.

Journ. 22. Newspaper Administration.—*Prerequisite:* Junior standing. (3). Lecture and discussion, 10 TT; 2 hours laboratory to be arranged; 126 U.H. Assistant Professor ALLEN.

Journ. 24. Agricultural Journalism.—(Open to students in journalism, agriculture, and home economics.) *Prerequisite:* Junior standing. (2). 1 TT; 203 U.H. Mr. HEITMAN.

Journ. 28. Financial and Labor Journalism.—*Prerequisite:* Junior standing, and 6 hours of journalism or consent of the instructor. (3). Time to be arranged. Dr. DICKINSON.

Journ. 34. Newspaper Advertising Copy and Layouts.—*Prerequisite:* Junior standing and Journ. 10 or 33.

Credits	Section	Hours	Days	Room	Instructor
2	Lect.	1	Th	113 U.H.	ALLEN
	Lab. N	1–3	Tu	113 U.H.	ALLEN

Journ. 36. Contemporary Life and Thought.—*Prerequisite:* Junior standing and 6 hours of journalism. (2). 10 TT; 113 U.H. Assistant Professor SIEBERT.

Journ. 41. Business Problems of the Newspaper.—*Prerequisite:* Junior standing. (3). 9 MWF; 113 U.H. Associate Professor BARLOW.

Journ. 46. Governmental and Political Journalism.—*Prerequisite:* Junior standing and 6 hours of journalism. (3). 2 MWF; 113 U.H. Associate Professor BARLOW.

Journ. 48. Teaching of Journalism.—Supervision of school publications. *Prerequisite:* Junior standing and one course in journalism. (2). 1 MW; 112 U.H. Mr. HEITMAN.

Journ. 50. Critical Writing and Reviewing.—*Prerequisite:* Junior standing and 6 hours of journalism. (2). 11 MW; 113 U.H. Professor MURPHY.

Journ. 52. Practice Problems.—(For seniors not writing theses in journalism.) (2). Hours to be arranged. Assistant Professor LEITER, Mr. KRANNERT.

Journ. 56. Advanced Sports Writing.—*Prerequisite:* Junior standing and Journ. 7 and 8 or equivalent. (3). Three hours to be arranged. Dr. DICKINSON.

Journ. 58. Comparative Journalism.—*Prerequisite:* Junior standing and 6 hours of journalism. (2). 11 TT; 113 U.H. Associate Professor BARLOW.

Journ. 60b. Thesis Course.—Open to seniors with consent of Director. (2). Time to be arranged. Professor MURPHY.

LANDSCAPE ARCHITECTURE

L.A. 32. Landscape Design.—(Formerly Hort. 21b.) *Prerequisite:* L.A. 31. (4). Lect., 8 Tu; 214 New Agr. Lab., 9-12 TT, 9-11 WF, 200 New Agr. Mr. MITCHELL.

L.A. 34. Landscape Design.—(Formerly Hort. 23b.) *Prerequisite:* L.A. 33. (4). Lect., 1 Tu; 211 New Agr. Lab., 2-5 Tu, 1-5 Th, 8-12 S; 200 New Agr. Professor WHITE.

L.A. 36N. Advanced Landscape Design.—(Formerly Hort. 25b.) *Prerequisite:* L.A. 35. (5). Lect., 9 M; 211 New Agr. Lab., 10-12 M, 9-12 WF, 8-12 S; 203 New Agr. Professor LOHMANN.

L.A. 44. Landscape Construction.—(Formerly Hort. 27b.) *Prerequisite:* L.A. 43. (3). Lect., 10 M, 9 F; 214 New Agr. Lab., 11 M, 10-12 WF; 200 New Agr. Professor SCHAFFER.

L.A. 46. Office Practice in Landscape Architecture.—(Formerly Hort. 38.) *Prerequisite:* L.A. 35. (1). 9 Tu; 211 New Agr. Professor SCHAFFER.

L.A. 52. Trees and Shrubs.—(Formerly Hort. 24b.) *Prerequisite:* L.A. 51. Open only to landscape architecture and floriculture students. Inspection trip required of all landscape students and optional for others; expenses about $16. (3). Lect., 3 W; 211 New Agr. Lab., landscape architecture students, 10-12 TT; floriculture students, 3-5 MF; 211 New Agr. Assistant Professor ROBINSON.

L.A. 54. Planting Design.—(Formerly Hort. 26b.) *Prerequisite:* L.A. 53. (3). Lect., 1 M; 211 New Agr. Lab., 2 M, 1-3 WF; 203 New Agr. Assistant Professor ROBINSON.

L.A. 62. Rural Improvement.—(Formerly Hort. 10a.) *Prerequisite:* 30 hours of university work. (2). 11 TT; 103 New Agr. (Credit not allowed for both 62 and 64.) Assistant Professor PETERSON.

L.A. 64. Landscape Architecture.—(Formerly Hort. 42.) For students not in the professional course. *Prerequisite:* 30 hours of university work. (3). Lect., 11 MWF; 214 New Agr. (Credit not allowed for both 64 and 62.) Professor WHITE and others.

L.A. 72. City Planning.—(Formerly Hort. 37b.) *Prerequisite:* 90 hours of university work. Inspection trip required of all landscape and city planning students and optional for others; expenses about $30. (2). 10 TT; other hours arrange; 214 New Agr. Professors BARTHOLOMEW and LOHMANN.

LATIN

(See Classics.)

LAW

First Year Courses

Law 1b. **Contracts.**—Corbin: *Cases on Contracts.*

Credits	Section	Hours	Days	Room	Instructor
3	A	2	MWF	106 Law	GOBLE
	B	3	MWF	106 Law	GOBLE

Law 2b. **Torts.**—Bohlen: *Cases on Torts* (3rd ed.).

2	A	2	TT	106 Law	WEISIGER
	B	3	TT	106 Law	WEISIGER

Law 10. **Real Property I. Titles.**—Aigler: *Cases on Property*, and Bigelow: *Cases on Rights in Land.*

4	A	8	TWTF	103 Law	SUMMERS
	B	9	TWTF	103 Law	SUMMERS

Law 11. **Agency.**—Mechem: *Cases on Agency* (2d ed.).

3	A	10	MTW	106 Law	GREEN
	B	11	MTW	106 Law	GREEN

Law 12. **Equity Jurisdiction I.**—Cook: *Cases on Equity* (one volume edition).

3	A	8	MThF	300 Law	HOLT
	B	10	MThF	300 Law	HOLT

Second Year Courses

Law 6b. **International Law.**—Law of War and Neutrality. (3). 2 MWF; 202 L.H. Professor GARNER.

Law 8. **Evidence.**—Hinton: *Cases on Evidence* (2d ed.).

3	A	3	MTW	103 Law	KIRGIS
	B	4	MTW	103 Law	KIRGIS

Law 15. **Bills and Notes.**—Britton: *Cases on Bills and Notes* (2d ed.).

3	A	9	MTW	303 Law	BRITTON
	B	10	MTW	303 Law	BRITTON

Law 16. **Trusts.**—Scott: *Cases on Trusts.*

3	A	8	WTF	106 Law	SCHNEBLY
	B	9	WTF	106 Law	SCHNEBLY

Law 17. **Business Organizations I.**—Gilmore: *Cases on Partnership;* Britton's *Supplementary Cases.* (2). 4 ThF; 303 Law. Professor HOLT.

Law 20. **Procedure II.**—Hinton: *Cases on Equity Pleading*, and selected cases. (4). 11 MWTF; 103 Law. Professor MCCASKILL.

Law 24. **Municipal Corporations.**—(2). 3 WF; 303 Law. Assistant Professor MCDOUGAL.

Law 28. **Insurance.**—Goble: *Cases on Insurance.* (2). 2 TT; 303 Law. Professor GOBLE.

Law 32. **Equity Jurisdiction III.**—Cook: *Cases on Equity* (Vol. III). (3). 2 MWF; 103 Law. Professor WEISIGER.

Law 45. **Use of Law Books.**—WEISIGER: *Manual on the Use of Law Books.* (1). 11 Tu; 303 Law. Professor WEISIGER.

Law 55. **Legal Problems II.**—Legal problems to be assigned. *Prerequisite:* One year of law work and at least an average grade of B (4.) in all law courses. (1). Professor HOLT.

Third Year Courses

Law 21b. **Credit Transactions II.**—Mortgages, Pledges and Conditional Sales. Sturges: *Cases on Credit Transactions.* (3). 10 MWF; 103 Law. Assistant Professor MCDOUGAL.

Law 22b. **Constitutional Law. The State and the Nation.**—Hall: *Cases on Constitutional Law.* (2). 10-12 Th; 303 Law. Professor GREEN.

Law 36. **Procedure IV.**—Practice Court. (3). 1:30-3 WF; 300 Law. Professor MCCASKILL.

Law 39b. **Thesis Course.**—This course is open to students who are candidates for the J.D. degree during the academic year next preceding their graduation. (1). Members of the staff.

Law 52. **Law of Oil and Gas.**—Summers: *Law of Oil and Gas*, and selected cases. (2). 1 TT; 306 Law. Professor SUMMERS.

Law 57. **Legal Problems IV.**—Legal problems to be assigned. *Prerequisite:* Legal Problems I or II, two years of law work, and at least an average grade of B (4.) in law courses. (1). Professor HOLT.

Law 58. **Perpetuities and Restraints.**—Powell: *Cases on Future Interests* and selected cases. (2). 8 MTu; 306 Law. Professor SCHNEBLY.

Law 59. **Problems in Commercial Law and Banking.**—A study of the contract of deposit, collections and the transmission of funds. (2). 2-4 M; 306 Law. Professor BRITTON.

Law 62. **Corporation Organization and Finance.**—The types of corporate securities and the rights of the holders; reorganization of corporations and the rights of various types of creditors and security holders upon reorganization. (2). 9 TT; 306 Law. Professor JOHNSON.

Law 63. **Problems in Procedure.**—A seminar upon some of the problems for relief against inefficiency and delay. (2). 10-12 Tu; 306 Law. Professor MCCASKILL.

Law 64. **Taxation.**—Magill and Maguire: *Cases on Taxation.* (2). 3 TT; 303 Law. Assistant Professor MCDOUGAL.

LIBRARY SCIENCE

Courses for Freshmen and Sophomores

Lib. Sci. 12. General Reference.

Credits	Section	Hours	Days	Room	Instructor
2	A	10	Tu	106 Lib.	BLACK
	B	10	W	104 Lib.	SIGNOR
	C	2	W	106 Lib.	HARDING
	D	10	Th	106 Lib.	FRANCIS
	E	11	Th	118 Lib.	HOUCHENS

Courses for First Year Library School Students

Lib. Sci. 2b. Reference.

3	A	10	TTS	314 Lib.	PHELPS
	B	10	MWF	314 Lib.	SINGLETON
	C	11	MWF	314 Lib.	SINGLETON
	D	9	MWF	106 Lib.	SINGLETON

Lib. Sci. 21. Printing, Binding, and Indexing.—(2). 2 TT; 314 Lib. Assistant Professor BOND, Miss SINGLETON, Miss HOUCHENS.

Lib. Sci. 33b. Library Administration and Extension.—Continuation of Lib. Sci. 34.

3	A	11	MWF	106 Lib.	GRAMESLY
	B	8	MWF	118 Lib.	GRAMESLY
	C	9	TTS	106 Lib.	GRAMESLY

Lib. Sci. 37. Cataloging.

3	A	8–11	MWF	314 Lib.	BOND
	B	8–11	TTS	314 Lib.	KRIEG
	C	8–11	MWF	314 Lib.	BOND
	D	8–11	TTS	118 Lib.	FRANCIS

Lib. Sci. 38. Selection of Books.—Continuation of Lib. Sci. 3a.

3	A	9	TTS	104 Lib.	BOYD
	B	9	MWF	118 Lib.	BOYD
	C	10	TTS	118 Lib.	BOYD
	D	10	MWF	118 Lib.	BOYD

Courses for Advanced Library School Students and Graduate Students

Lib. Sci. 9. History of Books and Printing.—(2). 1 TT; 314 Lib. Professor WINDSOR.

Lib. Sci. 24b. Selection of Books.—*Prerequisite:* Lib. Sci. 24a. (2). 10 TT; 328 Lib. Miss HOSTETTER.

Lib. Sci. 26b. Library Administration.—(3). 10 MWF; 106 Lib. Miss GRAMESLY.

Lib. Sci. 42. State, Municipal, and Foreign Documents.—*Prerequisite:* Lib. Sci. 13a. (3). 11 MWF; 118 Lib. Miss PHELPS.

Lib. Sci. 46. High School Library Administration.—*Prerequisite:* Fifteen hours of Library Science and consent of instructor.

3	A	1	MWF	314 Lib.	HOSTETTER
	B	2	MWF	314 Lib.	HOSTETTER

Lib. Sci. 47. Subject Bibliography.—*Prerequisite:* Lib. Sci. 2a and consent of instructor. (2). 3 TT; 314 Lib. Miss PHELPS.

Courses for Graduates

Lib. Sci. 101. Thesis.—(1 to 2 units).* Professor WINDSOR and others.

Lib. Sci. 102. Seminar.—(1 unit). 3-5 M; 314 Lib. Professor WINDSOR.

Lib. Sci. 104. Advanced Cataloging and Classification.—*Prerequisite:* Lib. Sci. 36. (½ unit). Time to be arranged. Assistant Professor BOND.

MATHEMATICS

For students entering prior to September, 1929

Major: 20 hours made up from any undergraduate courses offered by the department except Math. 1a, 2, 3, 4, 5, and 8. The courses selected must include Math. 7 and 9, and at least one of the following courses: Math. 10, 16, 18, 20, 21, 30, 40, 90. For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: Math. 1; or first semester, Math. 2 (or 3) and 4; second semester, Math. 5. Sophomore year: first semester, Math. 7 (Section T); second semester, Math. 9 (Section T) and 19.

Minors: 20 hours selected from not more than three of the following subjects: Astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), philosophy, theoretical and applied mechanics, and surveying. At least 8 hours must be offered in some one subject.

Credit for seniors who take Math. 1a, 1b, 2, 3, 4, 5, 6, or 6a will be reduced one hour.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

For students entering after September 1, 1929

Major: 20 hours, exclusive of Math. 1a, 1b, 2, 3, 4, 5, 6, 6a, 8a, and 8b (and all courses taken during the freshman year) inclusive of Math. 7 and 9, and two semesters of 70, 71, 72.

For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: first semester, Math. 2 (or 3) and 4; second semester, Math. 6. Sophomore year: first semester, Math. 7 (Section T); second semester, Math. 9 (Section T) and 19.

Minors: 20 hours exclusive of courses taken during the freshman year selected from one or two of the following subjects: Astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), philosophy, theoretical and applied mechanics, surveying. If two subjects are chosen, at least eight hours must be offered in each.

Credit for seniors who take Math. 1a, 1b, 2, 3, 4, 5, 6, or 6a will be reduced one hour.

Courses for Undergraduates

Math. 1b. Introduction to College Mathematics.—This course is designed as a two-semester course to give in a unified way an introduction to mathematics, including material from college algebra, trigonometry, analytical geometry, and elementary calculus. A student taking Math. 1a and 1b will not take Math. 2, 3, 4, or 6. *Prerequisite:* Math. 1a.

Credits	Section	Hours	Days	Room	Instructor
5[1]	T	10	MTWTF	202 U.H.	NORRIS
[1]Seniors will receive only 3 hours credit.	X	2	MTWTF	105 Entom.	JACOKES

Math. 2. College Algebra.—*Prerequisite.* Entrance algebra, 1½ units; plane geometry, 1 unit.

3[1]	A[2]	8	MWF	155 Math.	BROWN
[1]Seniors will receive only 2 hours credit.	S	9	MWF	158 Math.	EMCH
	T	10	MWF	102 Entom.	MOORE
	D[2]	11	MWF	202 U.H.	BARBER
[2]Sections A, D, and E are for freshman engineers only.	E[2]	1	MWF	105 Entom.	BIRD
	X1	2	MWF	202 U.H.	WOOD
	X2	2	MWF	206 U.H.	BUTCHART
	Y	3	MWF	156 Math.	LEVY
	Z	4	MWF	155 Math.	HUFF

Math. 3. Algebra.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit.

5[1]	R	8	MTWTF	158 Math.	GRANT
[1]Students having 1½ entrance units in algebra will receive only 3 hours credit for this course. Seniors will receive only 4 hours credit.	S	9	MTWTF	208 U.H.	McCLELLAN
	T	10	MTWTF	156 Math.	LANG
	U	11	MTWTF	110 L.H.	SHAW
	W	1	MTWTF	158 Math.	SCHILLING
	X1	2	MTWTF	154 Math.	CHANLER
	X2	2	MTWTF	158 Math.	ROGERS
	Y1	3	MTWTF	202 U.H.	RUMSEY
	Y2	3	MTWTF	155 Math.	HUFF

Math. 4. Plane Trigonometry.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit.

3[1]	A[2]	8	TT	155 Math.	WALDEN
	R	8	TT	159 Math.	LANG
	S1	9	TT	110 L.H.	BOWER
	S2	9	TT	156 Math.	BROWN
[1]Seniors will receive only 1 hour credit.	S3	9	TuS	154 Math.	SCHILLING
	T1	10	TT	159 Math.	ARMSTRONG
	T2	10	TuS	155 Math.	ROGERS
	D[2]	11	TT	202 U.H.	NORRIS
[2]Sections A, D, and E are for freshman engineers only.	U	11	TT	103 Entom.	LYTLE
	E[2]	1	TT	155 Math.	KETCHUM
	W1	1	TT	156 Math.	BRISTOW
	W2	1	TT	154 Math.	HUFF
	X1	2	TT	206 U.H.	HOPKINS
	X2	2	TT	159 Math.	HOERSCH
	X3	2	TT	202 U.H.	RUMSEY
	Y1	3	TT	103 Entom.	WILSON
	Y2	3	TT	156 Math.	JACOKES
	Y3	3	TT	159 Math.	DENNIS
	Z	4 / 9	Tu / S	159 Math.	BURDETTE

Math. 6. Analytic Geometry.—*Prerequisite:* Math. 2 (or 3) and Math. 4.

5[1]	T1	10	MTWTF	208 U.H.	McCLELLAN
	T2	10	MTWTF	158 Math.	GRANT
[1]Seniors will receive only 4 hours credit.	T3	10	MTWTF	302 U.H.	WOOD
	U	11	MTWTF	159 Math.	HAZLETT
	X	2	MTWTF	103 Entom.	WILSON
	Y	3	MTWTF	206 U.H.	WOLEVER

Math. 6a. Analytic Geometry.—For chemists, architects, and engineers. *Prerequisite:* Math. 2 (or 3) and Math. 4.

4[1]	A1	8	MTWT	206 U.H.	BURDETTE
[1]Seniors will receive only 3 hours credit.	A2	8	MTWT	208 U.H.	CLARK
	R[2]	8	MTWT	202 U.H.	LOCKE
[2]Sections R, U, and W are for architects and architectural engineers.	B1	9	MTWT	105 Entom.	BAILEY
	B2	9	MTWT	206 U.H.	BIRD
	B3	9	MTWT	102 Entom.	BARBER
	S1	9	MTWT	155 Math.	BRAHANA

Math. 6a (Concluded)

Credits	Section	Hours	Days	Room	Instructor
4[1]	S2	9	MTWT	202 U.H.	LOCKE
	S3	9	MTWT	302 U.H.	COOLEY
	D1	11	MTWT	206 U.H.	PEPPER
	D2	11	MTWT	208 U.H.	BROWN
	U[2]	11	MTWT	154 Math.	BOURGIN
	E1	1	MTWT	208 U.H.	WALDEN
	E2	1	MTWT	206 U.H.	BURDETTE
	E3	1	MTWT	202 U.H.	BUTCHART
	W[2]	1	MTWT	159 Math.	MARIA
	F1	2	MTWT	156 Math.	BRISTOW
	F2	2	MTWT	208 U.H.	WALDEN
	G1	3	MTWT	110 L.H.	STEIMLEY
	G2	3	MTWT	154 Math.	CHANLER

[1]Seniors will receive only 3 hours credit.

[2]Sections R, U, and W are for architects and architectural engineers.

Math. 7. Differential and Integral Calculus.—*Prerequisite:* Math. 6.

5	B	9	MTWTF	159 Math.	ARMSTRONG
	C	10	MTWTF	110 L.H.	BOWER
	D1	11	MTWTF	156 Math.	MARIA
	D2	11	MTWTF	158 Math.	HOPKINS
	E1	1	MTWTF	103 Entom.	WILSON
	F	2	MTWTF	155 Math.	KETCHUM
	G	3	MTWTF	158 Math.	HOERSCH

Math. 8b. Differential Calculus.—*Prerequisite:* Math. 8a.

3	A1	8	MWF	103 Entom.	MILES
	A2	8	MWF	154 Math.	MOORE
	C1	10	MWF	159 Math.	EMCH
	C2	10	MWF	105 Entom.	MILES
	C3	10	MWF	154 Math.	PETERS

Math. 9. Integral Calculus.—*Prerequisite:* Math. 7.

3	A1	8	MWF	159 Math.	ARMSTRONG
	A2	8	MWF	156 Math.	PETERS
	A3	8	MWF	110 L.H.	BOWER
	A4	8	TTS	154 Math.	MOORE
	B1	9	MWF	156 Math.	PETERS
	B2	9	MWF	103 Entom.	MILES
	C1	10	MWF	206 U.H.	PEPPER
	C2	10	TTS	103 Entom.	MOORE
	C3	10	MWF	214 U.H.	BRISTOW
	T[1]	10	MWF	155 Math.	BRAHANA
	E1	1	MWF	154 Math.	LEVY
	E2	1	MWF	155 Math.	BOURGIN

[1]Section T is for students with special interest in mathematics.

Math. 9a. Calculus.—*Prerequisite:* Math. 7 and 9 (or 8a-b).

2	B	9	MF	110 L.H.	BOWER
	D1	11	TT	155 Math.	CRATHORNE
	D2	11	TT	105 Entom.	MILES
	F	2	MF	110 L.H.	STEIMLEY

Math. 19. Solid Analytical Geometry.—*Prerequisite:* Math. 7 or 8a. (3). 2 MWF: 366 Math. Dr. HOERSCH.

Courses for Advanced Undergraduates and Graduates

Math. 17. Differential Equations and Advanced Calculus.—*Prerequisite:* Math. 16.

3	A	8	MWF	105 Entom.	BAILEY
	E	1	MWF	110 L.H.	STEIMLEY

Math. 21. Theory of Probability.—*Prerequisite:* Math. 7 and 9 (or 8). (3). 11 MWF; 366 Math. Associate Professor CRATHORNE.

Math. 23. Mathematics of Finance.—*Prerequisite:* Math. 2, junior standing.

3	A	8	TTS	156 Math.	PETERS
	B	9	TTS	158 Math.	CLARK
	C	10	TTS	206 U.H.	BIRD
	D	11	MWF	105 Entom.	COOLEY
	E	1	MWF	156 Math.	BRISTOW
	F	2	MWF	159 Math.	DENNIS
	G	3	MWF	159 Math.	DENNIS
	H	4	MWF	154 Math.	CLARK

Math. 31. Actuarial Theory.—*Prerequisite:* Math. 30. (3). 9 MWF; 154 Math. Associate Professor CRATHORNE.

Math. 35. Teachers' Course.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 10 MWF; 103 Entom. Associate Professor LYTLE

Math. 40. Fundamental Concepts.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 11 MWF; 103 Entom. Associate Professor LYTLE.

Math. 52b. Partial Differential Equations of Mathematical Physics.—*Prerequisite:* Math. 16, 17. (3). 10 TTS; 254 Math. Dr. BOURGIN.

Math. 70. Introduction to Higher Algebra.—*Prerequisite:* Math. 7 and 9. (3). 10 TTS; 154 Math. Professor COBLE.

Math. 71. **Introduction to Higher Analysis.**—*Prerequisite:* Math. 7 and 9. (3). 11 MWF; 155 Math Assistant Professor BRAHANA.

Math. 72. **Introduction to Higher Geometry.**—*Prerequisite:* Math. 7 and 9. (3). 2 MWF; 254 Math. Assistant Professor LEVY.

Math. 90b. **Undergraduate Thesis.**—*Prerequisite:* 24 hours of college mathematics. (2). Arrange.

Courses for Graduates

Math. 100. **Seminar and Thesis.**—(1 to 2 units).* Arrange.

Math. 112. **Linear Difference Equations.**—(1 unit). 11 MWF; 254 Math. Professor CARMICHAEL

Math. 124. **Theory of Numbers.**—(1 unit). 9 MWF; 254 Math. Dr. PEPPER.

Math. 126. **Theory of Groups.**—(1 unit). 3 MWF; 254 Math. Dr. HOPKINS.

Math. 131. **Algebraic Geometry.**—(1 unit). 8 MWF; 254 Math. Professor EMCH.

Math. 141. **Vector Methods.**—(1 unit). 1 MWF; 254 Math. Dr. KETCHUM.

Math. 149. **Philosophy of Mathematics.**—(1 unit). 1 MWF; 366 Math. Professor SHAW.

Math. 170. **Algebra.**—(1 unit). 10 MWF; 366 Math. Associate Professor HAZLETT.

Math. 171. **Analysis.**—(1 unit). 11 TTS; 254 Math. Professor CARMICHAEL.

Math. 172. **Geometry.**—(1 unit). 9 TTS; 254 Math. Professor COBLE.

MECHANICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $4.50.

M.E. 2. **Steam Engineering.**—*Prerequisite:* Math. 9, Physics 1 and 3.

Credits	Section	Hours	Days	Room	Instructor
3	Z1	8	MWF	216 M.E.L.	
	Z2	11	MWF	217 M.E.L.	

M.E. 6. **Steam Engineering.**—*Prerequisite:* Registration in M.E. 16.

4	P	1	MTTF	208 M.E.L.	
	Q	8	TWTS	208 M.E.L.	

M.E. 10. **Thermodynamics.**—*Prerequisite:* Math. 9, Physics 1 and 3.

3	JLY	8	MWF	202 T.B.	
	KMNV	9	TTS	202 T.B.	

M.E. 15. **Heat Engineering.**—*Prerequisite:* M.E. 16.

3	PQ	11	MWF	202 T.B.	

M.E. 16. **Thermodynamics.**—*Prerequisite:* M.E. 13.

2	P	2	Th	202 T.B., 217 M.E.L.	
		2–4	Tu	202 T.B., 217 M.E.L.	
	Q	10	Tu	202 T.B., 217 M.E.L.	
		10–12	Th	202 T.B., 217 M.E.L.	

M.E. 17. **Refrigeration Engineering.**—*Prerequisite:* M.E. 16.

3	PQ	11	MW	208 M.E.L.	
		8–10	S	112 T.B.	

M.E. 28. **Heating and Ventilation.**—*Prerequisite:* M.E. 16 and 65.

4	P	8	TT	M.E.L.	
		9–11	Tu	112, 114 T.B.	
		10–12	S	112, 114 T.B.	
	Q	8	TT	M.E.L.	
		9–11	Th	112, 114 T.B.	
		10–12	S	112, 114 T.B.	

M.E. 34. **Aeronautical Engineering.**—*Prerequisite:* M.E. 33.

3	PQ	11	MWF	216 M.E.L.	

M.E. 40. **Mechanical Engineering Design.**—*Prerequisite:* M.E. 31 and T.A.M. 29.

3	P	8–11	MWF	216, 201 T.B.	
	Q	1–4	MWF	216, 201 T.B.	

M.E. 52. **Power Plant Design.**—*Prerequisite:* M.E. 65.

3	P	8–11	MWF	112, 114 T.B.	
	Q	1–4	MWF	112, 114 T.B.	

M.E. 62. **Mechanical Engineering Laboratory.**—*Prerequisite:* Junior standing.

3	OX	1	WF	216 M.E.L.	
		1–4	M	M.E.L.	

M.E. 64. **Mechanical Engineering Laboratory.**—*Prerequisite:* Registration in M.E. 6 and 16.

3	P	8–12	S	M.E.L.	
		1–5	W	M.E.L.	
	Q	8–12	MF	M.E.L.	
	J	8–12	TT	M.E.L.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

M.E. 85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing.

Credits	Section	Hours	Days	Room	Instructor
3	PK	8–12	TT	Pattern Lab.	
	J2Q	8–12	MF	Pattern Lab.	
	J1RM	1–5	TT	Pattern Lab.	
	NSVW	1–5	MF	Pattern Lab.	

M.E. 87. Machine Laboratory.—*Prerequisite:* M.E. 85 or junior standing.

3	L	8–12	MF	Machine Lab.
	N	1–5	MF	Machine Lab.

M.E. 88. Machine and Forge Laboratory.—*Prerequisite:* M.E. 87.

3	P	8–12	TT	Machine Lab.
	Q	1–5	TT	Machine Lab.

M.E. 89. Heat Treatment of Metals.—*Prerequisite:* Senior standing in Mechanical or Railway Mechanical Engineering.

3	P	2–4	MWF	Forge Lab.
	Q	8–10	MWF	Forge Lab.

M.E. 98. Thesis.—*Prerequisite:* Senior standing. (3). Time to be arranged.

Courses for Graduates

Entrance on graduate work in Mechanical Engineering presupposes the full undergraduate course in that subject.

M.E. 107. Thermodynamics.—Application of thermodynamics to the solution of physical and engineering problems. (1 unit). Twice a week; time to be arranged. Associate Professor GOFF.

M.E. 108. The Flow of Fluids and Heat Transfer.—The application of dimensional analysis and other rational formulas. Special problems. (1 unit). Twice a week; time to be arranged. Professor MACINTIRE.

M.E. 109. Machine Design.—Rational design; the application of mechanics of materials. Individual problems. (1 unit). Twice a week; time to be arranged. Professor LEUTWILER.

M.E. 112. Laboratory Investigation.—Combustion of fuel, boiler economy; steam engines and turbines; gas engines and producers; explosive mixtures; mechanical refrigeration. Original work. (1½ units). Three times a week; time to be arranged. Professors WILLARD, POLSON, KRATZ, HAM, and MACINTIRE.

MECHANICS, THEORETICAL AND APPLIED

Note: Certain courses in this department require laboratory fees varying from $1 to $2.50.

T.A.M. 1. Analytical Mechanics (Statics).—*Prerequisite:* Math. 7; registration in Math. 9.

2	C	8	TT	204 P.L.
	Ch1	8	TT	316 M.T.L.
	Q	8	TT	202 T.B.
	R	8	TT	202 E.H.
	U	9	MW	316 M.T.L.
	X	9	MW	313 M.T.L.
	M	9	TT	313 M.T.L.
	Ch2	10	TT	202 E.H.
	N	10	TT	316 M.T.L.
	S	10	TT	313 M.T.L.
	E	11	TT	202 E.H.
	F	11	TT	313 M.T.L.
	J1	11	TT	310 M.T.L.
	D	1	TT	316 M.T.L.
	G	1	TT	305 M.T.L.
	H	1	TT	310 M.T.L.
	K	1	TT	313 M.T.L.
	P	1	WF	202 E.H.
	J2	2	TT	305 M.T.L.
	L	2	TT	310 M.T.L.

T.A.M. 2. Analytical Mechanics (Dynamics).—*Prerequisite:* T.A.M. 1.

3	C	9	MWF	202 E.H.
	Y	11	MWF	202 E.H.
	D	2	MWF	305 M.T.L.
	Z	4	MWF	202 E.H.

T.A.M. 3. Resistance of Materials.—*Prerequisite:* T.A.M. 1.

3	Z1	8	MWF	310 M.T.L.
	Z2	9	MWF	310 M.T.L.
	L	10	MWF	310 M.T.L.
	K	10	TTS	310 M.T.L.
	N	10	TTS	305 M.T.L.
	Y	11	MWF	313 M.T.L.
	M	1	MWF	305 M.T.L.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

T.A.M. 4. Hydraulics.—*Prerequisite:* T.A.M. 1 and registration in T.A.M. 2.

Credits	Section	Hours	Days	Room	Instructor
2	E	8	TT	310 M.T.L.	
	F	8	TT	313 M.T.L.	
	J	8	TT	305 M.T.L.	
	G	9	TT	305 M.T.L.	
	H	9	TT	310 M.T.L.	
	U	11	TT	305 M.T.L.	

T.A.M. 18. Strength of Materials.—*Prerequisite:* T.A.M. 17.

3	A	8	WF	305 M.T.L.	
		8–10	M	305 M.T.L.	
	B	10	MW	305 M.T.L.	
		9–11	F	305 M.T.L.	

T.A.M. 63. Resistance of Materials Laboratory.—*Prerequisite:* Registration in T.A.M. 3.

1	Y	1–3	M	223 M.T.L.	
	M	3–5	M	223 M.T.L.	
	L	1–3	Tu	223 M.T.L.	
	Z1	3–5	Tu	223 M.T.L.	
	K	10–12	W	223 M.T.L.	
	N	1–3	W	223 M.T.L.	
	Z2	3–5	Th	223 M.T.L.	

T.A.M. 64. Hydraulics Laboratory.—*Prerequisite:* Registration in T.A.M. 4.

1	J	1–3	M	M.T.L.	
	F	3–5	Tu	M.T.L.	
	G	3–5	W	M.T.L.	
	E	3–5	Th	M.T.L.	
	H	8–10	F	M.T.L.	

Courses for Advanced Undergraduates and Graduates

T.A.M. 42. Properties of Engineering Materials: Specifications and Inspection.—*Prerequisite:* T.A.M. 1, 3, and 63. (3 credits or ½ unit). Time to be arranged. Professor SEELY.

T.A.M. 44. Laboratory Work in Testing Materials.—*Prerequisite:* T.A.M. 1, 3, and 63. (3 credits or ½ to 1 unit).* Time to be arranged. Professor MOORE.

T.A.M. 46. Advanced Technical Mechanics.—*Prerequisite:* T.A.M. 1 and 3 or equivalent work in mathematics and physics. (2 credits or ½ unit). Time to be arranged. Professor WESTERGAARD.

Courses for Graduates

T.A.M. 102. Resistance of Materials.—(1 unit). Twice a week. Time to be arranged. Professor MOORE.

T.A.M. 103. Hydraulics and Hydraulic Engineering.—(½ to 1 unit).* Twice a week. Time to be arranged. Professor ENGER.

T.A.M. 104. Experimental Work in the Laboratory of Applied Mechanics.—(½ to 1 unit).* Twice a week. Time to be arranged. Professors ENGER, MOORE, and RICHART.

T.A.M. 105. Experimental and Analytical Work in Reinforced Concrete.—(1 to 2 units).* Twice a week. Time to be arranged. Professor RICHART.

T.A.M. 106. Theory of Elasticity and Applications to Engineering Problems.—(1 unit). Three times a week. Time to be arranged. Professor WESTERGAARD.

MILITARY BANDS

Note: The following courses are open only to those who have passed the examination for admittance to one of the bands. All new students who play band instruments and who desire to try for places in the bands should make application at the Band Office, in the Band Building, at the earliest possible time. Those who are accepted for membership will be given a slip indicating that they have been accepted. Days and sections will be assigned according to proficiency.

Service in the bands takes the place of the regular military drill.

Mil. Bands 2. Freshman Band.—(1). Twice a week, by assignment. Director HARDING.

Mil. Bands 4. Sophomore Band.—(1). Twice a week, by assignment. Director HARDING.

Mil. Bands 6. Junior Band.—Twice a week, by assignment. Director HARDING.

Mil. Bands 8. Senior Band.—Twice a week, by assignment. Director HARDING.

MILITARY SCIENCE AND TACTICS

All military courses consist of two parts designated by the same number: a practical course lettered with "a" and a theoretical course lettered with "b." Students who have had training in a senior R.O.T.C. unit are permitted to register for work one year advanced for each year they have had in the senior unit. All students who register for junior and senior courses are required to sign a contract with the Government to take five hours of military per week during two years in the University and to attend one summer camp of six weeks.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student mus t put on his study-list, *not* the possible units or credits as shown here, but the number of units or credit s for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Infantry

Mil. Sci. 2a. Freshman Infantry.

Credits	Section	Hours	Days	Room	Instructor
½	Co. A	8–10	M	Arm.	MILAN
	Co. B	8–10	M	Arm.	
	Co. E	10–12	W	Arm.	
	Co. G	1–3	Th	Arm.	
	Co. H	1–3	Th	Arm.	
	Co. L	10–12	S	Arm.	
	Co. M	10–12	S	Arm.	

Mil. Sci. 2b. Freshman Infantry.

½	1	10	M	150 Arm.	MILAN
	2	11	M	150 Arm.	
	3	9	Tu	150 Arm.	
	4	1	Tu	150 Arm.	
	5	2	Tu	150 Arm.	
	6	8	W	150 Arm.	
	7	9	W	150 Arm.	
	8	1	W	150 Arm.	
	9	2	W	150 Arm.	
	10	9	Th	150 Arm.	
	11	10	Th	150 Arm.	
	12	11	Th	150 Arm.	
	13	9	F	150 Arm.	
	14	10	F	150 Arm.	
	15	11	F	150 Arm.	
	16	9	S	150 Arm.	

Mil. Sci. 4a. Sophomore Infantry.

½	Co. C	1–3	M	Arm.	INNIS
	Co. D	10–12	W	Arm.	
	Co. F	1–3	Th	Arm.	
	Co. I	10–12	S	Arm.	
	Co. K	10–12	S	Arm.	

Mil. Sci. 4b. Sophomore Infantry.

½	50	10	M	151 Arm.	INNIS
	51	11	M	151 Arm.	
	52	3	M	151 Arm.	
	53	10	Tu	151 Arm.	
	54	11	Tu	151 Arm.	
	55	9	W	151 Arm.	
	56	11	Th	151 Arm.	
	57	3	Th	151 Arm.	
	58	9	F	151 Arm.	
	59	9	S	151 Arm.	

Mil. Sci. 6a. Junior Infantry.—*Prerequisite:* Mil. Sci. 5a.

½	Group I	10–12	W	Arm.	KELLOGG
		4	F	Arm.	
	Group II	1–3	Th	Arm.	
		4	F	Arm.	

Mil. Sci. 6b. Junior Infantry.—*Prerequisite:* Mil. Sci. 5b.

1	80	10–12	M	148 Arm.	KELLOGG
	81	1–3	Tu	148 Arm.	
	82	1–3	W	148 Arm.	
	83	10–12	Th	148 Arm.	
	84	10–12	F	148 Arm.	

Mil. Sci. 8a. Senior Infantry.—(Cadet Officers only.)

½	Co.'s A-M (See 2a and 4a for hours.)				
	and	4	F	Arm.	STEVENS

Mil. Sci. 8b. Senior Infantry.—(Cadet Officers only.)

1	90	9	TT	151 Arm.	STEVENS
	91	2	TT	151 Arm.	
	92	2	WF	151 Arm.	

Field Artillery

Mil. Sci. 12a. Freshman Field Artillery.

½	1st Bn.	3–5	M	Arm.	BUSCH
	2nd Bn.	1–3	Tu	Arm.	WEILAND
	3rd Bn.	3–5	W	Arm.	
	4th Bn.	3–5	Th	Arm.	
	5th Bn.	1–3	F	Arm.	

Mil. Sci. 12b. Freshman Field Artillery.

½	100	9	M	155 Arm.	BUSCH
	101	10	M	155 Arm.	WEILAND
	102	11	M	155 Arm.	LEE
	103	2	M	155 Arm.	
	104	9	Tu	155 Arm.	
	105	10	Tu	155 Arm.	

	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 12b.	(Concluded)					
	½	106	11	Tu	155 Arm.	
		107	9	W	155 Arm.	
		108	10	W	155 Arm.	
		109	11	W	155 Arm.	
		110	9	Th	155 Arm.	
		111	10	Th	155 Arm.	
		112	11	Th	155 Arm.	
		113	2	Th	155 Arm.	
		114	9	F	155 Arm.	
		115	10	F	155 Arm.	
		116	11	F	155 Arm.	
Mil. Sci. 14a.	Sophomore Field Artillery.					
	½	1st Bn.	3–5	M	Arm.	DALFERES
		2nd Bn.	1–3	Tu	Arm.	LEE
		3rd Bn.	3–5	W	Arm.	
		4th Bn.	3–5	Th	Arm.	
		5th Bn.	1–3	F	Arm.	
Mil. Sci. 14b.	Sophomore Field Artillery.					
	½	130	9	M	154 Arm.	DALFERES
		131	10	M	154 Arm.	LEE
		132	11	M	154 Arm.	
		133	9	Tu	154 Arm.	
		134	10	Tu	154 Arm.	
		135	11	Tu	154 Arm.	
		136	10	W	154 Arm.	
		137	9	Th	154 Arm.	
		138	10	Th	154 Arm.	
		139	11	Th	154 Arm.	
		140	9	F	154 Arm.	
		141	10	F	154 Arm.	
Mil. Sci. 16a.	Junior Field Artillery.—*Prerequisite:* Mil. Sci. 15a.					
	½	1st Bn.	3–5	M	Arm.	DAUGHERTY
		2nd Bn.	1–3	Tu	Arm.	
		3rd Bn.	3–5	W	Arm.	
		4th Bn.	3–5	Th	Arm.	
		5th Bn.	1–3	F	Arm.	
Mil. Sci. 16b.	Junior Field Artillery.—*Prerequisite:* Mil. Sci. 15b.					
	1	160	9	M	152 Arm.	DAUGHERTY
			9	W	152 Arm.	
			4	F	152 Arm.	
		161	11	M	152 Arm.	
			11	W	152 Arm.	
			4	F	152 Arm.	
		162	9	Tu	152 Arm.	
			9	Th	152 Arm.	
			4	F	152 Arm.	
		163	10	Tu	152 Arm.	
			10	Th	152 Arm.	
			4	F	152 Arm.	
Mil. Sci. 18a.	Senior Field Artillery.—*Prerequisite:* Mil. Sci. 17a.					
	½	1st Bn.	3–5	M	Arm.	MCCLEAVE
		2nd Bn.	1–3	Tu	Arm.	
		3rd Bn.	3–5	W	Arm.	
		4th Bn.	3–5	Th	Arm.	
		5th Bn.	1–3	F	Arm.	
Mil. Sci. 18b.	Senior Field Artillery.—*Prerequisite:* Mil. Sci. 17b.					
	1	190	9	M	153 Arm	MCCLEAVE
			9	W	153 Arm.	
			4	F	153 Arm.	
		191	10	M	153 Arm.	
			10	W	153 Arm.	
			4	F	153 Arm.	
		192	9	Tu	153 Arm.	
			9	Th	153 Arm.	
			4	F	153 Arm.	
		193	11	Tu	153 Arm.	
			11	Th	153 Arm.	
			4	F	153 Arm.	

Cavalry

Mil. Sci. 22a.	Freshman Cavalry.					
	½	1A	10–12	M	Arm.	PATTERSON
		1B	10–12	Tu	Arm.	
		1C	8–10	W	Arm.	
		1D	8–10	Th	Arm.	
		1E	8–10	F	Arm.	
		1F	10–12	S	Arm.	

Mil. Sci. 22b. Freshman Cavalry.

Credits	Section	Hours	Days	Room	Instructor
½	201	8	M	146 Arm.	BRYAN
	202	9	M	146 Arm.	
	203	3	M	146 Arm.	
	204	9	Tu	146 Arm.	
	205	1	Tu	146 Arm.	
	206	2	Tu	146 Arm.	
	207	10	W	146 Arm.	
	208	11	W	146 Arm.	
	209	4	W	146 Arm.	
	210	10	Th	146 Arm.	
	211	11	Th	146 Arm.	
	212	11	F	146 Arm.	
	213	2	F	146 Arm.	
	214	3	F	146 Arm.	

Mil. Sci. 24a. Sophomore Cavalry.

½	2A	8–10	M	Arm.	ROGERS
	2B	8–10	Tu	Arm.	
	2C	10–12	Th	Arm.	
	2D	10–12	F	Arm.	
	2E	8–10	S	Arm.	

Mil. Sci. 24b. Sophomore Cavalry.

½	221	10	M	147 Arm.	STRAWN
	222	11	M	147 Arm.	
	223	2	M	147 Arm.	
	224	3	Tu	147 Arm.	
	225	4	Tu	147 Arm.	
	226	8	W	147 Arm.	
	227	9	W	147 Arm.	
	228	8	Th	147 Arm.	
	229	3	Th	147 Arm.	
	230	4	Th	147 Arm.	
	231	9	F	147 Arm.	
	232	1	F	147 Arm.	

Mil. Sci. 26a. Junior Cavalry.—*Prerequisite:* Mil. Sci. 25a.

½	3A	10–12	W	Arm.	FEATHERSTONE
	3B	8–10	S	Arm.	

Mil. Sci. 26b. Junior Cavalry.—*Prerequisite:* Mil. Sci. 25b.

1	241	1–3	M	146 Arm.	FEATHERSTONE
		4	F	146 Arm.	
	242	3–5	Tu	146 Arm.	
		4	F	146 Arm.	
	243	8–10	Th	146 Arm.	
		4	F	146 Arm.	
	244	3–5	Th	146 Arm.	
		4	F	146 Arm.	

Mil. Sci. 28a. Senior Cavalry.—*Prerequisite:* Mil. Sci. 27a.

½	1A-1F incl.	(See 22a and 24a for hours.)	CONARD
	2A-2E incl.	(See 22a and 24a for hours.)	ROGERS PATTERSON

Mil. Sci. 28b. Senior Cavalry.—*Prerequisite:* Mil. Sci. 27b.

1	251	3–5	M	147 Arm.	CONARD
		4	F	147 Arm.	
	252	10–12	Tu	147 Arm.	
		4	F	147 Arm.	
	253	1–3	Th	147 Arm.	
		4	F	147 Arm.	
	254	10–12	F	147 Arm.	
		4	F	147 Arm.	

Engineers

Mil. Sci. 32a. Freshman Engineers.

½	1st Bn.	3–5	W	Arm.	LEMEN
	2nd Bn.	3–5	Th	Arm.	MATTHEWS
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 32b. Freshman Engineers.

½	300	11	Tu	143 Arm.	MATTHEWS
	301	2	Tu	143 Arm.	
	302	3	Tu	143 Arm.	
	303	11	Th	143 Arm.	
	304	9	F	143 Arm.	
	305	10	F	143 Arm.	

Mil. Sci. 34a. Sophomore Engineers.

½	1st-3rd Bn.	(See 32a for hours.)	Arm.	LEMEN MATTHEWS

	Credits	Section	Hours	Days	Room	Instructor
Mil. Sci. 34b.	Sophomore Engineers.					
	½	320	11	Tu	145 Arm.	LEMEN
		321	3	Tu	145 Arm.	
		322	4	Tu	145 Arm.	
		323	2	W	145 Arm.	
		324	11	Th	145 Arm.	
Mil. Sci. 36a.	Junior Engineers.—*Prerequisite:* Mil. Sci. 35a.					
	½	1st-3rd Bn.	(See 32a for hours.)		Arm.	LEMEN MATTHEWS
Mil. Sci. 36b.	Junior Engineers.—*Prerequisite:* Mil. Sci. 35b.					
	1	340	2–4	F	143 Arm.	MATTHEWS
			4	F	143 Arm.	
		341	8–10	S	143 Arm.	
			4	F	143 Arm.	
Mil. Sci. 38a.	Senior Engineers.—*Prerequisite:* Mil. Sci. 37a.					
	½	1st-3rd Bn.	(See 32a for hours.)		Arm.	LEMEN MATTHEWS
Mil. Sci. 38b.	Senior Engineers.—*Prerequisite:* Mil. Sci. 37b.					
	1	350	1–3	Th	145 Arm.	LEMEN
			4	F	145 Arm.	
		351	8–10	S	145 Arm.	
			4	F	145 Arm.	

Signal Corps

Mil. Sci. 42a.	Freshman Signal Corps.					
	½	A	3–5	Tu	Arm.	RHOADES
		B	3–5	W	Arm.	ENGERUD
		C	3–5	Th	Arm.	
		D	2–4	F	Arm.	
Mil. Sci. 42b.	Freshman Signal Corps.					
	½	400	10	M	222 Arm.	ENGERUD
		401	10	Tu	222 Arm.	
		402	8	W	222 Arm.	
		403	1	W	222 Arm.	
		404	1	Th	222 Arm.	
		405	10	F	222 Arm.	
Mil. Sci. 44a.	Sophomore Signal Corps.					
	½	A-D	(See 42a for hours.)			RHOADES ENGERUD
Mil. Sci. 44b.	Sophomore Signal Corps.					
	½	410	9	Tu	222 Arm.	RHOADES
		411	11	Tu	222 Arm.	
		412	10	Th	222 Arm.	
		413	9	F	222 Arm.	
		414	11	F	222 Arm.	
Mil. Sci. 46a.	Junior Signal Corps.—*Prerequisite:* Mil. Sci. 45a.					
	½	A-D	(See 42a for hours.)			RHOADES ENGERUD
Mil. Sci. 46b.	Junior Signal Corps.—*Prerequisite:* Mil. Sci. 45b.					
	1	420	3–5	M	222 Arm.	ENGERUD
			4	F	222 Arm.	
		421	9–11	S	222 Arm.	
			4	F	222 Arm.	
Mil. Sci. 48a.	Senior Signal Corps.—*Prerequisite:* Mil. Sci. 47a.					
	½	A-D	(See 42a for hours.)			RHOADES ENGERUD
Mil. Sci. 48b.	Senior Signal Corps.—*Prerequisite:* Mil. Sci. 47b.					
	1	431	3–5	M	145 Arm.	RHOADES
			4	F	144 Arm.	
		432	9–11	W	145 Arm.	
			4	F	144 Arm.	

Coast Artillery (Anti-aircraft)

Mil. Sci. 62a.	Freshman Coast Artillery (AA).					
	½	A	10–12	M	Arm.	CARY
		B	3–5	Tu	Arm.	
		C	1–3	Th	Arm.	
		D	8–10	S	Arm.	
Mil. Sci. 62b.	Freshman Coast Artillery (AA).					
	½	601	9	M	144 Arm.	CARY
		602	1	M	144 Arm.	
		603	2	Tu	144 Arm.	
		604	10	W	144 Arm.	
		605	11	Th	144 Arm.	

Mil. Sci. 62b. (Concluded)

Credits	Section	Hours	Days	Room	Instructor
½	606	4	Th	144 Arm.	CARY
	607	11	F	144 Arm.	
	608	1	F	144 Arm.	
	609	3	F	144 Arm.	

Mil. Sci. 64a. Sophomore Coast Artillery (AA).

½	E	10–12	M	Arm.	MCBRIDE
	F	3–5	Tu	Arm.	
	G	1–3	Th	Arm.	
	H	8–10	S	Arm.	

Mil. Sci. 64b. Sophomore Coast Artillery (AA).

½	621	2	M	144 Arm.	MCBRIDE
	622	9	Tu	144 Arm.	
	623	10	Tu	144 Arm.	
	624	11	W	144 Arm.	
	625	3	Th	144 Arm.	
	626	10	F	144 Arm.	
	627	2	F	144 Arm.	
	628	10	S	144 Arm.	

Mil. Sci. 66a. Junior Coast Artillery (AA).—*Prerequisite:* Mil. Sci. 65a.

½	Batteries A-H (See 62a and 64a for hours.)				CHAPMAN
	and	4	F	145 Arm.	

Mil. Sci. 66b. Junior Coast Artillery (AA).—*Prerequisite:* Mil. Sci. 65b.

1	631	1–3	M	145 Arm.	CHAPMAN
	632	4	TT	148 Arm.	
	633	10–12	S	145 Arm.	

Mil. Sci. 68a. Senior Coast Artillery (AA).—*Prerequisite:* Mil. Sci. 67a.

½	Group I	10–12	W	148 Arm.	CHAPMAN
		4	F	148 Arm.	
	Group II	8–10	S	148 Arm.	
		4	F	148 Arm.	

Mil. Sci. 68b. Senior Coast Artillery (AA).—*Prerequisite:* Mil. Sci. 67b.

1	641	1–3	M	148 Arm.	CHAPMAN
	642	10–12	Tu	148 Arm.	

MINERALOGY

(See Geology.)

MINING ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $7.50.

Courses for Undergraduates

Mining 2. Mining Principles.—(For students in courses other than mining.) *Prerequisite:* Chemistry and Physics; junior standing. (3). 10 MWF; 206 T.B. Mr. NICHOLSON.

Mining 4. Mining Methods.—*Prerequisite:* Mining 1 and registration in Geology 43. (3). 8 MS, 10 Th, 206 T.B. Mr. NICHOLSON.

Mining 10. Electrical Engineering of Mines.—*Prerequisite:* Physics 1b-3b. (3). 9 MTh, 9-12 Tu; 206 T.B. and Mining Lab. Mr. NICHOLSON.

Mining 15. Mine Ventilation.—*Prerequisite:* Mining 4. (2). 11 MTh; 206 T.B. Professor CALLEN.

Mining 16. Non-Ferrous Ore Treatment.—*Prerequisite:* Chemistry 73a, Mining 9. (5). 8 MTWTF; 207 T.B. Assistant Professor MITCHELL.

Mining 18. Metallurgical Problems.—*Prerequisite:* Registration in Mining 16. (2). 1-4 TT; Mining Lab. Assistant Professor MITCHELL.

Mining 20. Mine Ventilation Laboratory.—*Prerequisite:* Registration in Mining 15. (2). 1-4 Tu, 10 F; Mining Lab. and 207 T.B. Professor CALLEN.

Mining 21. Examination, Valuation, and Reports.—*Prerequisite:* Mining 4, Geology 20 and 43 or equivalent. (3). 11 WFS; 206 T.B. Mr. NICHOLSON.

Mining 42. Mining and Metallurgical Design.—*Prerequisite:* Mining 41. (2). 1-4 F, 8-11 S; 207 T.B. Assistant Professor MITCHELL.

Mining 62. Mine Surveying.—*Prerequisite:* Mining 61. (3). 2 M, 1-4 WF; 207 T.B. Mr. NICHOLSON.

Mining 64. Coal and Ore Preparation Laboratory.—*Prerequisite:* Mining 9. (3). 1-5 MW; Mining Lab. Assistant Professor MITCHELL.

Mining 90. Mining and Metallurgical Reports.—*Prerequisite:* Senior standing in Mining Engineering. (1). 10 M; 207 T.B. Professor CALLEN.

Courses for Graduates

Mining 101. Advanced Mining Practice.—(1 unit). Twice a week. Professor CALLEN.

Mining 102. Advanced Preparation of Coal and Ores.—(1 unit).

Mining 104. Mining Reports.—(1 unit). Twice a week. Professor CALLEN.
Note: Of courses 104 and 105, only one will be given, according to election of students.

Mining 105. Welfare Work and Education among Mine Employees.—(1 unit). Twice a week. Professor CALLEN.
Note: Of courses 104 and 105, only one will be given, according to election of students.

MUSIC

Music 2. History of Music.—*Prerequisite:* One year of university work. (2). 11 MWF; Lect. Room, S.M.H. Associate Professor SCHWARTZ.

Music 4. Theory of Music (Harmony).—*Prerequisite:* Music 3. (3). 8 TTS; 103 S.M.H. Miss USRY.

Music 6. Theory of Music (Advanced Harmony).—*Prerequisite:* Music 5.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	106 S.M.H.	USRY
	E	1	MWF	103 S.M.H.	KESSLER
	G	3	MWF	103 S.M.H.	USRY

Music 8. Strict Counterpoint.—*Prerequisite:* Music 7.

3	A	8	MWF	103 S.M.H.	KESSLER
	C	10	MWF	103 S.M.H.	KESSLER
[1]Sections D and E are	G	3	MWF	106 S.M.H.	KESSLER
for juniors only.	D[1]	11	MWF	103 S.M.H.	MILES
	F[1]	2	MWF	103 S.M.H.	MILES

Music 10. Analysis, Musical Form.—*Prerequisite:* Music 6 and 8.

2	T	9	MTh	103 S.M.H.	SCHWARTZ
	K	9	TT	103 S.M.H.	SCHWARTZ

Music 11b. Composition.—*Prerequisite:* Music 11a. (2). Arrange time. Associate Professor MILES.

Music 12b. Advanced Composition.—*Prerequisite:* Music 12a. (4). Arrange time. Associate Professor MILES.

Music 14. Music Appreciation.—The appreciation of good music from the standpoint of the listener. Copiously illustrated with phonograph and reproducing piano. Primarily for students from the other colleges of the University. Attendance at Star Course concerts required. *Prerequisite:* Music 13, or the consent of the Director.

2	L	10	TT	Lecture Room Third Floor	Director STIVEN
(for P.S.M.)	P	3	TT	106 S.M.H.	KITCHELL

Music 16. Instrumentation.—*Prerequisite:* Music 15. (1 or 2).* 2 TT; Band Building. Professor HARDING.

Music 18. Advanced Orchestration.—*Prerequisite:* Music 17. (4). Arrange time. Professor HARDING.

Music 22. Ear Training and Sight Singing.—*Prerequisite:* Music 21.

1	B	9	MW	106 S.M.H.	PERCIVAL
	W	11	MTh	106 S.M.H.	PERCIVAL
	D	11	WF	106 S.M.H.	PERCIVAL

Music 24. Ear Training and Sight Singing.—*Prerequisite:* Music 23.

1	K	9	TT	106 S.M.H.	PERCIVAL
	C	10	MW	106 S.M.H.	PERCIVAL
	L	10	TT	106 S.M.H.	PERCIVAL

Music 25b. Public School Methods.—*Prerequisite:* Music 25a, or consent of the instructor. (3). 2 MWTF; 106 S.M.H. Mr. HOLMES.

Music 26b. Public School Methods.—*Prerequisite:* Senior standing in P.S. Music, or the consent of the instructor. (3). 1 MTWT; 103 S.M.H. Miss KITCHELL.

Music 27. Thesis.—Arrange.

Music 30b. Accompanying and Ensemble.—*Prerequisite:* Music 30a. (½ to 1).* Arrange time.

Music 31b. Accompanying and Ensemble.—*Prerequisite:* Music 31a. (½ to 1).* Arrange time.

Music 33. Advanced History of Music.—*Prerequisite:* Music 32.

1	B	9	W	103 S.M.H.	SCHWARTZ
	T	9	F	103 S.M.H.	SCHWARTZ

Music 35. Recital Course in Applied Music.—(For seniors in Music 45b, 65b, 75b, 85b, or 95b.) (4). Arrange time.

Music 36. Recital Course in Applied Music.—(For seniors in Music 55b.) (3). Arrange time.

Music 37. Recital Course in Composition.—(For seniors in Theory Major.) (4). Arrange time.

Music 38b. Band Conducting.—*Prerequisite:* Music 38a. (2). 2 M, 1 TT; Band Building. Professor HARDING.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

APPLIED MUSIC COURSES

Students in the School of Music will receive 4 to 5 hours credit for their major subject in Applied Music. They will ordinarily receive 2½ hours credit for their minor subject. Students from other colleges will ordinarily receive 2 hours credit if in accordance with the regulations of their college.

Courses in Applied Music which require one half-hour lesson per week of recitation and one hour daily of preparation receive 2 hours credit.

Courses in Applied Music which require two 20-minute lessons per week of recitation and *one* hour daily of preparation receive two and one-half hours credit.

Courses in Applied Music which require two half-hour lessons per week of recitation and *two* hours daily of preparation receive 4 hours credit.

Courses in Music 44a-b, 45a-b, 64a-b, 65a-b, 74a-b, 75a-b, 84a-b, 85a-b, require two half-hour lessons per week of recitation and *three* hours daily of preparation.

Hours to be arranged.

PIANO

Associate Professor VAN DEN BERG, Miss WATT, Mr. SCHOONMAKER, Miss DELANCY, Mrs. SULLIVAN, Miss USRY

Music 42a-42b. Piano, First Year.—(2 to 4).*

Music 43a-43b. Piano, Second Year.—(2 to 4).*

Music 44a-44b. Piano, Third Year.—(2 to 5).*

Music 45a-45b. Piano, Fourth Year.—(2 to 5).*

VOICE

Mr. JOHNSON, Mr. HAMP, Miss SUTHERLIN, Mr. JOHNSTON

Music 52a-52b. Voice, First Year.—(2 to 4).*

Music 53a-53b. Voice, Second Year.—(2 to 4).*

Music 54a-54b. Voice, Third Year.—(2 to 4).*

Music 55a-55b. Voice, Fourth Year.—(2 to 4).*

VIOLIN

Assistant Professor ROOSA, Mr. COHEN

Music 62a-62b. Violin, First Year.—(2 to 4).*

Music 63a-63b. Violin, Second Year.—(2 to 4).*

Music 64a-64b. Violin, Third Year.—(2 to 5).*

Music 65a-65b. Violin, Fourth Year.—(2 to 5).*

VIOLONCELLO

Mrs. SULLIVAN

Music 72a-72b. Violoncello, First Year.—(2 to 4).*

Music 73a-73b. Violoncello, Second Year.—(2 to 4).*

Music 74a-74b. Violoncello, Third Year.—(2 to 5).*

Music 75a-75b. Violoncello, Fourth Year.—(2 to 5).*

ORGAN

Associate Professor MILES, Mr. DEMMING

Students desiring to take organ will be obliged to pass without conditions the entrance examination in piano. Under no circumstances will they be accepted if their piano work falls below the standard represented by this examination.

Music 82a-82b. Organ, First Year.—(2 to 4).*

Music 83a-83b. Organ, Second Year.—(2 to 4).*

Music 84a-84b. Organ, Third Year.—(2 to 5).*

Music 85a-85b. Organ, Fourth Year.—(2 to 5).*

BAND AND ORCHESTRAL INSTRUMENTS

Professor HARDING, Mr. DVORAK, Mr. OVERGARD

Music 92a-92b. Wind Instruments, First Year.—(2 to 4).*

Music 93a-93b. Wind Instruments, Second Year.—(2 to 4).*

Music 94a-94b. Wind Instruments, Third Year.—(2 to 4).*

Music 95a-95b. Wind Instruments, Fourth Year.—(2 to 4).*

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

PALEONTOLOGY

(See Geology, A.)

PHILOSOPHY

(See also Psychology and Education.)

For students entering prior to September, 1929

Major: 20 hours from any courses offered by the department, including Phil. 1, 2, 3, 4, and 7. Six hours in psychology may be counted toward a major in philosophy.

Minors: 20 hours in (a) psychology (at least 6 additional hours, if psychology is counted toward a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) botany, chemistry, mathematics, physics, zoology, geology. No course in any subject of the above groups may be counted for the minor requirement if it is excluded from the major requirement of its respective department.

For students entering after September 1, 1929

Major: 20 hours from any courses offered by the department, including Phil. 2, 3, 4, and 7. Six hours in psychology may be counted toward a major in philosophy.

Minors: 20 hours in (a) psychology (at least 6 additional hours if psychology is counted toward a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) astronomy, botany, chemistry, mathematics, physics, zoology, geology. At least 8 hours must be offered in each subject, if two are chosen.

Phil. 1. Logic.—*Prerequisite:* One year of university work.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	117 L.H.	DeLargy
	B	9	MWF	117 L.H.	Kubitz
	C	10	MWF	117 L.H.	Benjamin
	D	11	MWF	117 L.H.	Gotshalk
	E	1	MWF	117 L.H.	Nicholson
	F	2	MWF	117 L.H.	Nicholson
	I	10	TTS	117 L.H.	Morrow
	J	11	TTS	117 L.H.	McClure

Phil. 2. Introduction to Philosophy.—*Prerequisite:* One year of university work.

3	Lect.	11	TT	300 Math.	Benjamin
	A Disc.	1	Th	136 L.H.	DeLargy
	B Disc.	2	Th	224 L.H.	DeLargy
	C Disc.	3	Th	114 L.H.	Morrow
	D Disc.	10	F	219 L.H.	Tawney
	E Disc.	11	F	334 L.H.	Benjamin
	F Disc.	1	F	104 L.H.	Kubitz
	G Disc.	2	F	305 L.H.	Kubitz
	H Disc.	3	F	104 L.H.	DeLargy

Courses for Advanced Undergraduates and Graduates

Phil. 4. History of Modern Philosophy.—*Prerequisite:* Three hours in philosophy and junior standing, or senior standing.

4	Lect.	10	TT	103 New Agr.	McClure
	A Disc.	11	Th	224 L.H.	Gotshalk
	B Disc.	1	Th	117 L.H.	Nicholson
	C Disc.	2	Th	117 L.H.	Nicholson
	D Disc.	2	Th	235 L.H.	Gotshalk
	E Disc.	3	Th	117 L.H.	Gotshalk
	F Disc.	3	F	110 L.H.	Nicholson
	G Disc. (to be arranged; graduate students only)				McClure

Phil. 9. Political and Social Ethics.—*Prerequisite:* Junior standing.

3	Lect.	9	TT	109 L.H.	Morrow
	A Disc.	2	Th	238 L.H.	Morrow
	B Disc.	2	F	105 L.H.	Morrow

Phil. 11b. Philosophy of Religion (historical).—*Prerequisite:* Three hours in philosophy. (3). 11 MWF; 109 L.H. Professor Tawney.

Phil. 14. Advanced Logic.—*Prerequisite:* Phil. 1 and junior standing. (3). 9 MWF; 203 L.H. Assistant Professor Benjamin.

Phil. 16. Metaphysics.—*Prerequisite:* Three hours in philosophy. (3). 10 MWF; 123 L.H. Assistant Professor Gotshalk.

Phil. 20. Honors Course.—*Prerequisite:* Senior standing. (2). Hour to be arranged.

Phil. 22. American Philosophy (Royce, James, Santayana, and Dewey).—*Prerequisite:* Three hours in philosophy. (3). 2 MWF; 133 L.H. Dr. DeLargy.

Courses for Graduates

Phil. 105. Seventeenth Century Continental Thought.—(1 unit). Hour to be arranged; 108 Adm.(E). Dean DANIELS.

Phil. 106. English and American Idealism.—(1 unit). Hour to be arranged. Professor MORROW.

Phil. 112. German Idealism.—(1 unit). Hour to be arranged. Professor MCCLURE.

Phil. 116. Types of Logical Theory.—(1 unit). Hour to be arranged. Assistant Professor BENJAMIN.

Phil. 118. Medieval Philosophy.—(1 unit). Hour to be arranged. Professor TAWNEY.

PHYSICAL EDUCATION FOR MEN

Freshmen must register in courses numbered 11, 12, 13, 14, 15, 16, 17, and 18.
Sophomores must register in courses numbered 21, 22, 23, 24, 25, 26, 27, and 28.
Juniors and seniors MAY register in courses numbered 33, 34, 35, 36, and 37.
Students previously enrolled in Individual Gymnastics must continue to take this course until notified otherwise by the University Health Service.
All students excepting those taking Individual Gymnastics must elect a different course each semester.
For information, late registration, and changing sections, call at Room 201, Old Gymnasium.

Courses for Freshmen

P.E. 11. Individual Gymnastics.—(Freshmen who do not pass the health examination are excused from Military and must register in this course.)

Credits	Section	Hours	Days	Room	Instructor
1½	B	9	MTWTF	New Gym.	HANKNER
	C	10	MTWTF	New Gym.	MCCRISTAL
	D	11	MTWTF	New Gym.	STAFFORD
	E	1	MTWTF	New Gym.	HANKNER
	F	2	MTWTF	New Gym.	HANKNER
	G	3	MTWTF	New Gym.	MCCRISTAL
	H	4	MTWTF	New Gym.	HANKNER
	L	10	MTWTF	Gym. Annex	DERR
	M	11	MTWTF	Gym. Annex	DERR
	O	2	MTWTF	Gym. Annex	BROWN
	P	3	MTWTF	Gym. Annex	DERR
	Q	4	MTWTF	Gym. Annex	DERR

P.E.12. Individual Gymnastics.—*Prerequisite:* P.E. 11.

1½	B	9	MTWTF	New Gym.	HANKNER
	C	10	MTWTF	New Gym.	MCCRISTAL
	D	11	MTWTF	New Gym.	STAFFORD
	E	1	MTWTF	New Gym.	HANKNER
	F	2	MTWTF	New Gym.	HANKNER
	G	3	MTWTF	New Gym.	MCCRISTAL
	H	4	MTWTF	New Gym.	HANKNER
	L	10	MTWTF	Gym. Annex	DERR
	M	11	MTWTF	Gym. Annex	DERR
	O	2	MTWTF	Gym. Annex	BROWN
	P	3	MTWTF	Gym. Annex	DERR
	Q	4	MTWTF	Gym. Annex	DERR

P.E. 13. Beginning Swimming.—(This course is open to non-swimmers only. Freshmen who cannot swim twenty-five yards are advised to register in this course.)

½	F	2	MW	Old Pool	YOUNG
	G	3	MW	Old Pool	YOUNG
	H	4	MW	Old Pool	YOUNG
	K	9	TT	Old Pool	CRAIG
	L	10	TT	Old Pool	TREECE
	M	11	TT	Old Pool	TREECE
	P	3	TT	Old Pool	YOUNG
	Q	4	TT	Old Pool	YOUNG

P.E. 14. Individual Athletics.

½	A	8	MW	Old Gym.	YOUNG
	B	9	MW	Old Gym.	BURT
	C	10	MW	Old Gym.	BAUERLE
	F	2	MW	Old Gym.	DERR
	G	3	MW	Old Gym.	LAW
	K	9	TT	Old Gym.	YOUNG
	L	10	TT	Old Gym.	LAW

P.E. 15. Tumbling Stunts.

½	A	8	MW	Old Gym.	BURT
	B	9	MW	Old Gym.	YOUNG
	C	10	MW	Old Gym.	BURT
	D	11	MW	Old Gym.	BURT
	E	1	MW	Old Gym.	BROWN
	K	9	TT	Old Gym.	BURT
	L	10	TT	Old Gym.	YOUNG
	M	11	TT	Old Gym.	YOUNG
	N	1	TT	Old Gym.	BROWN
	O	2	TT	Old Gym.	DERR
	P	3	TT	Old Gym.	LAW

P.E. 16. Soccer Football.

Credits	Section	Hours	Days	Room	Instructor
½	C	10	MW	Soccer Field	KENNEY
	D	11	MW	Soccer Field	LAW
	E	1	MW	Soccer Field	TREECE
	F	2	MW	Soccer Field	TREECE
	G	3	MW	Soccer Field	PATERSON
	H	4	MW	Soccer Field	PATERSON
	L	10	TT	Soccer Field	CRAIG
	M	11	TT	Soccer Field	CRAIG
	N	1	TT	Soccer Field	TREECE
	O	2	TT	Soccer Field	TREECE
	P	3	TT	Soccer Field	TREECE
	Q	4	TT	Soccer Field	PATERSON

P.E. 17. Gymnastic Dancing.

½	C	10	MW	New Gym.	HANKNER
	E	1	MW	New Gym.	BURT
	G	3	MW	New Gym.	BURT
	H	4	MW	New Gym.	MCCRISTAL
	L	10	TT	New Gym.	HANKNER
	N	1	TT	New Gym.	BURT
	P	3	TT	New Gym.	BURT
	Q	4	TT	New Gym.	MCCRISTAL

P.E. 18. Intermediate Swimming.—(This course is open only to (a) freshmen who have not taken P.E. 13 and (b) freshmen who cannot swim 100 yards).

½	C	10	MW	Old Pool	TREECE
	D	11	MW	Old Pool	TREECE
	O	2	TT	Old Pool	YOUNG

Courses for Sophomores

P.E. 21. Individual Gymnastics.

1½	B	9	MTWTF	New Gym.	HANKNER
	C	10	MTWTF	New Gym.	MCCRISTAL
	D	11	MTWTF	New Gym.	STAFFORD
	E	1	MTWTF	New Gym.	HANKNER
	F	2	MTWTF	New Gym.	HANKNER
	G	3	MTWTF	New Gym.	MCCRISTAL
	H	4	MTWTF	New Gym.	HANKNER
	L	10	MTWTF	Gym. Annex	DERR
	M	11	MTWTF	Gym. Annex	DERR
	O	2	MTWTF	Wrestling Rm.	BROWN
	P	3	MTWTF	Gym. Annex	DERR
	Q	4	MTWTF	Gym. Annex	DERR

P.E. 22. Individual Gymnastics.

1½	B	9	MTWTF	New Gym.	HANKNER
	C	10	MTWTF	New Gym.	MCCRISTAL
	D	11	MTWTF	New Gym.	STAFFORD
	E	1	MTWTF	New Gym.	HANKNER
	F	2	MTWTF	New Gym.	HANKNER
	G	3	MTWTF	New Gym.	MCCRISTAL
	H	4	MTWTF	New Gym.	HANKNER
	L	10	MTWTF	Gym. Annex	DERR
	M	11	MTWTF	Gym. Annex	DERR
	O	2	MTWTF	Wrestling Rm.	BROWN
	P	3	MTWTF	Gym. Annex	DERR
	Q	4	MTWTF	Gym. Annex	DERR

P.E. 23. Advanced Swimming.

½	C	10	MW	New Pool	PATERSON
	E	1	MW	New Pool	PATERSON
	F	2	MW	New Pool	PATERSON
	J	8	TT	New Pool	TREECE
	K	9	TT	New Pool	TREECE
	L	10	TT	New Pool	PATERSON
	M	11	TT	New Pool	PATERSON
	N	1	TT	New Pool	PATERSON

P.E. 24. Boxing.

½	B	9	MW	Gym. Annex	BAUERLE
	C	10	MW	Gym. Annex	LAW
	D	11	MW	Gym. Annex	BAUERLE
	F	2	MW	Gym. Annex	BAUERLE
	J	8	TT	Gym. Annex	LAW
	K	9	TT	Gym. Annex	LAW
	L	10	TT	Gym. Annex	BAUERLE
	M	11	TT	Gym. Annex	BAUERLE
	N	1	TT	Gym. Annex	BAUERLE
	O	2	TT	Gym. Annex	KENNEY

P.E. 25. Wrestling.

Credits	Section	Hours	Days	Room	Instructor
½	B	9	MW	Wrestling Rm.	LAW
	C	10	MW	Wrestling Rm.	McCLURE
	D	11	MW	Wrestling Rm.	McCLURE
	F	2	MW	Wrestling Rm.	KENNEY
	G	3	MW	Wrestling Rm.	KENNEY
	H	4	MW	Wrestling Rm.	LAW
	K	9	TT	Wrestling Rm.	BAUERLE
	L	10	TT	Wrestling Rm.	McCLURE
	M	11	TT	Wrestling Rm.	McCLURE
	O	2	TT	Wrestling Rm.	BAUERLE
	P	3	TT	Wrestling Rm.	KENNEY
	Q	4	TT	Wrestling Rm.	LAW

P.E. 26. Fencing.

½	F	2	MW	Gym. Annex	CRAIG
	G	3	MW	Gym. Annex	CRAIG
	H	4	MW	Gym. Annex	CRAIG
	O	2	TT	Gym. Annex	CRAIG
	P	3	TT	Gym. Annex	CRAIG
	Q	4	TT	Gym. Annex	CRAIG

P.E. 27. Apparatus Stunts.

½	H	4	MW	Old Gym.	BURT
	Q	4	TT	Old Gym.	BURT

P.E. 28. Games, Contests, and Relays.

½	D	11	MW	Old Gym.	YOUNG
	M	11	TT	Old Gym.	LAW

Courses for Juniors and Seniors

P.E. 33. Tennis.

½	D	11	MW	Varsity Courts	GELWICK
	E	1	MW	Varsity Courts	GELWICK
	F	2	MW	Varsity Courts	GELWICK
	M	11	TT	Varsity Courts	GELWICK
	N	1	TT	Varsity Courts	GELWICK

P.E. 34. Circus Stunts.

½	H	4	MW	Old Gym.	JACKSON
	Q	4	TT	Old Gym.	JACKSON

P.E. 35. Advanced Circus Stunts.

½	H	4	MW	Old Gym.	JACKSON
	Q	4	TT	Old Gym.	JACKSON

P.E. 36. Life Saving and Diving.

½	D	11	MW	New Pool	PATERSON
	O	2	TT	New Pool	PATERSON
	P	3	TT	New Pool	PATERSON

P.E. 37. Handball.

½	G	3	MW	New Gym.	TREECE
	L	10	TT	New Gym.	KENNEY
	O	2	TT	New Gym.	BURT

PHYSICAL EDUCATION FOR WOMEN

Freshmen may register only in courses 42, 45, 46, 47, 49, 51, 60, and 61.

Sophomores may elect any course providing their four semesters of required work will include courses in some type of dancing, gymnastics, and swimming.

Major: (Subject of specialization) in the College of Education. 20 hours in courses given in the department in addition to required freshman and sophomore work.

P.E. 40b. Gymnastics.—For freshman majors only. All freshman major students must register in 40b. (1). 3 MTWTF; Woman's Gym. Miss KITZINGER, Miss JOHNSON.

P.E. 41b. Gymnastics.—For sophomore majors only. (1). 2 MTWTF; Woman's Gym. Miss KITZINGER, Miss HUELSTER.

P.E. 42. Sports and Gymnastics.

1	B	9	MWF	Woman's Gym.	LAWSON
	D	11	MWF	Woman's Gym.	MEARES
	S	9	TT	Woman's Gym.	MEARES
		1	W	Woman's Gym.	MEARES
	T	10	TT	Woman's Gym.	ROBERTSON
		1	M	Woman's Gym.	ROBERTSON
	V	11	TT	Woman's Gym.	LAWSON
		4	M	Woman's Gym.	LAWSON

P.E. 43. Seasonal Sports.

Credits	Section	Hours	Days	Room	Instructor
1					
Skating and Tennis	C	10	MWF	Woman's Gym.	MEARES
Volley Ball and Tennis	S	3	TT	Woman's Gym.	ROBERTSON
		11	F	Woman's Gym.	ROBERTSON

P.E. 44. Apparatus and Tumbling.

1		2	TT	Woman's Gym.	ROBERTSON
		4	W	Woman's Gym.	ROBERTSON

P.E. 45. Elementary Swimming.

1	C	10	MWF	Woman's Bldg.	STAHMER and HOUGH
	D	11	MWF	Woman's Bldg.	
	F	2	MWF	Woman's Bldg.	
	S	2	TT	Woman's Bldg.	
		1	F	Woman's Bldg.	

P.E. 46. Intermediate Swimming.

1	G	3	MWF	Woman's Bldg.	STAHMER and HOUGH
	H	4	MWF	Woman's Bldg.	
	S	10	TT	Woman's Bldg.	
		8	M	Woman's Bldg.	

P.E. 47. Elementary Clogging.

1	C	10	MWF	Woman's Bldg.	HUELSTER
	G	3	MWF	Woman's Bldg.	HUELSTER
	F	2	MWF	Woman's Bldg.	HUELSTER

P.E. 48. Intermediate Clogging and Tap Dancing.

1		11	MWF	Woman's Bldg.	KITZINGER

P.E. 49. Elementary Folk Dancing.

1	S	9	TT	Woman's Gym.	JOHNSON
		4	W	Woman's Gym.	JOHNSON
	G	3	MWF	Woman's Gym.	JOHNSON

P.E. 50. Intermediate Folk Dancing.

1		8	MWF	Woman's Gym.	ROBERTSON

P.E. 51. Elementary Rhythms.

1	F	2	MWF	Woman's Gym.	JOHNSON
	S	10	TT	Woman's Gym.	JOHNSON
		4	F	Woman's Gym.	JOHNSON

P.E. 52. Intermediate Rhythms.

1		11	MWF	Woman's Gym.	JOHNSON

P.E. 54. Advanced Swimming and Diving.

1	S	11	TT	Woman's Bldg.	STAHMER and HOUGH
		1	W	Woman's Bldg.	
	T	3	TT	Woman's Bldg.	
		8	F	Woman's Bldg.	

P.E. 55. Life Saving.

1		4	TT	Woman's Bldg.	STAHMER and HOUGH
		8	W	Woman's Bldg.	

P.E. 56. Individual Gymnastics.

1	B	9	MWF	Woman's Gym.	SCHNAUBER
	C	10	MWF	Woman's Gym.	SCHNAUBER
	D	11	MWF	Woman's Gym.	SCHNAUBER
	F	2	MWF	Woman's Gym.	MEARES
	G	3	MWF	Woman's Gym.	MEARES
	S	11	TT	Woman's Gym.	SCHNAUBER
		1	W	Woman's Gym.	SCHNAUBER
	T	10	TT	Woman's Gym.	SCHNAUBER
		1	M	Woman's Gym.	SCHNAUBER

P.E. 60. Handball and Tenikoit.

1	S	11	TTF	Woman's Gym.	HUELSTER
	T	3	TT	Woman's Gym.	KITZINGER
		1	M	Woman's Gym.	KITZINGER

P.E. 61. Fundamental Gymnastics.

1		10	MWF	Woman's Gym.	KITZINGER

P.E. 62. Rhythms.—(For junior majors only.)

1		11	TT	Woman's Gym.	JOHNSON

Theory Courses for Students Specializing in Physical Education

P.E. 10b. Organization and Administration.—*Prerequisite:* Senior standing in the College of Education. (1). 11 TT; W.B. Professor FREER.

P.E. 11b. First Aid in Emergencies.—*Prerequisite:* Junior standing in the College of Education; P.E. 15a, 16. (1). 11 MW; W.B. Miss STAHMER.

P.E. 15b. Methods.—*Prerequisite:* P.E. 15a; junior standing in the College of Education or consent of the instructor. (3). 9 MWF; W.B. Miss ROBERTSON.

P.E. 17b. Educational Practice.—*Prerequisite:* P.E. 15a, 16, 17a; senior standing in the College of Education. (3). 1 MWF; W.B. Assistant Professor LAWSON.

P.E. 18. Theory of Individual and Remedial Gymnastics.—*Prerequisite:* P.E. 15a, 16. (4). 8 MWF; W.B. Miss SCHNAUBER.

P.E. 19. Methods of Teaching Health.—*Prerequisite:* P.E. 15, 16, 17, 18. (2). 9 TT; W.B. Assistant Professor LAWSON.

PHYSICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $4.50.

Major: 20 hours from courses offered in the department. At least 5 hours must be offered from the group of courses for advanced undergraduates and graduates.

Minors: 20 hours in one or two of the following subjects, with not less than 8 hours in each department if two subjects are chosen: mathematics (courses in calculus and beyond), astronomy, chemistry (except Chem. 1, 2, 3, 4, 5, or 6) or education.

Physics 7a-7b and 8a-8b are recommended to students not specializing in physics, mathematics, chemistry, or engineering. For undergraduate students taking advanced work or a major in physics, the following courses are suggested:

Freshman year: Trigonometry and analytic geometry.

Sophomore year: Physics 1a-1b, 3a-3b, and calculus.

Junior year: Physics 14, 16, 36, 44.

Senior year: Physics 20, 22, 23, 30, 45, 46, 78.

Introductory Courses for Undergraduates

Physics 1a. General Physics.—*Prerequisite:* Credit in Math. 2 and 4; registration in Math. 6 and Physics 3a.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	9	MW	119 P.L.	KRUGER and others
	Quiz	9	TT	208, 408 P.L.	

Physics 3a. General Physics Laboratory.—*Prerequisite:* Physics 1a or registration therein.

2	A	1–4	W	408 P.L.	SPARKS
	B	2–5	Th	408 P.L.	KERRY

Physics 1b. General Physics.—*Prerequisite:* Math. 2, 4, and 6; credit in Physics 1a or 3a; registration in Physics 3b.

3	Lect. A	11	MW	100 P.L.	SCHULZ and others
	Lect. B	2	MW	100 P.L.	
	Quiz A	8	TT	305, 306 P.L.	
	Quiz B	9	TT	306 P.L.	
	Quiz C	10	TT	305, 306, 406 P.L.	
	Quiz D	11	TT	302, 305, 306, 403, 406 P.L.	
	Quiz E	2	TT	305, 306, 403, 406 P.L.	
	Quiz F	8	WF	204, 403 P.L.	
	Quiz G	10	WF	306, 406 P.L.	
	Quiz H	11	WF	306, 406 P.L.	
	Quiz I	2	WF	305, 406 P.L.	
	Quiz K	3	WF	305 P.L.	

Physics 3b. General Physics Laboratory.—*Prerequisite:* Physics 1b or registration therein.

2	A	9–12	M	305, 406 P.L.	KRUGER and others
	B	1–4	M	305, 406 P.L.	
	C	9–12	Tu	305, 403, 406 P.L.	
	D	1–4	Tu	305, 403, 406 P.L.	
	E	9–12	W	305, 403, 406 P.L.	
	F	1–4	W	305, 406 P.L.	
	G	9–12	Th	305, 403, 406 P.L.	
	H	1–4	Th	305, 403, 406 P.L.	
	I	9–12	F	305 P.L.	
	K	1–4	F	305, 406 P.L.	
	L	9–12	S	305, 403 P.L.	

Physics 7b. General Physics.—*Prerequisite:* Math. 4; credit in Physics 7a or 8a and registration in Physics 8b.

3	Lect. A	9	TT	100 P.L.	WATSON and others
	Lect. B	11	TT	100 P.L.	
	Quiz A	8	WF	208, 305 P.L.	
	Quiz B	9	WF	208, 302 P.L.	
	Quiz C	10	WF	208, 302, 305 P.L.	
	Quiz D	11	WF	208, 302, 305 P.L.	
	Quiz E	2	TT	208 P.L.	

Physics 8b. General Physics Laboratory.—*Prerequisite:* Physics 7b or registration therein.

Credits	Section	Hours	Days	Room	Instructor
2	A	9–12	M	208, 302 P.L.	PATON and others
	B	1–4	M	208, 302 P.L.	
	C	8–11	Tu	208 P.L.	
	D[1]	2–5	Tu	204, 302 P.L.	
	F	1–4	W	208, 302 P.L.	
	H	2–5	Th	302 P.L.	
	J	1–4	F	208 P.L.	
	K	2–5	F	208 P.L.	
	L	9–12	S	208, 302 P.L.	

[1]Only students in the pre-medic curriculum will be admitted to section D.

Intermediate Courses

Physics 15. Electricity and Magnetism.—*Prerequisite:* Physics 1a-1b, 3a-3b; or Physics 7a-7b, 8a-8b (3). 9 TT; 302 P.L. 1-4 F; 112 P.L. Associate Professor SCHULZ.

Physics 25. Architectural Acoustics.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b. (2) 9 MW; 100 P.L. Professor WATSON.

Courses for Advanced Undergraduates and Graduates

Physics 14b. Theoretical Mechanics.—*Prerequisite:* Physics 14a. (3). 8 MWF; 306 P.L. Mr. MOTT-SMITH.

Physics 20b. Light.—*Prerequisite:* Physics 20a. (2). 11 TT; 204 P.L. Dr. ALMY.

Physics 22b. Light Laboratory.—*Prerequisite:* Registration in Physics 20b. (2). 2-5 MW; 313 P.L. Dr. ALMY.

Physics 30. Introduction to Theoretical Electricity.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 7 and 9, or 8a-8b. (3). 9 MWF; 204 P.L. Associate Professor WILLIAMS.

Physics 44b. Electrical and Magnetic Measurements.—*Prerequisite:* Physics 44a.

3	K	1–4	TT	112 P.L.	KNIPP
	L	8–11	TT	112 P.L.	WILLIAMS
	Y	1–4	W	112 P.L.	CHALLACOMBE
		8–11	S	112 P.L.	M. C. WATSON
	N	1–4	MF	112 P.L.	COOK
	M	8–11	MF	112 P.L.	KINZER

Physics 45. Kinetic Theory of Heat and Radiation.—*Prerequisite:* Physics 16. (3). 10 TTS; 204 P.L. Associate Professor PATON.

Physics 78. X-Rays.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 7 and 9, or 8a-8b. (3). 9 TTS; 204 P.L. Assistant Professor KRUGER.

Physics 98. Thesis.—(2 to 5).* Professors in the department.

Courses for Graduates

Physics 104b. Selected Problems in Electrical Measurements.—(1 unit). Arrange. 112 P.L. Professor KNIPP.

Physics 129b. Mechanical Vibrations.—(½ unit). 8 TT; 302 P.L. Professor KUNZ.

Physics 131. Investigation of Special Problems.—(½ to 2 units).* Arrange. Professors in the department.

Physics 132e. Statistical Mechanics.—(1 unit). 9 MWF; 306 P.L. Mr. MOTT-SMITH.

Physics 146b. Electrodynamics.—(1 unit). 8 MWFS; 302 P.L. Professor KUNZ.

Physics 170. Light.—(1 to 2 units).* 11 TT, 204 P.L.; 2-5 MW; 313 P.L. Dr. ALMY.

Physics 185. Band Spectra and Molecular Structure.—(1 unit). 10 MWF; 204 P.L. Professor LOOMIS.

Physics 186b. Quantum Mechanics.—(1 unit). 9 MWF; 202 P.L. Assistant Professor BARTLETT.

Physics 190. Research.—(1 to 3 units).* Arrange. Professors in the department.

Physics 199. Physics Colloquium.—(No credit). 7:15 p.m., Th; 119 P.L. Professor LOOMIS.

PHYSIOLOGY

Note: Certain courses in this department require a laboratory fee of $3.50.

For students entering prior to September, 1929

Major: 20 hours from courses offered in the department, exclusive of Physiol. 1.

Minors: 20 hours in not more than three of the following: Botany, bacteriology, chemistry, entomology, and zoology.

Seniors registered in Physiol. 1, 2, 4, 6 will receive one hour less credit.

For students entering after September 1, 1929

Major: 20 hours from courses offered in the department exclusive of Physiol. 1.

Minors: 20 hours in not more than two of the following: Botany, bacteriology, chemistry, entomology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Courses for Undergraduates

Physiol. 1. Elements of Physiology.—A survey of the field of mammalian physiology.

Credits	Section	Hours	Days	Room	Instructor
2[1]	Lect.	11	TT	228 N.H.	BURGE
	A Quiz	8	M	425 N.H.	ORTH
[1]Seniors will receive only 1 hour credit.	B Quiz	11	W	425 N.H.	DAUBENSPECK
	C Quiz	10	F	425 N.H.	
	D Quiz	8	S	425 N.H.	
	E Quiz	10	S	425 N.H.	
The following are for athletic coaching and physical education students:					
	Lect.	1	TT	229 N.H.	WICKWIRE
	F Quiz	8	Tu	425 N.H.	NEILD
	G Quiz	8	Th	425 N.H.	
	H Quiz	9	S	425 N.H.	

Physiol. 2. Physiology of Physical Exercise.—*Prerequisite:* Physiol. 1 and sophomore standing.

4[1]	Lect.	10	MW	112 Chem. A.	ELHARDT
	A Lab.	1–4	Tu	413 N.H.	DAUBENSPECK
[1]Seniors will receive only 3 hours credit.	B Lab.	1–4	Th	413 N.H.	
	C Lab.	8–11	Th	413 N.H.	
	D Quiz	11	Th	425 N.H.	
	E Quiz	9	F	425 N.H.	
	F Quiz	10	F	241 N.H.	

Physiol. 4. General Physiology.—Circulation, respiration, glands of internal secretion, digestion, metabolism, excretion, reproduction, special senses, nervous system, muscle, vitamins, and osseous system. (Not open to students who have had Physiol. 1).

5[1]	Lect. and Demonstration	11	TT	228 N.H.	BURGE
	A Quiz	9	M	247 N.H.	WILLIAMS
	B Quiz	10	M	423 N.H.	KNEER
[1]Seniors will receive only 4 hours credit.	C Quiz	8	W	425 N.H.	NEILD
	D Quiz	9	W	423 N.H.	
	A Lab.	8–10	MF	413 N.H.	
	B Lab.	10–12	WF	413 N.H.	
	C Lab.	8–10	WF	413 N.H.	
	D Lab.	1–3	MW	413 N.H.	

Physiol. 6. Advanced Physiology.—Physiology of the Nervous System. Glands of Internal Secretion, Respiration, and Muscle. (Recommended for the general student.) *Prerequisite:* Physiol. 1.

3[1]	Lect.	9	Tu	423 N.H.	WICKWIRE
[1]Seniors will receive only 2 hours credit.	Quiz	9	Th	423 N.H.	
	A Lab.	10–12	Tu	413 N.H.	
	B Lab.	10–12	Th	413 N.H.	

Courses for Advanced Undergraduates and Graduates

Physiol. 8. Thesis.—*Prerequisite:* Senior standing and 15 hours of physiology. (3 to 5).* Time to be arranged before registration.

Physiol. 9. Physiology of the Special Senses.—*Prerequisite:* Senior standing; Physiol. 1 and 6.

3	Lect.	9	W	402 N.H.	WICKWIRE
	Quiz	9	F	402 N.H.	BURGE
	Lab.	10–12	F	413 N.H.	

Courses for Graduates

Physiol. 101. Journal Club.—Review of literature. (¼ unit). Arrange. Members of staff.

Physiol. 102. Research.—(1 to 2 units).* Arrange. Associate Professor BURGE.

Physiol. 103. Experimental Physiology.—Special phases of the Physiology of Respiration, Circulation, Digestion, Metabolism, Excretion, Secretion, Glands of Internal Secretion, Nervous System. (½ to 1 unit).* Arrange. Associate Professor BURGE.

POLITICAL SCIENCE

For students entering prior to September, 1929

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 27, 44, or 62).

Minors: 20 hours, selected from two of the following subjects: History, economics, law, sociology, philosophy, and education.

Courses 1 and 3 give a general survey of national, state, and local government in the United States. Undergraduates beginning the study of political science are advised to take first, course 1, 3, or 16, and those planning for advanced work should take course 1 and either 3 or 16 in their sophomore year. Course 3 is offered the second semester.

For students entering after September 1, 1929

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 27, 44, or 62).

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Minors: 20 hours selected from two of the following subjects: History, economics, law, sociology philosophy, and education. At least eight hours must be offered in each subject, if two are chosen

Pol. Sci. 3. State and Local Government.—(A continuation of Pol. Sci. 1; may be taken independently.) *Prerequisite:* 30 hours of university work.

Credits	Section	Hours	Days	Room	Instructor
3[1]	A1 Disc.	8	MWF	300 L.H.	LENOIR
	A2 Disc.	8	MWF	302 L.H.	KNEIER
	A3 Disc.	8	MWF	204 L.H.	HYNEMAN
	B1 Disc.	9	MWF	204 L.H.	BERRY
	B2 Disc.	9	MWF	305 L.H.	CARLETON
	B3 Disc.	9	MWF	308 L.H.	MATHEWS
	C1 Disc.	10	MWF	300 L.H.	LENOIR
	C2 Disc.	10	MWF	302 L.H.	CARLETON
	C3 Disc.	10	MWF	305 L.H.	STIMSON
	D1 Disc.	11	MWF	238 L.H.	LENOIR
	D2 Disc.	11	MWF	340 L.H.	STIMSON
	D3 Disc.	11	MWF	203-A L.H.	HYNEMAN
	E1 Disc.	1	MWF	204 L.H.	SIKES
	E2 Disc.	1	MWF	238 L.H.	CARLETON
	F Disc.	2	MWF	238 L.H.	CARLETON
	G Disc.	3	MWF	204 L.H.	SIKES
	K Disc.	9	TTS	204 L.H.	POWELL

[1]The total credit for students who take both 3 and 16 will not be more than four hours.

Pol. Sci. 16. Government of Illinois.—*Prerequisite:* 30 hours of university work. (2). Intended for students who do not take Pol. Sci. 3. 3 TT; 204 L.H. Professor MATHEWS.

Courses for Advanced Undergraduates and Graduates

Note: Junior standing is required for admission to the following courses.

Pol. Sci. 5. Constitutional Law of the United States.—*Prerequisite:* Pol. Sci. 1; junior standing. (3). 11 MWF; 204 L.H. Professor MATHEWS.

Pol. Sci. 6b. International Law (continuation of 6a).—*Prerequisite:* Open to seniors, graduate students, and law students of junior standing. (3). 2 MWF; 202 L.H. Professor GARNER.

Pol. Sci. 8. International Organization.—*Prerequisite:* Junior standing. (3). 11 TT; 300 L.H. Dr. STIMSON.

Pol. Sci. 9. Principles of Jurisprudence.—*Prerequisite:* Pol. Sci. 1, or its equivalent; junior standing. (3). 9 MWF; 300 L.H. Professor FAIRLIE.

Pol. Sci. 13. State Administration in the United States.—*Prerequisite:* Pol. Sci. 3; junior standing. (3). 10 MWF; 204 L.H. Assistant Professor HYNEMAN.

Pol. Sci. 22. Continental European Governments.—*Prerequisite:* Graduate or senior standing, or junior standing with six hours of political science; Hist. 20a-20b recommended. (3). 3 MWF; 304 L.H. Professor GARNER.

Pol. Sci. 32. Principles of Political Science.—*Prerequisite:* Senior standing, or junior standing with six hours of political science. (2). 2 TT; 300 L.H. Professor FAIRLIE.

Pol. Sci. 34. Municipal Problems.—*Prerequisite:* Open to graduate students and to undergraduate students who have had Pol. Sci. 4 or Econ. 1, or who have senior standing.

3	Lect.	9	TT	L.H. Theatre	KNEIER
	A Quiz	2	Th	334 L.H.	KNEIER
	B Quiz	3	Th	304 L.H.	KNEIER
	C Quiz	9	F	302 L.H.	KNEIER
	D Quiz	11	F	300 L.H.	KNEIER
	E Quiz	1	F	300 L.H.	KNEIER

Courses for Graduates

Pol. Sci. 102. The Nature of the State.—(1 unit). Twice a week. Time to be arranged. Professor FAIRLIE.

Pol. Sci. 103. Seminar in Political Science and Public Law.—Once a week. Time to be arranged. Members of the department.

Pol. Sci. 106b. Special Topics in International Law.—(1 unit). Twice a week. Time to be arranged. Professor GARNER.

Pol. Sci. 112. Public Administration.—(1 unit). Twice a week. Time to be arranged. Professor FAIRLIE.

PSYCHOLOGY

(See also Education.)

Note: Certain courses in this department require a laboratory fee of $1.

For students entering prior to September, 1929

Major: 20 hours chosen from courses announced by the department, excepting Psych. 1.

Minors: 20 hours chosen from not more than three of the following subjects: education, physiology, philosophy, sociology, and zoology.

For students entering after September 1, 1929

Major: 20 hours chosen from courses announced by the department, excepting Psych. 1. At least 8 hours must be offered in the advanced group.

Minors: 20 hours chosen from not more than two of the following subjects: education, mathematics, philosophy, sociology, physiology, and zoology. At least 8 hours must be offered in each, if two are chosen.

Courses for Undergraduates

Psych. 1. Introduction to Psychology.—*Prerequisite:* One year of university work.

Credits	Section	Hours	Days	Room	Instructor
4	Lect. A	9	MW	218 U.H.	YOUNG
	Quiz A1	8	TT	404 U.H.	
	Quiz A2	9	TuS	404 U.H.	
	Quiz A3	9	TT	403 U.H.	
	Quiz A4	10	TuS	404 U.H.	
	Quiz A5	11	TT	404 U.H.	
	Quiz A6	1	TT	403 U.H.	
	Quiz A7	2	TT	404 U.H.	
	Quiz A8	3	TT	403 U.H.	
	Quiz A9	3	MW	404 U.H.	
	Quiz A10	4	MW	404 U.H.	
	Lect. B	11	MW	218 U.H.	CULLER
	Quiz B1	8	TT	403 U.H.	
	Quiz B2	8	TT	412 U.H.	
	Quiz B3	9	TT	412 U.H.	
	Quiz B4	9	TuS	211 U.H.	
	Quiz B5	10	TuS	203 U.H.	
	Quiz B6	11	TuS	403 U.H.	
	Quiz B7	1	TT	404 U.H.	
	Quiz B8	2	TT	403 U.H.	
	Quiz B9	3	TT	213 U.H.	
	Quiz B10	4	TT	403 U.H.	

Psych. 2. General Psychology.—*Prerequisite:* Psychology 1 or senior standing.

4	Lect.	9	TT	218 U.H.	HIGGINSON
	Quiz A	8	MW	403 U.H.	
	Quiz B	9	MW	311 U.H.	
	Quiz C	9	MW	403 U.H.	
	Quiz D	10	MW	403 U.H.	
	Quiz E	10	MW	404 U.H.	
	Quiz F	11	MW	403 U.H.	
	Quiz G	1	MW	404 U.H.	
	Quiz H	2	MW	404 U.H.	
	Quiz J	3	MW	403 U.H.	
	Quiz K	4	MW	403 U.H.	

Psych. 3. Laboratory Practice (Elementary).—*Prerequisite:* Psychology 1.

2	Lab. A	10-12	MW	417, 418 U.H.	HIGGINSON, RUCH, and assistants
	Lab. B	2-4	MW	417, 418 U.H.	
	Lab. C	8-10	TT	417, 418 U.H.	
	Lab. D	10-12	TT	417, 418 U.H.	
	Lab. E	2-4	TT	417, 418 U.H.	

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in psychology require as a minimum prerequisite two of the four courses for undergraduates only, namely, Psych. 1, 2, 3, and 4. One of these courses must be Psych. 1, the other may be Psych. 2 or 3 or 4.

Psych. 5. Comparative Psychology.—*Prerequisite:* Psych. 2, 3, or 4. (3). 2 MWF; 403 U.H. Dr. MCALLISTER.

Psych. 7. Imagination and Thought.—*Prerequisite:* Psych. 2, 3, or 4. (2). 10 TT; 104 L.H. Dr. SULLIVAN.

Psych. 8. Feeling and Emotion.—*Prerequisite:* Psych. 2, 3, or 4. (2). 11 TT; 207 U.H. Associate Professor YOUNG.

Psych. 10. Mental and Physical Work.—*Prerequisite:* Psych. 2, 3, or 4. (2). 2 TT; 406 U.H. Dr. RUCH.

Psych. 13. Minor Problems (Advanced Laboratory).—*Prerequisite:* Psych. 1, 2, and 3, and either 4 or 5, and consent of the instructor. (3). 4 M, and other times to be arranged; 419 U.H. Professor WOODROW, Assistant Professor HIGGINSON, and Dr. MCALLISTER.

Psych. 14. Social Psychology.—*Prerequisite:* Psych. 2, 3, or 4.

3	Lect.	11	MW	211 U.H.	SULLIVAN
	Quiz A	10	F	233 L.H.	
	Quiz B	11	F	123 L.H.	
	Quiz C	2	F	113 L.H.	

Psych. 18. Perception.—*Prerequisite:* Psych. 2, 3, or 4. (3). 3 TT; 411 U.H. Dr. MÖLLER.

Psych. 20. Systematic Psychology.—*Prerequisite:* Psych. 2, 3, or 4 and senior standing. (2). 9 TT; 419 U.H. Professor WOODROW.

Psych. 21. Character and Personality.—*Prerequisite:* Psych. 2, 3, or 4. (3). 9 MWF; 229 N.H. Dr. HERRINGTON.

Psych. 27b. Thesis and Honors Course.—(Primarily designed for major students and for candidates for honors.) *Prerequisite:* Psych. 1, 2, and 3; consent of the instructor. (2). Time to be arranged; 402 U.H. Professor WOODROW.

Courses for Graduates

Psych. 102. Translation of Psychological Treatises.—(½ unit). Time to be arranged. 419 U.H. Professor WOODROW.

Psych. 103. Research.—(½ to 2 units).* Time to be arranged. Professor WOODROW, Associate Professors YOUNG and CULLER, Assistant Professor HIGGINSON.

Psych. 105. Seminar.—(1 unit). Once a week. Time to be arranged. 419 U.H. Professor WOODROW.

Psych. 106. Neural Theory of the Psychological Functions.—(1 unit). 4-6 Tu; 419 U.H. Associate Professor CULLER.

PUBLIC SPEAKING

(See English, C.)

PUBLIC UTILITIES AND TRANSPORTATION

(See also Railway Engineering.)

A. PUBLIC UTILITIES

Courses for Undergraduates

Pub. Util. 82. Regulation of Public Utilities.—*Prerequisite:* Econ. 1 or 2, and Public Utilities 81. (3). 11 MWF; 224 Com. Associate Professor DILLAVOU.

Pub. Util. 83. Public Utility Rates.—*Prerequisite:* Public Utilities 81. (3). 9 MWF; 125 Com. Assistant Professor GRAY.

Course for Graduates

Pub. Util. 180. Management of Public Utilities.—(1 unit). 4-6 W; 212 Com. Assistant Professor GRAY.

B. TRANSPORTATION

Course for Undergraduates

Trans. 1. Economics of Transportation.—*Prerequisite:* Econ. 1, junior standing.

Credits	Section	Hours	Days	Room	Instructor
3	B1 Quiz	9	MWF	328 Com.	FITZGERALD
	B2 Quiz	9	MWF	108 Com.	COVER
	C Quiz	10	MWF	108 Com.	COVER
	D Quiz	11	MWF	325 Com.	FITZGERALD

Courses for Advanced Undergraduates and Graduates

Trans. 7. Railroad Finance.—*Prerequisite:* Trans. 1. (3). 9 TTS; 100 Com. Assistant Professor LOCKLIN.

Trans. 26. Current Transportation Problems.—*Prerequisite:* Trans. 1. (3). 10 TTS; 101 Com. Assistant Professor LOCKLIN.

Course for Graduates

Trans. 100. Economics of Transportation.—(1 unit). Time to be arranged. Assistant Professor LOCKLIN.

RAILWAY ADMINISTRATION

(See Public Utilities and Transportation.)

RAILWAY ENGINEERING

(See also Public Utilities and Transportation.)

Note: Certain courses in this department require a laboratory fee of $3.

R.E. 4. Locomotives.—*Prerequisite:* R.E. 3; T.A.M. 2 and 3; registration in M.E. 64. (3). Sec. W, 11 MWF; 104 T.B. Mr. SCHRADER.

R.E. 7. Advanced Design.—*Prerequisite:* R.E. 2. (3). Sec. W, 1-4 MWF; 104 T.B. Mr. SCHRADER.

R.E. 8. Railway Laboratory.—*Prerequisite:* R.E. 5. (2). Sec. W, 8-11 TT; 104 T.B. Mr. SCHRADER.

R.E. 33. Economic Theory of Railway Location.—*Prerequisite:* C.E. 3; T.A.M. 2. (4). Sec. U, 11 MWF, 1-4 Tu; 117 T.B. Professor KING.

R.E. 33a. Economic Theory of Railway Location.—*Prerequisite:* C.E. 3; T.A.M. 2. (3). Sec. U, 11 MWF; 117 T.B. Professor KING. (An abridgment of course 33, for students in departments other than railway engineering.)

R.E. 36. Railway Maintenance.—*Prerequisite:* Registration in C.E. 3. (3). Sec. U, 10 MW, 9-12 S; 117 T.B. Professor KING.

R.E. 37. Railway Design Problems.—*Prerequisite:* Registration in C.E. 65. (2). Sec. U, 9 TT; 117 T.B. Professor KING.

R.E. 51. Seminar.—Open to railway students only. (1). Sec. U, 10 F; 117 T.B. Professor KING.

R.E. 60. Electric Railway Principles.—*Prerequisite:* R.E. 59; T.A.M. 3; E.E. 25, 75. (2). Sec. V, 11 TT; 105 T.B. Associate Professor TUTHILL.

R.E. 61. Electric Traction.—*Prerequisite:* T.A.M. 2 or 3; E.E. 11, 61 or 25, 75. (3). Sec. V, 10 MWF; 105 T.B. Associate Professor TUTHILL.

R.E. 67. Seminar.—Open to seniors in railway courses only. (1). Sec. V, 9 F; 117 T.B. Professor SCHMIDT.

R.E. 70. Electric Railway Design.—*Prerequisite:* R.E. 64; registration in R.E. 74. (2). Sec. V, 1-4 MW; 117 T.B. Associate Professor TUTHILL.

R.E. 74. Electric Railway Economics.—*Prerequisite:* R.E. 64. (3). Sec. V, 11 MWF; 105 T.B. Associate Professor TUTHILL.

R.E. 98. Thesis.—Arrange.

Courses for Graduates

R.E. 102. Locomotive Design.—(1 unit). Arrange. Professor YOUNG.

R.E. 106. Locomotive Operation.—(1 unit). Arrange. Professor SCHMIDT.

R.E. 110. Railway Location.—(1 unit). Arrange. Professor KING.

RHETORIC

(See English, B.)

ROMANCE LANGUAGES AND LITERATURES

For students entering prior to September, 1929

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, 6b, and including at least two semester courses or the equivalent from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: Comparative literature, education, English (excluding Rhet. 1, 2, 12), German, Greek, history, Italian, Latin, Spanish, provided that at least 8 hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, 2a, and including at least two semester courses or the equivalent from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: Comparative literature, education, English (excluding Rhet. 1, 2, 12), French, German, Greek, history, Italian, Latin, provided that at least 8 hours be taken in any subject chosen.

For students entering after September 1, 1929

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, and 6b, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: Education, English (excluding Rhet. 1, 2, 12), German, Greek, history, Italian, Latin, philosophy, Spanish, provided that 8 hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, and 2a, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: Education, English (excluding Rhet. 1, 2, 12), French, German, Greek, history, Italian, Latin, philosophy, provided that at least 8 hours be taken in any subject chosen.

A. FRENCH

Courses for Undergraduates

French 1a. Elementary Course.—For students who have no credit in French. *Note:* French 1a and Spanish 1a may not be taken at the same time.

Credits	Section	Hours	Days	Room	Instructor
4[1]	B	9	TWTF	311 L.H.	LEGRAND
	C	10	TWTF	123 New Agr.	GOGGIN
[1]Seniors will receive only 3 hours credit.	D	11	TWTF	123 New Agr.	GOGGIN
	F1	2	MTWT	123 New Agr.	FISHER
	F2	2	MTWT	139 L.H.	AMIEL
	G	3	MTWT	102 Entom.	BUSSARD
	H	4	MTWT	102 Entom.	SMITH

French 1b. Elementary Course (continued).—*Prerequisite:* French 1a or S1a, or one year of high-school French.

4[1]	A1	8	TWTF	208 Adm.(E)	FISHER
	A2	8	TWTF	311 U.H.	ALLEN
	A3	8	TWTF	308 Adm.(E)	CARTER
	A4	8	TWTF	304 Adm.(E)	ALEXANDER
	B1	9	TWTF	304 Adm.(E)	ALEXANDER
[1]Seniors will receive only 3 hours credit.	B2	9	TWTF	123 New Agr.	RALPH
	B3	9	TWTF	212 U.H.	CARTER
	B4	9	TWTF	224 L.H.	DISMUKES
	C1	10	TWTF	304 Adm.(E)	BUSSARD

(Continued on page 78)

French 1b (Concluded)

Credits	Section	Hours	Days	Room	Instructor
4[1]	C2	10	TWTF	208 Adm.(E)	ROWE
	C3	10	TWTF	227 L.H.	AMIEL
[1]Seniors will receive only 3 hours credit.	D1	11	TWTF	214 U.H.	RALPH
	D2	11	TWTF	308 Adm.(E)	HERDMAN
	D3	11	TWTF	204 Adm.(E)	ROWE
	E1	1	MTWT	203 L.H.	HERDMAN
	E2	1	MTWT	102 Entom.	RALPH
	F	2	MTWT	304 Adm.(E)	ALEXANDER
	G1	3	MTWT	203 U.H.	SMITH
	G2	3	MTWT	304 Adm.(E)	ALEXANDER

French 2a. Modern French.—*Prerequisite:* French 1b, or two years of high-school French.

4	A1	8	TWTF	123 New Agr.	RALPH
	A2	8	TWTF	224 L.H.	GOGGIN
	C	10	TWTF	205 L.H.	LEGRAND
	F	2	MTWT	214 U.H.	SMITH
	G	3	MTWT	310 U.H.	ALLEN

French 2b. Modern French.—*Prerequisite:* French 2a, or three years of high-school French.

4	A1[1]	8	TWTF	136 L.H.	HILTON
	A2	8	TWTF	235 L.H.	HERDMAN
[1]Sections A1, B1, C1, D1, and E1 are primarily for students who expect to go beyond French 2b. More attention is paid to the speaking and hearing of French.	B1[1]	9	TWTF	116 New Agr.	BUSSARD
	B2	9	TWTF	240 L.H.	HERDMAN
	B3	9	TWTF	214 U.H.	FISHER
	C1[1]	10	TWTF	224 L.H.	ALLEN
	C2	10	TWTF	207 Adm.(E)	FISHER
	D1[1]	11	TWTF	406 U.H.	ALLEN
	D2	11	TWTF	211 L.H.	DISMUKES
	E1[1]	1	MTWT	212 U.H.	PIETRANGELI
	E2	1	MTWT	412 U.H.	SMITH
	F	2	MTWT	303 Adm.(E)	GOGGIN
	G	3	MTWT	139 L.H.	REW
	H	4	MTWT	139 L.H.	REW

French 3b. Introduction to French Literature.—*Prerequisite:* French 3a.

3	A	8	MWF	211 L.H.	WILL
	B1	9	MWF	105 L.H.	JACOB
	B2 (In French)	9	MWF	206 L.H.	ROCHE
	C	10	MWF	113 L.H.	DISMUKES
	D (In French)	11	MWF	128 L.H.	ROCHE
	E	1	MWF	128 L.H.	DISMUKES
	F	2	MWF	211 L.H.	JACOB

French 6b. Second Year Composition and Conversation.—*Prerequisite:* French 6a or three years of high-school French.

2	C	10	MW	334 L.H.	HILTON
	F	2	TT	133 L.H.	HILTON

French 7b. Intermediate Composition and Conversation.—*Prerequisite:* French 7a. *Note:* Required of those who desire the departmental recommendation to teach French.

2	A	8	TT	104 L.H.	LEGRAND
	B1	9	TT	104 L.H.	ROCHE
	B2	9	MW	318 U.H.	AMIEL
	C	10	TT	211 L.H.	ROCHE
	D	11	TT	113 L.H.	LEGRAND
	E	1	TT	105 L.H.	AMIEL
	F	2	TT	113 L.H.	LEGRAND

French 8b. Advanced Composition and Conversation.—*Prerequisite:* French 8a.

2	B	9	TT	206 L.H.	AMIEL
	F	2	TT	105 L.H.	ROCHE

French 28b. Senior Thesis.—For candidates for honors in French. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in French have the following prerequisites: French 3a-3b and junior standing; or senior standing and permission of the instructor.

French 10b. Survey of French Literature.

3	C	10	MWF	128 L.H.	WILL
	D	11	MWF	113 L.H.	JACOB

French 17b. French Drama of the Nineteenth Century.—(2). 1 TT; 109 L.H. Associate Professor HAMILTON.

French 24b. French Drama of the Seventeenth and Eighteenth Centuries.—(3). 9 MWF; 227 L.H. Assistant Professor WILL.

French 32b. French Novel of the Nineteenth Century.—(3). 8 MWF; 128 L.H. Assistant Professor JACOB.

French 34b. La Comédie Humaine de Balzac.—(In French). (2). 11 TT; 104 L.H. Professor MICHAUD.

Courses for Graduates

French 101. Old French Literature.—(1 unit). 10 TT; 216 L.H. Professor CARNAHAN.

French 102. Villon, Rabelais, Montaigne, La Pléiade.—(1 unit). 4 TT; 425-A Lib. Assistant Professor WILL.

French 128. Origin and Development of the Novel in France.—(1 unit). 3 TT; 425-A Lib. Professor CARNAHAN

French 129. Research Problems in French Romanticism.—(½ to 1 unit).* Time to be arranged. 425-A Lib. Professor CARNAHAN.

French 133. La Poésie de Victor Hugo.—(1 unit). 3 MW; 222 L.H. Professor MICHAUD.

French 145. Doctrines Littéraires et Courants d'Idées Contemporains.—(In French). (1 unit). 3-5 F; 120 L.H. Professor MICHAUD.

French 195. Seminar.—Research work in preparation for theses in French. (1 to 2 units).* Members of the department.

B. ITALIAN

Courses for Undergraduates

Italian 1b. Elementary Course.—*Prerequisite:* Italian 1a and sophomore standing.

Credits	Section	Hours	Days	Room	Instructor
4	B	9	TWTF	128 L.H.	WELCH
	C	10	TWTF	235 L.H.	PIETRANGELI
	E	1	MTWT	235 L.H.	WELCH

Italian 2b. Modern Italian Authors.—*Prerequisite:* Italian 2a. (3). 11 MWF; 219 L.H. Miss PIETRANGELI.

Course for Advanced Undergraduates and Graduates

Italian 3b. Dante.—*Prerequisite:* Italian 3a. (2). 2 TT; 219 L.H. Miss WELCH.

Courses for Graduates

Italian 140. Italian Literature in the Middle Ages. Petrarch, Boccaccio.—(1 unit). 1 TT; 216 L.H. Professor VAN HORNE.

Italian 195. Seminar.—Research work in preparation for theses in Italian. (1 to 2 units).* Professor VAN HORNE.

C. SPANISH

Courses for Undergraduates

Spanish 1a. Elementary Course.—For students who have no credit in Spanish. *Note:* Spanish 1a and French 1a may not be taken at the same time.

4[1]	A1	8	TWTF	204 U.H.	DALLERA
	A2	8	TWTF	139 L.H.	LODGE
	B	9	TWTF	321 L.H.	LODGE
[1]Seniors will receive only 3 hours credit.	C1	10	TWTF	136 L.H.	YOUNG
	C2	10	TWTF	312 Adm.(E)	AVILÉS
	D	11	TWTF	116 New Agr.	ADAM
	F	2	MTWT	128 L.H.	KENDALL
	G	3	MTWT	208 U.H.	DALLERA

Spanish 1b. Elementary Course (continued).—*Prerequisite:* Spanish 1a or S1a, or one year of high-school Spanish.

4[1]	A1	8	TWTF	133 L.H.	UTLEY
	A2	8	TWTF	303 Adm.(E)	ABBAS
	A3	8	TWTF	232 L.H.	YOUNG
	B1	9	TWTF	340 L.H.	MCLAIN
	B2	9	TWTF	203-A L.H.	ELLIES
	B3	9	TWTF	136 L.H.	ABBAS
	B4	9	TWTF	232 L.H.	YOUNG
	C1	10	TWTF	240 L.H.	MCLAIN
	C2	10	TWTF	105 L.H.	KIDDER
[1]Seniors will receive only 3 hours credit.	C3	10	TWTF	114 L.H.	GULLETTE
	C4	10	TWTF	133 L.H.	WELCH
	D1	11	TWTF	227 L.H.	ELLIES
	D2	11	TWTF	304 Adm.(E)	BURNER
	D3	11	TWTF	204 U.H.	LODGE
	D4	11	TWTF	232 L.H.	YOUNG
	E1	1	MTWT	208 Adm.(E)	ABBAS
	E2	1	MTWT	303 Adm.(E)	ADAM
	E3	1	MTWT	310 U.H.	HILTON
	F1	2	MTWT	227 L.H.	KIDDER
	F2	2	MTWT	136 L.H.	UTLEY
	F3	2	MTWT	302 L.H.	BURNER
	G1	3	MTWT	136 L.H.	KENDALL
	G2	3	MTWT	203 L.H.	LODGE
	H	4	MTWT	110 L.H.	KENDALL

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Spanish 2a. Modern Spanish.—*Prerequisite:* Spanish 1b, or two years of high-school Spanish.

Credits	Section	Hours	Days	Room	Instructor
4	B	9	TWTF	235 L.H.	KIDDER
	C	10	TWTF	203-A L.H.	ADAM
	F	2	MTWT	203-A L.H.	ABBAS
	G	3	MTWT	227 L.H.	UTLEY

Spanish 2b. Modern Spanish.—*Prerequisite:* Spanish 2a, or three years of high-school Spanish.

4	A[1]	8	TWTF	240 L.H.	ADAM
	B[1]	9	TWTF	139 L.H.	UTLEY
	C	10	TWTF	139 L.H.	BURNER
	D	11	TWTF	302 L.H.	DALLERA
	E	1	MTWT	306 L.H.	MCLAIN
	F	2	MTWT	326 L.H.	MCLAIN
	G	3	MTWT	235 L.H.	KIDDER

[1]Sections A and B are primarily for students who expect to go beyond Spanish 2b. More attention is paid to the speaking and hearing of Spanish.

Spanish 3b. Introduction to Spanish Literature.—*Prerequisite:* Spanish 3a.

3	B	9	MWF	133 L.H.	HAMILTON
	D	11	MWF	133 L.H.	BALSEIRO
	F	2	MWF	300 L.H.	VAN HORNE

Spanish 5b. Commercial Spanish.—*Prerequisite:* Spanish 5a.

2	B	9	TT	133 L.H.	AVILÉS
	D	11	MW	308 L.H.	AVILÉS
	E	1	TT	113 L.H.	DALLERA

Spanish 7b. Intermediate Composition and Conversation.—*Prerequisite:* Spanish 7a. *Note:* Required of those who are given the departmental recommendation to teach Spanish.

2	A	8	MW	227 L.H.	ELLIES
	D	11	TT	120 L.H.	AVILÉS
	F	2	TT	123 L.H.	ELLIES

Spanish 8b. Advanced Composition and Conversation.—*Prerequisite:* Spanish 8a. (2). 8 TT; 123 L.H. Miss ELLIES.

Spanish 25. Methods of Teaching Spanish.—Discussions and laboratory work. *Prerequisite:* 20 hours credit in Spanish, or 16 hours credit in Spanish plus 20 in French. Not open to students other than seniors except by permission of instructor. (3). 2 MWF; 310 U.H. Assistant Professor GULLETTE.

Spanish 28b. Senior Thesis.—For candidates for honors in Spanish. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in Spanish have the following prerequisites: Spanish 3a-3b and junior standing; or senior standing and permission of the instructor.

Spanish 10b. Survey of Spanish Literature.—(3). 11 MWF; 136 L.H. Associate Professor HAMILTON.

Spanish 11b. Masterpieces of the Golden Age: Don Quixote, and Other Works.—(2). 11 TT; 205 L.H. Professor VAN HORNE.

Spanish 17b. El Treatro Español Moderno. (In Spanish).—(2). 10 TT; 303-A L.H. Associate Professor BALSEIRO.

Courses for Graduates

Spanish 131. Spanish Literature in the Seventeenth Century.—(1 unit). 5 MW; 425-A Lib. Professor VAN HORNE.

Spanish 135. La Novela Española Moderna. (In Spanish).—(1 unit). Time to be arranged; 214 L.H. Associate Professor BALSEIRO.

Spanish 185. Old Spanish Readings.—(1 unit). 2 TT; 110 L.H. Associate Professor HAMILTON.

Spanish 195. Seminar.—Research work in preparation for theses in Spanish. (1 to 2 units).* Members of the department.

SCANDINAVIAN LANGUAGES AND LITERATURE

(See English, D.)

THE SOCIAL SCIENCES

(See Economics, History, Political Science, and Sociology.)

SOCIOLOGY

For students entering prior to September, 1929

Major: 20 hours from any courses in the department.

Minors: 20 hours from any two of the following subjects: History, philosophy, psychology, economics, political science.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

For students entering after September 1, 1929

Major: 20 hours from any courses in the department.

Minors: 20 hours from one or two of the following subjects: History, philosophy, psychology, economics, political science. At least 8 hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Sociol. 1. Principles of Sociology.—*Prerequisite:* Junior standing, or sophomore standing with either the principles of economics, or the principles of psychology, or 5 hours of history. Sophomores are received in Sections B, D, F, and M.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	306 L.H.	VOELKER
	B	8	MWF	148 L.H.	HOUGHTON
	C	8	TTS	334 L.H.	TYLOR
	D	9	MWF	306 L.H.	HOUGHTON
	E	9	MWF	334 L.H.	TIMMONS
	F	10	MWF	304 L.H.	VOELKER
	G	10	MWF	326 L.H.	HILLER
	H	11	MWF	105 L.H.	ALBIG
	J	11	MWF	320 New Agr.	———
	K	1	MWF	326 L.H.	TIMMONS
	L	1	MWF	308 L.H.	———
	M	2	MWF	306 L.H.	VOELKER
	N	3	MWF	326 L.H.	VOELKER

Sociol. 2. Social Factors in Personality.—*Prerequisite:* Sociol. 1. No seniors will be admitted to this course except those who need it as a concurrent requirement for Sociology 4 or 8.

3	A	8	MWF	202 L.H.	AHRENS
	B	9	MWF	202 L.H.	AHRENS
	C	9	TTS	306 L.H.	AHRENS

Courses for Advanced Undergraduates and Graduates

Sociol. 3. Social Evolution.—*Prerequisite:* Sociol. 1 and junior standing. (3). 11 MWF; 202 L.H. Mr. AHRENS.

Sociol. 4. Social Control.—*Prerequisite:* Sociol. 1 and either 2 or 3. Sociol. 2 or 3 may be taken concurrently with this course.

2	A	10	TT	334 L.H.	ALBIG
	B	11	TT	334 L.H.	ALBIG

Sociol. 6. Urban Sociology.—*Prerequisite:* Sociol. 1 and junior standing. (3). 8 MWF; 326 L.H. Assistant Professor TYLOR.

Sociol. 7. Rural Sociology.—*Prerequisite:* Sociol. 1 and junior standing. (3). 10 MWF; 308 L.H. Assistant Professor TYLOR.

Sociol. 8. Charities.—*Prerequisite:* Sociol. 1 and Sociol. 2 or 4 and economic theory or 5 hours of history. Sociol. 2 or 4 may be taken concurrently with this course. (3). 8 MWF; 340 L.H. Assistant Professor TIMMONS.

Sociol. 9. Criminology.—*Prerequisite:* Sociol. 1 and senior standing.

3	A	9	MWF	103 New Agr.	TAFT
	B	3	MWF	334 L.H.	TAFT

Sociol. 14. Group Opinion.—*Prerequisite:* Sociol. 1 and 4. (3). 2 MWF; 334 L.H. Assistant Professor ALBIG.

Sociol. 24. Penology.—*Prerequisite:* Sociol. 9. (3). 1 MWF; 202 L.H. Professor TAFT.

Sociol. 27. Community Welfare Administration.—*Prerequisite:* Fourteen credit hours in the department of sociology. (3). 10 MWF; 203 L.H. Assistant Professor TIMMONS.

Sociol. 28. Immigration and Assimilation.—*Prerequisite:* Sociol. 1 and 2 or 4. (3). 9 MWF; 326 L.H. Associate Professor HILLER.

Sociol. 42. Early Civilizations.—*Prerequisite:* Sociol. 1 and junior standing. (3). 10 MWF; 306 L.H. Assistant Professor KELLY.

Sociol. 44. Negro Origins.—*Prerequisite:* Sociol. 3 or 30. (3). 11 MWF; 306 L.H. Assistant Professor KELLY.

Sociol. 90b. Honors Course.—For senior majors in sociology. Consent of instructor is required. (2). Arrange. Members of the department.

Courses for Graduates

Sociol. 100. Sociological Theory.—(½ to 1 unit).* Twice per week. Arrange. 201 L.H. Associate Professor HILLER.

Sociol. 112. The Sociology of Conflict.—(1 unit). Twice per week. Arrange. 201 L.H. Professor TAFT.

Sociol. 150. Seminar.—Preparation of theses. (½ to 2 units).* Arrange. Members of the department.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

SPANISH

(See Romance Languages and Literature, C.)

SWEDISH

(See English, D.)

THEORETICAL AND APPLIED MECHANICS

(See Mechanics.)

TRANSPORTATION

(See Public Utilities and Transportation.)

ZOOLOGY

Note: Certain courses in this department require laboratory fees varying from $1 to $5.

For students entering prior to September, 1929

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9.

Minors: 20 hours chosen from one or two of the following subjects: Bacteriology, botany, chemistry, entomology, physics, physiology, psychology, paleontology, and physiography.

Note: Credit for seniors who take Zoology 1, 2 will be reduced one hour.

For students entering after September 1, 1929

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9 (or 11). At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: Bacteriology, botany, chemistry, entomology, geology, physics, physiology, psychology. At least 8 hours must be offered in each subject, if two are chosen.

A. ZOOLOGY

Courses for Undergraduates

Zool. 1. General Zoology.

Credits	Section	Hours	Days	Room	Instructor
5[1]	Lect.	9	MWF	228 N.H.	THOMAS
	E1 Quiz	8	W	241 N.H.	KUDO
	E2 Quiz	8	W	423 N.H.	LUCE
[1]Seniors will receive	F1 Quiz	8	F	229 N.H.	and
only 4 hours credit.	F2 Quiz	8	F	425 N.H.	assistants
	G1 Quiz	1	Tu	425 N.H.	
	G2 Quiz	1	Tu	434 N.H.	
	H1 Quiz	1	Th	434 N.H.	
	H2 Quiz	1	Th	425 N.H.	
	A1 Lab.	8–10	TTS	312 N.H.	
	A2 Lab.	8–10	TTS	310 N.H.	
	B1 Lab.	10–12	MWF	312 N.H.	
	B2 Lab.	10–12	MWF	310 N.H.	
	C1 Lab.	1–3	MWF	312 N.H.	
[2]Section D2 will not be	C2 Lab.	1–3	MWF	310 N.H.	
opened until the other	D1 Lab.	10–12	TTS	418 N.H.	
sections are filled.	(D2 Lab.[2])	10–12	TTS	310 N.H.	

Zool. 2. Vertebrate Zoology and Comparative Anatomy.—*Prerequisite:* Zool. 1.

5[1]	Lect.	10	MW	228 N.H.	ADAMS
	A Lab.	8–10	MWF	330 N.H.	CAHN
	(B Lab.[2])	8–10	MWF	418 N.H.	PARK
	C Lab.	10–12	TTS	330 N.H.	and
	D Lab.	8–10	TTS	330 N.H.	assistants
	E Lab.	8–10	TTS	418 N.H.	
	F Lab.	1–3	MWF	330 N.H.	
[1]Seniors will receive	(G Lab.[2])	1–3	MWF	418 N.H.	
only 4 hours credit.	H Lab.	1–4	TT	418 N.H.	
[2]Sections B, G, O, and	(H2 Lab.[1])	1–4	TT	330 N.H.	
P will not be opened	I Quiz	8	TT	423 N.H.	
until the other sections	J Quiz	8	MW	113 U.H.	
are filled.	K Quiz	1	TT	423 N.H.	
	L Quiz	1	MW	423 N.H.	
	M Quiz	2	TT	423 N.H.	
	N Quiz	3	TT	423 N.H.	
	(O Quiz[2])	3	MW	423 N.H.	
	(P Quiz[2])	4	TT	423 N.H.	

Zool. 3. Microscopical Technic and Vertebrate Embryology.—*Prerequisite:* Zool. 1, 2.

5	Lect.	1	TT	228 N.H.	SHUMWAY
	A Lab.	8–10	MWF	323 N.H.	ADAMSTONE
	B Lab.	10–12	MWF	323 N.H.	and
	C Lab.	1–3	MWF	323 N.H.	assistants
[2]Lab. sections D and E	(D Lab.[2])	3–5	MWF	323 N.H.	
and quiz sections 4 and	(E Lab.[2])	8–10	TTS	323 N.H.	
5 will not be opened	1 Quiz	10	Tu	229 N.H.	
until others are filled.	2 Quiz	10	Th	229 N.H.	
	3 Quiz	2	Tu	229 N.H.	
	(4 Quiz[2])	2	Th	229 N.H.	
	(5 Quiz[2])	1	M	425 N.H.	

Zool. 4. Invertebrate Morphology.—*Prerequisite:* Zool. 1 and 30 hours of university work.

Credits	Section	Hours	Days	Room	Instructor
3	Lect. or Quiz	3	TT	229 N.H.	VAN CLEAVE
	A Lab.	10–12	TT	420 N.H.	and
	B Lab.	1–3	TT	420 N.H.	assistant

Zool. 5. Heredity.—*Prerequisite:* One year of university work. Credit may not be received in both Zool. 5 and Zool. 15.

2	Lect.	8	TT	228 N.H.	ZELENY, LUCE,
	A Quiz	8	F	423 N.H.	and assistants
	B Quiz	9	F	423 N.H.	
	C Quiz	11	F	423 N.H.	
	D Quiz	8	M	423 N.H.	
	E Quiz	10	M	241 N.H.	
[1]Sections G and H will	F Quiz	11	M	423 N.H.	
not be opened until the	(G Quiz[1])	2	F	229 N.H.	
other sections are filled.	(H Quiz[1])	2	M	229 N.H.	

Zool. 10. Field Ecology and Ornithology.—Study in forests, streams, and lakes in the vicinity of Reelfoot Lake, Tenn. Covering Easter vacation. Expenses about $26. *Prerequisite:* Registration in Zoology 9 or 16 or their equivalent, and 30 hours of university work. (1). Professor SHELFORD, Assistant Professor CAHN.

Zool. 16. General Ornithology.—*Prerequisite:* 30 hours of university work.

2	Lect. or Quiz	2	TT	228 N.H.	CAHN and
	A	8–10	TT	419 N.H.	assistants
	B	8–12	S	choose one only	
	C	4–6	MW		

(Field trips four hours per week in April and May.)

Zool. 18. Introduction to Protozoology.—*Prerequisite:* One year in zoology and sophomore standing. (2). 3-5 MW; 310 N.H. Assistant Professor KUDO.

Courses for Advanced Undergraduates and Graduates

Zool. 9. Animal Ecology.—*Prerequisite:* One year of zoology and junior standing.

3 to 4*[2]	Lect. (1st half sem.)	9	TT	229 N.H.	SHELFORD
[2]For 4 hours credit, ad-	Lab. (2nd half sem.)	9–11	S	202 Viv.	SHELFORD
ditional field work is	Field	9–12	S	(Two all day trips)	
assigned.					

Zool. 8b. Thesis Investigation.—*Prerequisite:* Two years of zoology. (3 to 5).* Arrange. Members of the department.

Zool. 19b. Advanced Ornithology.—*Prerequisite:* Zool. 1, 2, 16, and senior standing. (2 or 3).* Arrange. 419 N.H. Assistant Professor CAHN.

Zool. 20b. Current Investigation.—Required of all graduate students majoring in zoology; may be elected by seniors majoring in zoology with consent of instructor. (1). 3 F; 229 N.H. Members of the department.

Zool. 21b. Introduction to Zoological Research.—*Prerequisite:* One year in zoology courses; senior standing. (2 to 5).* Arrange. 314 N.H. Professor WARD.

Zool. 22. Morphology of Vertebrates.—*Prerequisite:* Zool. 3.

2 to 4*	Lect.	4	W	419 N.H.	ADAMS
	A Lab.	1–5	TT	419 N.H.	

Zool. 66. Ontogeny of Vertebrates.—*Prerequisite:* Zool. 63. (2 to 4).* Arrange. Professor SHUMWAY.

Courses for Graduates

Students entering on graduate study in the department of zoology should have had two years of undergraduate work in the subject. When chosen as a minor the courses listed for graduates and undergraduates must be preceded by at least one full year's undergraduate work in zoology. Work done at other institutions will be evaluated on conference with the head of the department.

Zool. 110. Economic Ecology.—(½ to 1 unit).* Arrange. Professor SHELFORD.

Zool. 111. Experimental and Field Ecology.—(½ to 2 units).* Time to be arranged. Professor SHELFORD.

Zool. 115. Factors of Individual and Racial Development.—(1 unit). 2 TT; 425 N.H. Professor ZELENY.

Zool. 117. Faunistic Zoology.—(½ to 1 unit).* Time to be arranged. Professor VAN CLEAVE.

Zool. 127. Theories of Animal Phylogeny.—(1 unit). 3 MW; 229 N.H. Professor WARD.

Individual Research Courses

Zool. 121. Invertebrate Morphology and Parasitology.—(1 to 2 units).* Time to be arranged. Professor WARD.

Zool. 122. Vertebrate Morphology.—(1 to 2 units).* Time to be arranged. Assistant Professor ADAMS.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Zool. 123. Faunistic and Systematic Zoology.—(1 to 2 units).* Time to be arranged. Professor VAN CLEAVE.

Zool. 124. Experimental Zoology and Genetics.—(1 to 2 units).* Time to be arranged. Professor ZELENY.

Zool. 125. Animal Ecology and Behavior.—Time and credits to be arranged. Professor SHELFORD.

Zool. 126. Embryology and Cytology.—(1 to 2 units).* Time to be arranged. Professor SHUMWAY.

B. ANATOMY

Anat. 2. Human Anatomy.—(For students in Athletic Coaching only.) *Prerequisite:* Anat. 1 or its equivalent. Laboratory fee $5.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	9	S	228 N.H.	DEPUE and assistants
	Lab. and Quiz				
	A1	8–10	MWF	408 N.H.	
	A2	8–10	MWF	405 N.H.	
	B1	10–12	MWF	408 N.H.	
	B2	10–12	MWF	405 N.H.	
	C1	1–3	MWF	408 N.H.	
[1]Sections D1 and D2	C2	1–3	MWF	405 N.H.	
will not be opened until	(D1[1])	8–10	TTS	408 N.H.	
other sections are filled.	(D2[1])	8–10	TTS	405 N.H.	

Anat. 2a. Human Anatomy.—(Exclusively for Women in Physical Education.) *Prerequisite:* Zoology 1 and 2 and registration in the curriculum of Physical Education for Women. (3). 1-4 TT; 408 N.H. Dr. DEPUE.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

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ISSUED TWICE A WEEK

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TIME TABLE

FIRST SEMESTER
1932-1933

PUBLISHED BY THE UNIVERSITY OF ILLINOIS
URBANA

REGISTRATION CALENDAR

1932-33

FIRST SEMESTER

1932	
Sept. 7-10, Wed.-Sat.	Entrance examinations (get programs and permits at the Registrar's Office)
Sept. 14, Wed., 7:30 p.m.	The President's Welcome to Freshmen
Sept. 15, Thurs., 8 a.m.	Meetings for freshmen groups with advisers
8 p.m.	College Meetings for Freshmen
Sept. 16-17, Fri., 8 a.m.-5 p.m., Sat., 8-12 a.m.	Registration for Freshmen
Sept. 16-17, Fri.-Sat.	Registration for Graduate Students
Sept. 19-20, Mon.-Tues.	Registration for Upper Classmen
	Talks for Freshmen by Dean of Men and Dean of Women; Psychological Examinations for Freshmen
Sept. 21, Wed., 8 a.m.	Instruction begun
Sept. 26, Mon., 12 m.	Latest date for change of study-lists without fee
Oct. 1, Sat., 12 m.	Latest date for rebates in full
Oct. 31, Mon.	Latest date for announcement of subjects for theses
Nov. 17-19, Thurs.-Sat.	High School Conference
Nov. 19, Sat., 12 m.	Latest date for rebates of one-half fees, and latest date for Seniors graduating in February to make substitutions in courses or to remove failures of the last semester or the summer session
Nov. 23, Wed., 11 a.m.	Thanksgiving Recess begun
Nov. 28, Mon., 1 p.m.	Instruction resumed
Dec. 22, Thurs., 11 a.m.	Holiday Recess begun
1933	
Jan. 3, Tues., 1 p.m.	Instruction resumed
Jan. 13, Fri.	Latest date for special examinations
Jan. 24, Tues.	Semester Examinations begun
Feb. 1, Wed.	Semester Examinations ended
Feb. 1-4, Wed.-Sat.	Entrance Examinations (get programs and permits at Registrar's Office)

SECOND SEMESTER

Feb. 3-4, Fri.-Sat.	Registration for Graduate Students
Feb. 6-7, Mon.-Tues.	Registration Days for Undergraduate Students
Feb. 8, Wed., 8 a.m.	Instruction begun
Feb. 13, Mon.	Earliest date for special examinations
Feb. 13, Mon., 12 m.	Latest date for change of study-lists without fee
Feb. 18, Sat.	Latest date for rebates in full
Apr. 8, Sat., 12 m.	Latest date for rebates of one-half fees, and latest date for seniors to make substitutions in courses or to remove failures of the first semester
Apr. 13, Thurs., 11 a.m.	Easter Recess begun
Apr. 18, Tues., 1 p.m.	Instruction resumed
May 18, Thurs.	Latest date for special examinations
May 25, Thurs.	Military Day
May 26, Fri.	Final Examinations begun
June 5, Mon.	Final Examinations ended
June 12, Mon.	Sixty-Second Annual Commencement

SUMMER SESSION, 1933

June 19, Mon.	Registration Day

TIME TABLE FOR COURSES OF INSTRUCTION

FIRST SEMESTER, 1932-1933

EXPLANATION

The arrangement of subjects in the following Time Table is alphabetical by names of departments. The connections of allied departments and divisions are indicated by cross references.

The courses offered by each department or division are listed, in numerical order, in groups with headings that indicate the students for whom they are designed. Groups of general, elementary, and introductory courses are listed as "Courses for Undergraduates." Intermediate and advanced groups are listed as "Courses for Advanced Undergraduates and Graduates." Courses with numbers beginning at 100 are listed as "Courses for Graduates" and are not open to undergraduates.

Following the title of each course of instruction will be found the requirements, if any, for admission to that particular course. The sequence indicated by these prerequisites must be followed. For instance, under Art 9a, Commercial Art, the prerequisites given are Art 2b and 5a. These two courses must be completed before Course 9b may be taken.

If a course not required for graduation is selected by fewer than five students it may be withdrawn for the semester.

Credit for undergraduate students is reckoned in *semester hours*, or simply *hours*. An *hour* is one class period a week for one semester or the equivalent in laboratory, shop, or drawing room. The number of hours for which the course counts is shown in the parentheses after each course, thus, (2), except where the credits, sections, etc., are tabulated.

Credit for first-year graduate students, candidates for the master's degree, is counted in units. A unit course is one which requires ten hours of time per week through one semester, irrespective of the distribution of that time in class work, laboratory work, and private study; four such courses or their equivalent constitute a full minimum program for one semester. The unit values of graduate courses (numbered 100 and upwards) are indicated in parentheses following the titles of such courses. Courses of the intermediate groups "for graduates and advanced undergraduates" are in general (unless otherwise specified by the department concerned) evaluated as follows for graduate credit: (a) courses open only to students having at least senior standing, 1 unit for a 4-hour or a 5-hour course, ½ unit for a 1-hour, 2-hour, or 3-hour course; (b) courses open to juniors, ½ unit for a 4-hour or 5-hour course, ¼ unit for a 1-hour, 2-hour, or 3-hour course.

For second-year graduate students, candidates for the doctor's degree, no record of units is kept.

The various University buildings are designated by the following abbreviations:

Administration Building (East)	Adm. (E)
Agricultural Building (Old)	Agr.
Agricultural Engineering Building	Agr. Eng.
Animal Pathology Laboratory	An. Path. L.
Applied Mechanics Laboratory	L. A. M.
Architectural Building	Arch.
Armory	Arm.
Astronomical Observatory	Obs.
Ceramics Laboratory	Cer.
Chemistry Annex	Chem. A.
Chemistry Building	Chem.
Civil Engineering Surveying Building	C. E. S. B.
Commerce Building	Com.
Dairy Manufactures Building	D. Mfrs.
Electrical Engineering Laboratory	E. E. L.
Engineering Hall	E. H.
Entomology Building	Entom.
Floricultural Greenhouses	F. G.
Genetics Building	Gen. Bldg.
Gymnasium Annex	Gym. A.
Highway Laboratory	H. L.
Horticultural Building	H. B.
Horticultural Field Laboratory	H. F. L.
Law Building	Law
Library	Lib.
Lincoln Hall	L. H.
Materials Testing Laboratory	M. T. L.
Mathematics Building	Math.
Mechanical Engineering Laboratory	M. E. L.
Men's New Gymnasium	New Gym.
Men's Old Gymnasium	Old Gym.
Metal Shop	M. S.
Mining Engineering Laboratory	Min. L.
Natural History Hall	N. H.
New Agricultural Building	New Agr.
Physics Laboratory	P. L.
Smith Memorial Hall	S. M. H.
Stock Judging Pavilion	S. P.
Transportation Building	T. B.
University Hall	U. H.
University High School	U. H. S.
Vegetable Greenhouse	V. G.
Vivarium Building	Viv.
Woman's Building	W. B.
Woman's Gymnasium	W. Gym.
Wood Shops	W. S.

ACCOUNTANCY

(See Business Organization and Operation, B.)

AGRICULTURAL COLLEGE EXTENSION

Agr. Coll. Ext. 4. Agricultural Extension.—Freshman Lectures. (Credit is given to agricultural freshmen only). (½). 3 M; 103 New Agr. Assistant Dean RANKIN, Mr. YOUNG, and others.

AGRICULTURAL ECONOMICS

Courses for Undergraduates

Agr. Econ. 20. Elementary Farm Management.—(Formerly F.O.M. 1.) *Prerequisite:* Econ. 1 or 2; 60 hours of university work. Local field trips will be arranged; estimated cost, $5.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.and Disc.	10	TT	316 New Agr.	WILCOX and others
	S Lab.	1–3	Th	331 New Agr.	
	T Lab.	1–3	F	331 New Agr.	

Agr. Econ. 29. Investigation with Thesis.—(Formerly F.O.M. 10a.) This course is continuous throughout the year; credit is not given for either semester separately. *Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to the thesis problem; and approval of the head of the department. (5). Arrange. Professor CASE and others.

Agr. Econ. 39. Investigation with Thesis.—(Formerly An. Husb. 9u.) This course is continuous throughout the year; credit is not given for either semester separately. *Prerequisite:* 90 hours of university work, including 20 hours pertinent to the thesis problem; and the approval of the head of the department. (5). Arrange. Associate Professor ASHBY.

Courses for Advanced Undergraduates and Graduates

Agr. Econ. 10. Economics of Agriculture.—(Formerly Econ. 16.) *Prerequisite:* Econ. 1 or 2. (3). 11 MWF; 316 New Agr. Assistant Professor NORTON.

Agr. Econ. 22. Types and Systems of Farming.—(Formerly F.O.M. 2.) *Prerequisite:* Agr. Econ. 20. Lectures and quiz. Local field trips will be arranged; estimated cost, $3. (3). 8 MWF; 316 New Agr. Professor CASE, Associate Professor WILCOX.

Agr. Econ. 24. Farm Operation.—(Formerly F.O.M. 4) *Prerequisite:* Agr. Econ. 20; 90 hours of university work. Local field trips will be arranged; estimated cost, $3. (2). 11 TT; 316 New Agr. Assistant Professor JOHNSTON.

Agr. Econ. 26. Land Tenure.—(Formerly F.O.M. 6.) *Prerequisite:* Econ. 1 or 2; 90 hours of university work. (2). 9 TT; 316 New Agr. Professor CASE.

Agr. Econ. 30. Marketing and Prices of Agricultural Products.—(Formerly Econ. 13.) *Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	10	M	111 New Agr.	STEWART
	C Quiz	10	WF	111 New Agr.	STEWART
	D Quiz	11	WF	111 New Agr.	STEWART

Agr. Econ. 36. Marketing Horticultural Products.—(Formerly Hort. 46.) *Prerequisite:* Econ. 1 or 2; 90 hours of university work. Inspection trip, costing about $20, required. (3). 3 MWF; 203 V.G. Professor LLOYD.

Agr. Econ. 38. Livestock Marketing Problems.—(See An. Husb. 12.) *Prerequisite:* 90 hours of university work; approval of the head of the department. (5). Arrange. Members of the department.

Courses for Graduates

Agr. Econ. 109. Seminar. Thesis Course.—(Formerly Econ. 118c and F.O.M. 110.) All graduate students majoring in Agricultural Economics must register in Agr. Econ. 109, but only those students writing theses acceptable for the degree of Master of Science will be given credit. (1 to 2 units).* Once a week. Arrange. Members of the department.

Agr. Econ. 110. Theory of Agricultural Economics.—(Formerly Econ. 130.) (1 unit). Arrange. Associate Professor STEWART.

Agr. Econ. 111. Agricultural Prices and Statistics.—(Formerly Econ. 131.) (1 unit). Arrange. Assistant Professor NORTON.

Agr. Econ. 112. Agricultural Economics Research.—(Formerly Econ. 132.) Only those who write acceptable reports of investigation will receive credit. (1 to 2 units).* Arrange. Associate Professor STEWART.

Agr. Econ. 120. Farm Management Principles and Investigational Methods.—(Formerly F.O.M. 101.) (1 unit). Twice a week. Arrange. Professor CASE.

Agr. Econ. 135. Marketing Fruits and Vegetables.—(Formerly Hort. 105.) (1 to 2 units).* Arrange. Professor LLOYD.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

AGRICULTURAL ENGINEERING

(Formerly Farm Mechanics)

Note: Certain courses in this department require laboratory fees varying from $1 to $8.

Courses for Undergraduates

Agr. Eng. 1. Elementary Agricultural Engineering.—

Credits	Section	Hours	Days	Room	Instructor
3[1]	Lect.	8	WF	201 Agr. Eng.	Young
	B Quiz	9	W	201 Agr. Eng.	
[1]Seniors will receive only 2 hours credit.	J Quiz	8	Tu	201 Agr. Eng.	
	N Quiz	1	Tu	201 Agr. Eng.	
	S Quiz	9	F	201 Agr. Eng.	
	A Lab.	8–10	M		
	J Lab.	8–10	Th		
	N Lab.	1–3	Th		

Agr. Eng. 2. Field and Power-Driven Machinery.—*Prerequisite:* Agr. Eng. 1.

3	Lect.	9	TT	201 Agr. Eng.	Shawl
	J Quiz	8	Tu	201 Agr. Eng.	
	A Quiz	8	W	201 Agr. Eng.	
	N Lab.	1–3	Th		
	A Lab.	8–10	F		

Agr. Eng. 5. Drainage.—*Prerequisite:* 30 hours of university work.

3	Lect.	1	M	204 Agr. Eng.	Lehmann
	Quiz	1	W	204 Agr. Eng.	
	Lab.	1–4	F		

Agr. Eng. 18a. Investigation with Thesis.—Continuous throughout the year; credit is not given for either semester separately. *Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to the thesis problem; and approval of the head of the department. (5). Professor Lehmann, Assistant Professor Shawl.

Agr. Eng. 20. Farm Concrete Construction.—*Prerequisite:* Agr. Eng. 1.

2	Lect.	3	Tu	204 Agr. Eng.	Young
	P Lab.	3–5	Th		
	J Lab.	8–10	S		

Courses for Advanced Undergraduates and Graduates

Agr. Eng. 28. Advanced Gas Engines and Tractors.—*Prerequisite:* Agr. Eng. 3 and consent of the instructor. (3). 2-5 MW; Lect., arrange; 201 Agr. Eng. Assistant Professor Shawl.

Agr. Eng. 51. Special Power and Field Machinery.—*Prerequisite:* Agr. Eng. 17 or 28. Consult instructor before registering. (3). Arrange. Professor Lehmann, Assistant Professor Shawl.

AGRONOMY

Note: Certain courses in this department require laboratory fees varying from $1 to $4.

Courses for Undergraduates

Agron. 18. Investigation with Thesis.—(This course is continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work, including not less than 20 hours pertinent to thesis problem; and the approval of the head of the department. (5). Arrange.

Soils.—Professors Bauer, DeTurk, R. S. Smith; Associate Professor Sears.
Crops.—Professors Burlison, Woodworth; Associate Professor Dungan.

Agron. 25. Farm Crops.—*Prerequisite:* Bot. 5.

3	Lect.	3	MW	205 Agr.	Pieper
	A Lab.	1–3	Tu	600 Agr.	
	Quiz	3	F	205 Agr.	

Agron. 28. Soils.—*Prerequisite:* Chem. 5; Geol. 44. (Local field trip, cost not to exceed $1.)

5	A Lect.	8	MWF	205 Agr.	Wimer, Crane, and Stauffer
	A1 Quiz	8	TT	205 Agr.	
	A2 Quiz	8	TT	302 Agr.	
	A Lab.	1–4	Th	650 Agr.	
	C Lab.	8–11	S	650 Agr.	

Courses for Advanced Undergraduates and Graduates

Agron. 7. Advanced Crop Production.—*Prerequisite:* Agron. 25, junior standing. (3). Lect., 8 MWF; 302 Agr. Professor Burlison, Associate Professor Dungan.

Agron. 11. Rôle of Micro-organisms in Soil Fertility.—*Prerequisite:* Agron. 28; Bact. 5a, junior standing. (3). Lect., 9 MWF; 302 Agr. Associate Professor Sears.

Agron. 29. Field Plot Technic.—*Prerequisite:* Senior standing. (3). Lect., 10 MWF; 302 Agr. Professor WOODWORTH, Mr. MUMM.

Agron. 32. Physical Methods of Soil Investigation.—Physical properties of soils, their relation to productivity and their investigation by field and laboratory methods. (Given 1932-33 and alternate years thereafter.) *Prerequisite:* Agron. 28, junior standing. (3). 1-3 MWF (Lect., Disc., Lab.); 657 Agr. Mr. STAUFFER.

Courses for Graduates

Agron. 101. Soil Investigations.—(1 unit). Twice a week. Arrange. 306 Agr. Professor DETURK.

Agron. 104. Seminar.—(¼ unit). Once a week. Arrange. 301 Agr. The Graduate Staff.

Agron. 112. Advanced Plant Genetics.—(1 unit). Twice a week. Arrange. Professor WOODWORTH.

Agron. 118. Research.—(½ to 4 units).* Arrange.
Soils.—Professors BAUER, DETURK, R. S. SMITH.
Crops.—Professors BURLISON, WOODWORTH; Associate Professor DUNGAN.

ANATOMY

(See Zoology.)

ANIMAL HUSBANDRY

Note: Certain courses in this department require laboratory fees varying from $1 to $5.

Courses for Undergraduates

An. Husb. 1. Introduction to Animal Husbandry.—Required of students not having had livestock judging in high school. (No credit in this course allowed to juniors and seniors.) (2). 3-5 TT; S. P. Mr. CRAWFORD.

An. Husb. 3. Livestock Judging.—*Prerequisite:* An. Husb. 1 or equivalent. (5). 10-12 MTWTF; S. P. Associate Professor SNAPP.

An. Husb. 9a-u. Investigation with Thesis.—(Continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work, including 20 hours pertinent to the thesis problem; and the approval of the head of the department. (5). Arrange.

(a) **Beef Cattle.**—Professor RUSK, Associate Professor SNAPP.
(c) **Horses.**—Professor EDMONDS.
(e) **Sheep.**—Assistant Professor KAMMLADE.
(g) **Swine.**—Professor CARROLL.
(j) **Poultry.**—Professor CARD.
(l) **Animal Nutrition.**—Professor MITCHELL.
(n) **Animal Genetics.**—Associate Professor ROBERTS.
(q) **Animal Pathology.**—Professor GRAHAM.
(s) **Meats.**—Associate Professor BULL.
(u) **Marketing.**—See Agr. Econ. 39. Associate Professor ASHBY.

An. Husb. 21. Principles of Feeding.—*Prerequisite:* Chem. 5; An. Husb. 1.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	2	W	553 Agr.	BULL
	A Quiz	2	MF	553 Agr.	BULL

An. Husb. 34. Anatomy and Physiology, and Non-Contagious and Parasitic Diseases of Farm Animals.—*Prerequisite:* An. Husb. 21. (3). 1 MWF; An. Path. L. Professor GRAHAM.

An. Husb. 36. Meat.—(2). 9 TT; 127 Agr. Associate Professor BULL.

An. Husb. 38. Poultry Breeds and Judging.—*Prerequisite:* An. Husb. 37. (3). 3-4:30 MTWTF; Poul. Plant. (This course is concluded at the beginning of the Christmas recess). Dr. SLOAN.
From the students taking or having had this course will be chosen the team to represent the University in the Annual Mid-West Intercollegiate Student Poultry Judging Contest. The class will visit a near-by poultry show. The cost of the trip will be from $10 to $15.

Courses for Advanced Undergraduates and Graduates

An. Husb. 7. Principles of Animal Nutrition.—*Prerequisite:* 90 hours of university work, including An. Husb. 21; Chem. 32. (5). Arrange. 553 Agr. Mr. HAMILTON.

An. Husb. 12. Special Problems.—*Prerequisite:* 90 hours of university work; approval of the head of the department. (5). Arrange. Members of the department.

An. Husb. 22. Advanced Stock Judging.—*Prerequisite:* An. Husb. 3. (3). 3 MTWTF; S. P. Heads of divisions.
From the students in this class will be chosen the team to represent the University in the Annual Intercollegiate Student Judging Contest.

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An. Husb. 24. Meat.—*Prerequisite:* An. Husb. 10. (2 to 5).* Arrange. Associate Professor BULL.

An. Husb. 25. Beef Production.—*Prerequisite:* An. Husb. 6. (3). 2 MWF; 316 New Agr. Professor RUSK, Associate Professor SNAPP.

An. Husb. 26. Pork Production.—*Prerequisite:* An. Husb. 6. (3). 9 MWF; 316 New Agr. Professor CARROLL.

An. Husb. 40. Economics of Poultry Keeping.—*Prerequisite:* 90 hours of university work, including An. Husb. 37. (3). 8 MWF; 331 New Agr. Professor CARD.

Courses for Graduates

An. Husb. 112a-f. Research.—Arrange. One to three times a week. (½ to 2 units).*

(a) **Economic Factors Involved in Meat Production.**—Professor RUSK.
(b) **Systems of Livestock Farming.**—Professor CASE.
(c) **Animal Pathology.**—Professor GRAHAM.
(d) **Animal Nutrition.**—Professor MITCHELL.
(e) **Animal Genetics.**—Associate Professor ROBERTS.
(f) **Poultry Husbandry.**—Professor CARD.

An. Husb. 117. Animal Genetics.—(1 unit). One to three times a week. Arrange. Associate Professor ROBERTS.

An. Husb. 118. Animal Nutrition Seminar.—(½ unit). Two hours a week. Arrange. Professor MITCHELL.

An. Husb. 119. Laboratory Methods in Animal Nutrition.—(½ to 1 unit).* Two to five times a week. Arrange. Professor MITCHELL.

An. Husb. 120. Laboratory Methods in the Diagnosis of Animal Diseases.—(½ to 1 unit).* Two to five times a week. Arrange. Professor GRAHAM.

An. Husb. 121. Laboratory Methods in Animal Genetics.—(½ to 1 unit).* Two to five times a week. Arrange. Associate Professor ROBERTS.

ARCHITECTURE

(Including Architectural Engineering.)

Courses for Undergraduates

Arch. 11. History of Architecture.—*Prerequisite:* Sophomore standing. Not open to students expecting a degree in Architecture. (3). 3 MWF; 120 Arch.

Arch. 13. History of Architecture.—*Prerequisite:* Arch. 31a and 32a or sophomore standing in Architecture. (2). 11 MW; 120 Arch.

Arch. 15. History of Architecture.—*Prerequisite:* Arch. 14. (2). 11 TT; 120 Arch.

Arch. 21. Freehand Drawing.

Credits	Section	Hours	Days	Room	Instructor
2	A	8–10	TT	410-A Arch.	
	B	10–12	TT	410-A Arch.	
	C	10–12	MF	410-A Arch.	
	D	8–10	W	410-A Arch.	
		2–4	F	410-A Arch.	

Arch. 23. Freehand Drawing.—*Prerequisite:* Arch. 22.

2	A	8–11	Tu	410-B Arch.	
		1–4	W	410-B Arch.	
	B	1–4	MF	410-B Arch.	
	C	1–4	TT	410-A Arch.	
	D	2–5	MW	410-A Arch.	

Arch. 24. Freehand Drawing.—*Prerequisite:* Arch. 23.

2	A	8–11	Tu	410-B Arch.	
		1–4	W	410-B Arch.	
	B	1–4	MF	410-B Arch.	
	C	1–4	TT	410-A Arch.	
	D	2–5	MW	410-A Arch.	

Arch. 25. Freehand Drawing.—*Prerequisite:* Arch. 24.

2	A	1–4	TT	Hall of Casts	
	B	9–12	MW	Hall of Casts	

Arch. 26. Freehand Drawing.—*Prerequisite:* Arch. 25.

2	A	1–4	TT	Hall of Casts	
	B	9–12	MW	Hall of Casts	

Arch. 27. Freehand Drawing.—*Prerequisite:* Arch. 26. (2). 8-11 MW; 10 Arch.

Arch. 28. Freehand Drawing.—*Prerequisite:* Arch. 27. (2). 8-11 MW; 10 Arch.

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Arch. 31a. Architectural Design.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	2	W	120 Arch.	
	A	1–4	TT	210 Arch.	
	B	8–11	MF	210 Arch.	
	C	1–4	MF	210 Arch.	
	D	8–11	TT	210 Arch.	

Arch. 33. Architectural Design.—*Prerequisite:* Arch. 32a.

3	A	8–11	ThS	210 Arch.
		1–4	F	210 Arch.
	B	1–4	TT	210 Arch.
		8–11	S	210 Arch.
	C	1–4	WF	210 Arch.
		8–11	S	210 Arch.
	D	8–11	MWF	210 Arch.

Arch. 34. Architectural Design.—*Prerequisite:* Arch. 33.

3	A	8–11	ThS	210 Arch.
		1–4	F	210 Arch.
	B	1–4	TT	210 Arch.
		8–11	S	210 Arch.
	C	1–4	WF	210 Arch.
		8–11	S	210 Arch.
	D	8–11	MWF	210 Arch.

Arch. 35. Architectural Design.—*Prerequisite:* Arch. 34 and registration in Arch. 65.

5	A	9–12	M	200 Arch.
		1–4	MWF	200 Arch.
	B	1–4	TTF	200 Arch.
		9–12	F	200 Arch.

Arch. 36. Architectural Design.—*Prerequisite:* Arch. 35.

5	A	9–12	M	200 Arch.
		1–4	MWF	200 Arch.
	B	1–4	TTF	200 Arch.
		9–12	F	200 Arch.

Arch. 37. Architectural Design.—*Prerequisite:* Arch. 36 and senior standing in Architecture. (7). 8-11 S, 1-4 MTWTF; 200 Arch.

Arch. 38. Architectural Design.—*Prerequisite:* Arch. 37 and senior standing in Architecture. (7). 8-11 S, 1-4 MTWTF; 200 Arch.

Arch. 43. Technology of Materials.—*Prerequisite:* Arch. 31a and 32a.

3	A	1–4	TT	310 Arch.
	Lect.	11	F	302 Arch.
	B	8–11	TT	310 Arch.
	Lect.	11	F	302 Arch.
	C	1–4	MW	310 Arch.
	Lect.	11	W	302 Arch.
	D	8–11	MW	310 Arch.
	Lect.	11	W	302 Arch.

Arch. 45. Graphic Statics.—*Prerequisite:* T.A.M. 1 or 18 and registration in continuing T.A.M.

3	A	9–12	WF	310 Arch.
	Lect.	9	Tu	302 Arch.
	B	1–4	MW	310 Arch.
	Lect.	9	Tu	302 Arch.
	C	1–4	TT	310 Arch.
	Lect.	11	M	302 Arch.
	D	8–11	TT	310 Arch.
	Lect.	11	M	302 Arch.

Arch. 65. Theory of Architecture.—*Prerequisite:* Arch. 34 and registration in Arch. 35. (1). 9 Th; 302 Arch.

Arch. 68. Specifications.—*Prerequisite:* Senior standing in Architecture. (3). 11 MWF; 301 Arch.

Arch. 71a. Architectural Design.—Not open to students expecting a degree in Architecture.

3	A	1–4	TT	210 Arch.
		2	W	120 Arch.

Arch. 73. Freehand Drawing.—Not open to students expecting a degree in Architecture. (2). 8-10 MF; 410-A Arch.

Arch. 75. Frame Construction Details.—*Prerequisite:* Consent of instructor. Not open to students expecting a degree in Architecture.

3	A	1	TT	301 Arch.
		2–5	TT	300 Arch.

Arch. 99. Inspection Trip.—*Prerequisite:* Senior standing in Architecture. Required for graduation. No credit.

Courses for Graduates

Arch. 101. Architectural Construction—Theory and Design.—(½ to 2 units).* Professor PALMER.

Arch. 103. Architectural Construction—Special Problems.—(½ to 2 units).* Associate Professor MORGAN.

Arch. 104. Architectural Design.—(1 to 3 units).* Professor DEAM.

Arch. 105. Architectural Practice.—(¼ to ½ unit).* Professor PROVINE.

Arch. 106. Architectural History.—(½ to 2 units).* Professor NEWCOMB.

ARCHITECTURAL ENGINEERING

Courses for Undergraduates

A.E. 47. Architectural Engineering.—*Prerequisite:* A.E. 46 and registration in A.E. 57. (5). 9-11 TT, 1-4 MWF; 300 Arch.

A.E. 57. Fireproof Construction.—*Prerequisite:* A.E. 46 and registration in A.E. 47. (2). 2 TT; 301 Arch.

A.E. 99. Inspection Trip.—*Prerequisite:* Senior standing in Architectural Engineering. Required for graduation. No credit.

ART

Note: Certain courses in this department require laboratory fees varying from $3 to $5.

Courses for Undergraduates

Art 1a. Cast and Still Life Drawing.—

Credits	Section	Hours	Days	Room	Instructor
3[1]	A[1]	9–12	MWF	403 Arch.	DONOVAN
[1]Section A is for Fine Arts	B	9–12	TT	403 Arch.	DONOVAN
students only and carries	C	9–12	MW	403-B Arch.	NEARPASS
a credit value of 4 hours.	D	9–12	TT	Hall of Casts	NEARPASS

Art 1b. Cast Drawing.—*Prerequisite:* Art 1a.

2	A	9–12	MW	403 Arch.	DONOVAN
	B	9–12	TT	403 Arch.	DONOVAN
	C	9–12	MW	403-B Arch.	NEARPASS
	D	9–12	TT	Hall of Casts	NEARPASS

Art 2a. Design.—*Prerequisite:* Art 1a must precede or accompany this course. (2). 2 MF; 302 Arch. Associate Professor LAKE.

Art 2c. Composition.—*Prerequisite:* Art 2a. (2). 9-12 F; 403-B Arch. Assistant Professor NEARPASS.

Art 2e. Composition and Illustration.—*Prerequisite:* Art.2c. (2). 9-12 F; 403-B Arch. Assistant Professor NEARPASS.

Art 2g. Composition (Mural).—*Prerequisite:* Art 2e. (3). 9-12 F; 403-B Arch. Assistant Professor NEARPASS.

Art 3a. Anatomy and Sketch.—*Prerequisite:* Art 1a must precede or accompany this course. (2). 1-4 Th; 403-B Arch. Assistant Professor NEARPASS.

Art 4a. Modeling.—*Prerequisite:* Art 1a. (2). 1-4 TT; 20 Arch. Associate Professor LAKE.

Art 4c. Modeling.—*Prerequisite:* Art 4a. (2). 1-4 TT; 20 Arch. Associate Professor LAKE.

Art 5a. Life Drawing.—*Prerequisite:* Art 1b and 3b. (3). 1-4 MWF; 403-B Arch. Associate Professor BRADBURY.

Art 5c. Life Drawing.—*Prerequisite:* Art 5a. (3). 1-4 MWF; 403-B Arch. Associate Professor BRADBURY.

Art 5e. Life Painting.—*Prerequisite:* Art 5c. (3). 1-4 MWF; 403-B Arch. Associate Professor BRADBURY.

Art 6a. Portrait.—*Prerequisite:* Art 1b and 3b. (2). 9-12 TT; 403-B Arch. Associate Professor BRADBURY.

Art 6c. Portrait.—*Prerequisite:* Art 6a. (2). 9-12 TT; 403-B Arch. Associate Professor BRADBURY.

Art 6e. Portrait.—*Prerequisite:* Art 6c. (3). 9-12 TTS; 403-B Arch. Associate Professor BRADBURY.

Art 7a. Still Life.—*Prerequisite:* Art 1a. (2). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

Art 8a. Sketch.—*Prerequisite:* Art 5a. (1). 1-4 Tu; 403-B Arch. Associate Professor BRADBURY.

Art 8c. Sketch.—*Prerequisite:* Art 8a. (1). 1-4 Tu; 403-B Arch. Associate Professor BRADBURY.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Art 9a. Commercial Art.—*Prerequisite:* Art 2b and 5a. (2). 9-12 S; 403 Arch. Assistant Professor DONOVAN.

Art 10a. Landscape.—*Prerequisite:* Art 7a. (2). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

Art 10c. Landscape.—*Prerequisite:* Art 10a. (3). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

Art 11a. Water Color.—*Prerequisite:* Art 1a. (2). 1-4 W; 403 Arch. Assistant Professor NEARPASS.

Art 11c. Water Color.—*Prerequisite:* Art 11b. (2). 1-4 W; 403 Arch. Assistant Professor NEARPASS.

Art 13a. Design.—(*Note:* Sections A, B, C are for Home Economics students. Section A is for Fine Arts students.)

2	A	1–3	MW	342 L. H.	ANDERSON
	B	10–12	TT	342 L.H.	ANDERSON
	C	3–5	TT	342 L.H.	ANDERSON
	D	10–12	FS	342 L.H.	ANDERSON

Art 13b. Design.—*Prerequisite:* Art 13a. (2). 1-3 TT; 342 L.H. Miss ANDERSON.

Art 14a. Interior Design.—*Prerequisite:* Art 2a and 11a or 13b concurrently. (2). 10-12 MW; 342 L.H. Miss ANDERSON.

Art 15a. Course for Teachers.—*Prerequisite:* Art 2a. (3). 9 MWF; 342 L.H. Miss ANDERSON.

Art 16a. History of Fine Arts.—*Prerequisite:* Sophomore standing. (2). 10 MW; 120 Arch. Associate Professor LAKE.

Art 16c. History of Fine Arts.—*Prerequisite:* Art 16b. (2). 9 MW; 120 Arch. Assistant Professor NICHOLSON.

Art 16e. History of Italian Art.—*Prerequisite:* Junior standing. (3). 9 MWF; 120 Arch. Assistant Professor NICHOLSON.

Art 16g. History of Medieval Art.—*Prerequisite:* Junior standing. (3). 1 MWF; 120 Arch. Assistant Professor NICHOLSON.

Art 17. Aesthetics.—*Prerequisite:* Senior standing. (2). 2 TT; 302 Arch. Assistant Professor NICHOLSON.

ASTRONOMY

Course for Undergraduates

Astron. 1. Descriptive Astronomy.—The earth as an astronomical body; the solar system. *Prerequisite:* Sophomore standing. (3). 11 MWF, 229 N.H.; one hour Wednesday evening, Observatory. Professor BAKER.

Courses for Graduates

Astron. 101. Seminar.—(1 unit). 1 MWF; Observatory. Professor BAKER.

Astron. 103. Celestial Mechanics.—(1 unit). 11 TTS; Observatory. Professor BAKER.

ATHLETIC COACHING

(See Physical Education for Men.)

BACTERIOLOGY

Note: Certain courses in this department require laboratory fees varying from $4 to $5.

Major: 20 hours chosen from the courses offered by this department. Dairy Husbandry 10 (Advanced Dairy Bacteriology) may be offered in partial satisfaction of this requirement. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: chemistry and botany. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Bact. 5a. Introductory Bacteriology.—*Prerequisite:* Sophomore standing or consent of instructor.

Credits	Section	Hours	Days	Room	Instructor
3	Lecture-Quiz				
	A	9	MWF	214 U.H.	WHEATON
	B	10	MWF	204 Adm.(E)	REHM
	C	10	MWF	303 Chem.	CLARK
	D	11	MWF	303 Chem.	WHEATON
	E	2	MWF	301 Chem.	CLARK
	F	3	MWF	301 Chem.	REHM
	G	9	TTS	303 Chem.	CLARK

Bact. 5b. Introductory Bacteriology Laboratory.—*Prerequisite:* Bact. 5a, or concurrent registration in it.

2	A Lab.	8–10	MW	367 Chem.	CLARK
	B Lab.	1–3	MW	367 Chem.	REHM
	C Lab.	10–12	TT	367 Chem.	WHEATON
	D Lab.	1–3	TT	367 Chem.	CLARK

Courses for Advanced Undergraduates and Graduates

Bact. 7a. Thesis and Special Problems.—*Prerequisite:* Junior standing; Bact. 5a and 5b (or 20); and Bact. 26 or 8; consent of instructor. Hours and credit to be arranged before registration. (3 to 5).* Professor TANNER and Dr. WALLACE.

Bact. 20. General Bacteriology.—*Prerequisite:* Two years of college chemistry; senior standing; consent of instructor. Students with credit in Bact. 5a and 5b will not be allowed credit for Bact. 20. (5). Lect., 1 MW, 100 Chem.; Lab., 1-4 TT, 360 Chem. Dr. WALLACE.

Bact. 26. Pathological Bacteriology.—*Prerequisite:* Bact. 5a and 5b (or 20); junior standing. (5). Lect., 8 MW, 204 Chem.; Lab., 8-10 TTS, 367 Chem. Dr. WALLACE.

Courses for Graduates

Bact. 103. Physiology of Bacteria.—(1 unit). Lect., 9 MW; 162 Chem. Professor TANNER.

Bact. 107. Research in Bacteriology.—(1 to 4 units).* Lab., arrange; 365 Chem. Professor TANNER.

Bact. 118a. Current Literature.—Required of all students majoring in Bacteriology. *Prerequisite:* Graduate standing and the consent of instructor; 10 hours of bacteriology. (¼ unit). 1 Tu; 366 Chem. Professor TANNER.

BANDS

(See Military Bands.)

BANKING

(See Economics.)

BOTANY

Note: Certain courses in this department require laboratory fees varying from $.50 to $3 (per unit in graduate courses).

Major: 20 hours of botany exclusive of courses 1 and 5, and inclusive of courses 2a or 2b, 3, and at least 5 hours in courses listed for advanced undergraduates and graduates.

Minors: 20 hours in one or two departments chosen in consultation with the head of the department from the following list: agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least eight hours must be offered in each department, if two are chosen.

Note: Credit for seniors who take Botany 1 or 5 will be reduced one hour.

Courses for Undergraduates

Bot. 1. General Botany.—

Credits	Section	Hours	Days	Room	Instructor
5[1]	Lect.	9	TT	228 N.H.	HOTTES, STEVENS,
	A Lab.	8–10	MWF	258 N.H.	BUCHHOLZ,
[1]Seniors will receive only	B Lab.	10–12	MWF	258 N.H.	VESTAL, and
4 hours credit.	C Lab.	1–3	MWF	258 N.H.	assistants
	1 Disc.	8	Tu	258 N.H.	
	2 Disc.	8	Th	258 N.H.	
	3 Disc.	10	Tu	258 N.H.	
	4 Disc.	10	Th	258 N.H.	
	5 Disc.	11	Tu	258 N.H.	
	6 Disc.	11	Th	258 N.H.	
	7 Disc.	1	Tu	258 N.H.	
	8 Disc.	1	Th	258 N.H.	
	9 Disc.	2	Tu	258 N.H.	

Bot. 2a. Morphology.—*Prerequisite:* Bot. 1 or 5. (3). 1-3 MWF; 204 Entom. Dr. HAGUE.

Bot. 3. Physiology.—*Prerequisite:* Bot. 1 or 5.

5	Lect.	11	TT	229 N.H.	HOTTES and
	A Lab.	8–10	MWF	153 N.H.	assistants
	B Lab.	10–12	MWF	154 N.H.	

Bot. 5. Botany for Students in Agriculture.—

3[1]	Lect.	9	Th	229 N.H.	HOTTES, STEVENS,
[1]Seniors will receive only	A Lab.	10–12	TT	259 N.H.	BUCHHOLZ,
2 hours credit.	B Lab.	1–3	TT	259 N.H.	VESTAL, and
					assistants

Bot. 7. Plant Pathology.—*Prerequisite:* Bot. 1 or 5.

3	Lect.	9	M	241 N.H.	STEVENS
	A Lab.	8–10	WF	349 N.H.	
	B Lab.	10–12	WF	349 N.H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Bot. 8. Ecology.—*Prerequisite:* Bot. 1 or 5. (3). Lect., 8 TT; 229 N.H. Field study Saturday morning (occasionally all day) during first half of semester. Cost about $12. Associate Professor VESTAL.

Courses for Advanced Undergraduates and Graduates

Bot. 33. Physiology.—*Prerequisite:* Bot. 3 and junior standing. (3 or 5).* 1-3 MWF; 155 N.H. Professor HOTTES and assistant.

Bot. 43. Pteridophytes.—(3 or 5).* 10-12 TTS; 201 Entom. Professor BUCHHOLZ.

Bot. 45. Histology, Anatomy, and Technic.—*Prerequisite:* Junior standing and Bot. 2a or 2b, or 15 hours of botany. (3 or 5).* 8-10 MWF; 206 Entom. Professor BUCHHOLZ.

Bot. 55. Plant Geography of North America.—*Prerequisite:* Bot. 8 and junior standing. (3 or 5).* 10-12 MWF; 216 N.H. Associate Professor VESTAL.

Bot. 60. Systematic Botany.—*Prerequisite:* Bot. 6 and junior standing. (3 or 5).* Lect., 1 TT; Lab., arrange; 350 N.H. Professor BUCHHOLZ.

Bot. 70. Taxonomy of Pathogenic Fungi.—*Prerequisite:* Bot. 7 or 42, and junior standing. (3 or 5).* Lect., 11 Tu, 304 N.H.; Lab., arrange, 304 N.H. Professor STEVENS.

Bot. 90a. Thesis Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

Bot. 91a. Honors Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

Courses for Graduates

Bot. 110. Botanical Discussion.—No credit. Required of all graduate students in botany and members of the instructional staff. 4 Tu; 258 N.H.

Bot. 112. Discussions in Plant Morphology.—(¼ unit). 4 F; 205 Entom. Professor BUCHHOLZ.

Bot. 113. Discussions in Physiology.—(¼ unit). 4 Th; 155 N.H. Professor HOTTES.

Bot. 117. Discussions in Pathology and Mycology.—(¼ unit). 4 W; 304 N.H. Professor STEVENS.

Bot. 118. Discussions in Ecology.—(¼ unit). 4 M; 204 N.H. Associate Professor VESTAL.

Research Courses

Bot. 120. Morphology.—(½ to 2 units).* (Botany 112 to be taken concurrently.) 1 hour on either MWF from 1 to 3, the rest arrange; 201 Entom. Professor BUCHHOLZ.

Bot. 130. Physiology.—(½ to 2 units).* (Botany 113 to be taken concurrently.) 1 hour on either MWF from 1 to 3, the rest arrange; Botany Annex. Professor HOTTES.

Bot. 155. Plant Geography.—(½ to 2 units).* (Botany 118 to be taken concurrently.) 1 hour on Tu from 1 to 3, the rest arrange. Associate Professor VESTAL.

Bot. 170. Pathology and Mycology.—(½ to 2 units).* (Botany 117 to be taken concurrently.) Arrange. 304 N.H. Professor STEVENS.

Bot. 180. Ecology.—(½ to 2 units).* (Botany 118 to be taken concurrently.) 1 hour on Tu from 1 to 3, the rest arrange; 204 N.H. Associate Professor VESTAL.

BUSINESS LAW

(See Business Organization and Operation, C.)

BUSINESS ORGANIZATION AND OPERATION

(Including Accountancy and Business Law.)

A. ACCOUNTANCY

Courses for Undergraduates

Accy. 1a. Principles of Accounting.—Beginners' course. (Students who present one unit of bookkeeping for entrance will not be allowed credit in Accy. 1a and should register in Accy. 1e. Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above.)

Credits	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	119 Com.	KARRENBROCK
	A2	8	MWF	325 Com.	FRESE
	J1	8	TTS	326 Com.	LUKAS
	J2	8	TTS	108 Com.	
	B	9	MWF	119 Com.	KARRENBROCK
	K1	9	TTS	126 Com.	NEWCOMER
	K2	9	TTS	123 Com.	HACKETT

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Accy. 1a. Principles of Accounting (Concluded)

Credits	Section	Hours	Days	Room	Instructor
	C1	10	MWF	123 Com.	Hackett
	C2	10	MWF	328 Com.	Frese
	L1	10	TTS	325 Com.	Frese
	L2	10	TTS	326 Com.	Lukas
	D1	11	MWF	119 Com.	Karrenbrock
	D2	11	MWF	123 Com.	Hackett
	M1	11	TTS	328 Com.	Lukas
	E1	1	MWF	125 Com.	Benedetto
	F1	2	MWF	122 Com.	Newcomer
	F2	2	MWF	125 Com.	Benedetto
	G1	3	MWF	122 Com.	Newcomer
	G2	3	MWF	329 Com.	

Accy. 1b. Accounting Procedure.—A continuation of Accy. 1a. (Credit is given for Accy. 1a without Accy. 1b.) *Prerequisite:* Accy. 1a.

3	J	8	TTS	310 Com.	Moyer
	C	10	MWF	119 Com.	Baily
	L	10	TTS	306 Com.	Moyer
	E	1	MWF	119 Com.	Baily
	F	2	MWF	119 Com.	Baily

Accy. 1e. Principles of Accounting.—Similar to Accy. 1a. (Students who have one unit entrance credit in bookkeeping must take this course rather than Accy. 1a.)

2[1]	K	9	TT	329 Com.	Anderson
	L	10	TT	329 Com.	Anderson
	O	2	TT	307 Com.	Huegy
	P	3	TT	115 Com.	Hackett

[1]Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above.

Accy. 2a. Elementary Cost Accounting.—*Prerequisite:* Accy. 1b; registration or credit in Econ. 1.

3	A	8	MWF	122 Com.	Green
	J	8	TTS	115 Com.	Karrenbrock
	B	9	MWF	122 Com.	Green
	K	9	TTS	115 Com.	Theiss
	C1	10	MWF	326 Com.	Anderson
	L	10	TTS	115 Com.	Theiss
	D	11	MWF	122 Com.	Green
	E	1	MWF	223 Com.	McMahan
	F	2	MWF	223 Com.	McMahan
	G1	3	MWF	115 Com.	Theiss

Accy. 2b. Intermediate Accounting.—*Prerequisite:* Accy. 2a.

3	J	8	TTS	126 Com.	Newcomer
	K1	9	TTS	122 Com.	Green
	D	11	MWF	328 Com.	Frese
	F	2	MWF	328 Com.	Lukas

Courses for Advanced Undergraduates and Graduates

Accy. 3a. Advanced Accounting.—*Prerequisite:* Accy. 2a-2b; Econ. 3; an average of "C" or better in Accy. 1 and 2.

3	A	8	MWF	115 Com.	Filbey
	B	9	MWF	115 Com.	Filbey
	D	11	MWF	219 Com.	Littleton
	F	2	MWF	219 Com.	Littleton

Accy. 3b. Auditing.—*Prerequisite:* Accy. 3a. (3). 11 MWF; 115 Com. Professor Filbey.

Accy. 4a. Cost Accounting.—*Prerequisite:* Accy. 2a-2b.

2	L	10	TT	219 Com.	Schlatter
	M	11	TT	219 Com.	Schlatter
	O	2	TT	219 Com.	Schlatter

Accy. 4b. Accounting Systems.—*Prerequisite:* Accy. 2a-2b; Econ. 3. (Credit is given for either 4a or 4b separately.)

2	J	8	TT	119 Com.	Baily
	K	9	TT	119 Com.	Baily

Accy. 5a. C.P.A. Problems.—*Prerequisite:* Accy. 3a-3b.

3	C	10	MWF	317 Com.	Scovill
	D	11	MWF	317 Com.	Scovill

Accy. 13. Governmental Accounting.—*Prerequisite:* Accy. 3a. (2). 2 TT; 206 Adm.(E). Professor Morey.

Accy. 30. Budgets and Accounting Control.—*Prerequisite:* Accy. 2b. (3). 2 MWF; 115 Com. Associate Professor Theiss.

Accy. 90a. Senior Thesis or Independent Study.—(A) Senior Thesis: primarily for candidates for graduation with High Honors. *Prerequisite:* Senior standing in Accountancy. (2 or 4).* Arrange. (B) Independent study: see *Annual Register*, page 83, "University Honors." *Prerequisite:* Senior standing in Accountancy and a grade average in the upper ten percent of the junior class on Honors Day. (3 to 5).* Arrange. Professor LITTLETON and others.

Courses for Graduates

Accy. 103. Advanced Theory.—(1 unit). 3-5 Tu; 420 Com. Professor LITTLETON.

Accy. 104. Accounting Systems.—(1 unit). 3-5 Th; 209 Com. Professor SCOVILL.

Accy. 120. Income Tax Development.—(1 unit). Arrange. Professor FILBEY.

Accy. 129. Thesis.—(1 unit). 4-6 W; 420 Com. Professor LITTLETON and other members of staff.

B. BUSINESS ORGANIZATION AND OPERATION

Courses for Undergraduates

B.O.&O.1. Industrial Organization and Management.—*Prerequisite:* Econ. 1 or 2; 45 credit hours. Junior and senior engineering students are admitted with consent of instructor.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	328 Com.	MANDEVILLE
	J	8	TTS	312 Com.	MANDEVILLE
	K	9	TTS	312 Com.	MANDEVILLE
	C	10	MWF	307 Com.	ANDERSON
	D	11	MWF	307 Com.	ANDERSON
	E	1	MWF	325 Com.	MANDEVILLE

B.O.&O. 2. Marketing Organization and Operation.—*Prerequisite:* Econ. 1 and junior standing

3	Lect. I	8	M	215 Com.	CONVERSE
	Lect. II	10	M	215 Com.	CONVERSE
	Lect. III	2	M	215 Com.	CONVERSE
	Quiz A1	8	WF	310 Com.	CONVERSE
	A2	8	WF	224 Com.	HUEGY
	A3	8	WF	305 Com.	HESLIP
	C1	10	WF	306 Com.	CONVERSE
	C2	10	WF	224 Com.	HUEGY
	C3	10	WF	108 Com.	HESLIP
	L	10	TT	305 Com.	WHITLO
	M	11	TT	305 Com.	WHITLO
	F1	2	WF	307 Com.	HUEGY
	F2	2	WF	325 Com.	JONES
	F3	2	WF	326 Com.	WHITLO

B.O.&O. 11. Principles of Business.—*Prerequisite:* 45 credit hours. Not open to commerce students. (3). 9 MWF; 328 Com. Mr. MANDEVILLE.

Courses for Advanced Undergraduates and Graduates

B.O.&O. 4. Management in Manufacturing.—*Prerequisite:* B.O.&O. 1. (3). 8 MWF; 307 Com. Professor ANDERSON.

B.O.&O. 7. Salesmanship.—*Prerequisite:* B.O.&O. 2.

2	J	8	TT	328 Com.	JONES
	L	10	TT	328 Com.	JONES
	N	1	TT	328 Com.	JONES
	O	2	TT	328 Com.	JONES

B.O.&O. 8. Advertising.—*Prerequisite:* B.O.&O. 2.

3	Lect. I	9	W	215 Com.	RUSSELL
	Lect. II	2	W	215 Com.	RUSSELL
	B	9	MF	306 Com.	RUSSELL
	D	11	MF	108 Com.	HESLIP
	E	1	TT	310 Com.	HESLIP
	F	2	TT	310 Com.	HESLIP

B.O.&O. 10. Newspaper Advertising.—For students specializing in journalism (offered first semester only). *Prerequisite:* Journ. 5 and 6.

3	A	8	MWF	306 Com.	RUSSELL
	D	11	MWF	306 Com.	RUSSELL

B.O.&O. 20. Credits and Collections.—*Prerequisite:* B.O.&O. 2; junior standing. (3). 11 MWF; 224 Com. Mr. HUEGY.

B.O.&O. 75. Management of Public Utilities.—*Prerequisite:* Econ. 1 and Accy. 2a. (3). 8 MWF; 126 Com. Assistant Professor GRAY.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

B.O.&O. 90a. Thesis or Independent Study.—(A) Senior Thesis, primarily for candidates for graduation with High Honors. *Prerequisite:* Senior standing in Commerce. (2 or 4).* Arrange. (B) Independent study, see *Annual Register*, page 83, paragraph 7. *Prerequisite:* Senior standing in Commerce and a grade average in the upper ten percent of the junior class on Honors Day. (3 to 5).* Arrange. Members of the staff.

Courses for Graduates

B.O.&O. 102. Marketing Policies and Problems.—(1 unit). Arrange. Professor CONVERSE.

B.O.&O. 104. Scientific Management.—(1 unit). Arrange. Professor ANDERSON.

B.O.&O. 107. Sales Campaigns.—(1 unit). Arrange. Professor RUSSELL.

B.O.&O. 129. Thesis.—(1 unit). Arrange. Professor RUSSELL and other members of the staff.

C. BUSINESS LAW

Courses for Undergraduates

Bus. Law 1a. General Principles of Business Law.—*Prerequisite:* 60 hours of university credit including Econ. 1 and Accy. 1b.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	106 Com.	ROBERTS
	J	8	TTS	122 Com.	CURTIS
	B1	9	MWF	106 Com.	ROBERTS
	B2	9	MWF	126 Com.	CURTIS
	K	9	TTS	222 Com.	ASHER
	C	10	MWF	126 Com.	CURTIS
	L	10	TTS	222 Com.	ASHER
	D	11	MWF	222 Com.	DILLAVOU
	E	1	MWF	106 Com.	ROBERTS
	F	2	MWF	222 Com.	DILLAVOU

Bus. Law 1b. General Principles of Business Law.—*Prerequisite:* Bus. Law 1a.

3	A	8	MWF	219 Com.	ASHER
	B	9	MWF	219 Com.	ASHER
	L	10	TTS	122 Com.	CURTIS

Bus. Law 2. Elementary Law of Business.—This course is offered exclusively for non-commerce students. *Prerequisite:* Junior standing. (3). 2 MWF; 106 Com. Mr. ROBERTS.

Courses for Advanced Undergraduates and Graduates

Bus. Law 10. Law of Security Relations and Banking.—*Prerequisite:* Senior standing and registration or credit in Bus. Law 1b.

3	A	8	MWF	222 Com.	DILLAVOU
	B	9	MWF	222 Com.	DILLAVOU

CERAMIC ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2 to $7.50.

Courses for Undergraduates

Cer.E. 1. Ceramic Materials.—*Prerequisite:* Chem. 4. (3). Lect., 11 MWF; 214 Cer.

Cer.E. 21. Ceramic Pyrometry.—*Prerequisite:* General physics; inorganic chemistry. (1). 4 Tu; 214 Cer.

Cer.E. 97. Thesis.—(3 to 5).* Arrange.

Cer.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Advanced Undergraduates and Graduates

Cer.E. 5. Ceramic Bodies.—*Prerequisite:* Cer. 1, 4. (5). 9 MWF, 218 Cer.; 1-4 MF, 2-5 W, 113-114 Cer.

Cer.E. 7. Structural Clay Products.—*Prerequisite:* Cer. 1, 4. (3). Lect. and quiz, 11 TT, 1 W, 218 Cer. Lab., Sec. A, 1-4 Tu; Sec. B, 1-4 Th; Kiln House.

Cer.E. 16. Enamels.—*Prerequisite:* Cer. 14. (3). 10 W, 214 Cer.; 8-11 TT, 102, 113-114 Cer.

Cer.E. 18. Ceramic Microscopy.—*Prerequisite:* Chem. 40; Geol. 47 and 49 or equivalent. (3). 1-4 TT, 9-12 S; 312 Cer.

Cer.E. 22. Kilns and the Burning of Clay Products.—*Prerequisite:* Cer. 5 and 11. (3). 11 MWF; 218 Cer.

Cer.E. 23. Dryer and Kiln Design.—*Prerequisite:* Cer. 11; registration in Cer. 22; G.E.D. 1 or 4. (2). 1-4 MF; 212 Cer.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Courses for Graduates

Cer.E. 101. The Chemistry of the Compounds of Silicon.—*Prerequisite:* Elementary courses in organic and physical chemistry. (1 unit).

Cer.E. 102. General Technology of the Clay Industries.—*Prerequisite:* The elements of mineralogy and of physical chemistry. (1 or 2 units).*

CHEMISTRY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $18.

Students in the curricula of chemistry and chemical engineering, majors in chemistry, and all others who desire a thorough training in the fundamentals of chemistry and their applications to modern life, should select courses from the following, and usually in the sequence given: Chemistry 1 or 2, 6, 10, 24, 34a, 36b, 37b, 40, 41, 42b, 43b, 50a, and courses in the industrial, sanitary, and miscellaneous groups. Students in engineering should register for Chemistry 3 or 2, 4, 24. Students who are compelled to meet chemical requirements briefly may register for the following sequence: Chemistry 1 or 2, 5, 24, 32 or 33.

Students who find it impossible to take more than one semester's work are requested to register in Chemistry 1 or 2 in the second semester rather than in the first.

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, 6, 7, 93a, and inclusive of courses in qualitative, quantitative, and organic chemistry. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from not more than two of the following: bacteriology, botany, entomology, geology, mathematics, philosophy, physiology, physics, psychology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in Chemistry 1, 2, 3, 4, 5, 6, and 7.

Courses for Undergraduates

Note: Attention is called to the general survey courses, Chemistry 7 and 93a.

Chem. 1. Inorganic Chemistry.—*Prerequisite:* One unit of entrance credit in physics, or 2½ units of entrance credit in mathematics, or registration in Math. 1a or 2 or 3. Students may register in either lecture section but are required to take the quiz and laboratory in some one section.

[1]Students who have received entrance credit for high school chemistry are given only 3 hours credit for Chem. 1. Seniors will receive only 3 hours credit.

Credits	Section	Hours	Days	Room	Instructor
3 or 5[1]	A Lect.	11	TT	100 Chem.	Copley
	B Lect.	9	TT	100 Chem.	Hopkins
	1 Quiz	3	TT	300 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	2 Quiz	10	TT	103 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	3 Quiz	1	TT	103, 116 Chem.	
	Lab.	2–5	TT	101 Chem.A.	
	4 Quiz	2	WF	103 Chem.	
	Lab.	1–4	TT	101 Chem.A.	
	5 Quiz	11	MW	103 Chem.	
	Lab.	1–4	TT	212 Chem.A.	
	6 Quiz	8	TT	163, 162, 116 Chem.	
	Lab.	8–10	MWF	1 Chem.A.	
	7 Quiz	1	TT	204 Chem.	
	Lab.	1–3	MWF	101 Chem.A.	
For students in premedical courses:					
	8 Quiz	10	TT	301 Chem.	
	Lab.	1–3	MWF	101 Chem.A.	
	9 Quiz	11	MW	201 Chem.	
	Lab.	1–4	TT	212 Chem.A.	
	10 Quiz	2	WF	300 Chem.	
	Lab.	1–4	TT	101 Chem.A.	
	11 Quiz	10	TT	116 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	12 Quiz	3	TT	204 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
For students in the College of Agriculture:					
	14 Quiz	3	TT	210 Chem.A.	
	Lab.	10–12	MWF	1 Chem.A.	
	15 Quiz	10	TT	210 Chem.A.	
	Lab.	10–12	MWF	201 Chem.A.	
	16 Quiz	1	TT	308 Chem.A.	
	Lab.	1–3	MWF	201 Chem.A.	
	17 Quiz	8	TT	9 Chem.A.	
	Lab.	1–3	MWF	201 Chem.A.	
For students majoring in Home Economics:					
	18 Quiz	1	TT	301 Chem.	
	Lab.	1–3	MWF	1 Chem.A.	
	19 Quiz	8	TT	204 Chem.	
	Lab.	8–10	MWF	1 Chem.A.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Chem. 2. Inorganic Chemistry.—(For all students who have had one year of high school chemistry.) *Prerequisite:* One unit of entrance credit in chemistry. Students may register for any lecture section, but are required to take the quiz and laboratory in some one section. Students in the curriculum of chemistry or chemical engineering should register in Sections 47 and 48. *Note:* Students whose preparation in chemistry is inadequate are advised to register for Chemistry 1 or 3.

Credits	Section	Hours	Days	Room	Instructor
2, 3, or 5[1]	D Lect.	10	F	100 Chem.	Hopkins
	E Lect.	11	F	100 Chem.	Bailar
	F Lect.	9	F	100 Chem.	Bailar
	20 Quiz	10	TT	9 Chem.A., 300 Chem.	
	Lab.	10–12	S	1 Chem.A.	
	21 Quiz	10	TT	303 Chem.	
	Lab.	8–10	Th	1 Chem.A.	
	22 Quiz	2	MW	201 Chem.	
	Lab.	8–10	Tu	212 Chem.A.	
	23 Quiz	10	MW	103, 204 Chem.	
	Lab.	3–5	W	212 Chem.A.	
	24 Quiz	3	MW	300 Chem.	
	Lab.	3–5	F	212 Chem.A.	
	25 Quiz	10	MW	201 Chem.	
	Lab.	10–12	Th	212 Chem.A.	
For students in premedical courses:					
	26 Quiz	10	TT	308 Chem.A.	
	Lab.	8–10	Th	1 Chem.A.	
	27 Quiz	2	MW	204 Chem.	
	Lab.	8–10	Tu	212 Chem.A.	
	28 Quiz	10	MW	300 Chem.	
	Lab.	10–12	Th	212 Chem.A.	
	29 Quiz	11	TT	204 Chem.	
	Lab.	1–3	Th	201 Chem.A.	
	30 Quiz	9	TT	9 Chem.A.	
	Lab.	1–3	W	212 Chem.A.	
For students in the College of Engineering:					
	31 Quiz	11	TT	201, 303 Chem.	
	Lab.	8–10	Th	212 Chem.A.	
	32 Quiz	11	TT	300 Chem.	
	Lab.	1–3	Th	201 Chem.A.	
	33 Quiz	8	TT	300 Chem.	
	Lab.	8–10	S	101 Chem.A.	
	34 Quiz	9	TT	8 Chem.A.	
	Lab.	1–3	W	101 Chem.A.	
	35 Quiz	1	TT	303 Chem.	
	Lab.	8–10	S	101 Chem.A.	
	36 Quiz	8	WF	210 Chem.A., 103 Chem.	
	Lab.	8–10	M	101 Chem.A.	
	37 Quiz	1	WF	8 Chem.A.	
	Lab.	2–4	W	101 Chem.A.	
	38 Quiz	9	MW	210 Chem.A., 163 Chem.	
	Lab.	1–3	M	101, 201 Chem.A.	
For students in the College of Agriculture:					
	40 Quiz	8	TT	303 Chem.	
	Lab.	8–10	S	201 Chem.A.	
	41 Quiz	3	TT	301 Chem.	
	Lab.	10–12	S	101 Chem.A.	
	42 Quiz	10	TT	204 Chem.	
	Lab.	8–10	Th	1 Chem.A.	
For students majoring in Home Economics:					
	44 Quiz	8	TT	161, 301 Chem.	
	Lab.	8–10	M	201 Chem.A.	
For students in the curricula of Chemistry and Chemical Engineering:					
	47 Quiz	11	MW	300, 301 Chem.	
	Lab.	1–3	Tu	201 Chem.A.	
	48 Quiz	10	MW	9, 308 Chem.A.	
	Lab.	1–3	Th	201 Chem.A.	

[1]Seniors will receive only 2 hours credit in Chem. 2. Students below the rank of senior receive 5 hours credit, provided their high school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.

Chem. 3. Inorganic Chemistry.—(For engineering students who have had no chemistry.) Students may register for any lecture section, but are required to take the quiz and laboratory in some one section. *Note:* Students who have credit for high school chemistry should register for Chemistry 2.

3 or 4[1]	A Lect.	11	TT	100 Chem.	Copley
	B Lect.	9	TT	100 Chem.	Hopkins
	80 Quiz	11	MW	210 Chem.A.	
	Lab.	1–3	WF	212 Chem.A.	
	81 Quiz	8	WF	300 Chem.	
	Lab.	1–3	TT	1 Chem.A.	
	82 Quiz	1	WF	303 Chem.	
	Lab.	8–10	TT	201 Chem.A.	
	83 Quiz	11	MW	116 Chem.	
	Lab.	8–10	MW	101 Chem.A.	
	84 Quiz	9	TT	301 Chem.	
	Lab.	3–5	TT	1 Chem.A.	
	85 Quiz	9	TT	300 Chem.	
	Lab.	3–5	MW	1 Chem.A.	

[1]Students who have used their high school chemistry for entrance credit are given only 3 hours credit for Chem. 3. Seniors will receive only 3 hours credit.

Chem. 4. Chemistry of the Metallic Elements.—(For students in engineering.) *Prerequisite:* Chem. 1, 2, or 3.

Credits	Section	Hours	Days	Room	Instructor
3 or 4[1]	Lect.	10	MF	112 Chem.A.	AUDRIETH
	90 Quiz	8	MW	201 Chem.	
[1]Seniors will receive only 3 hours credit.	Lab.	1–3	MF	1 Chem.A.	
	91 Quiz	1	MW	210 Chem.A.	
	Lab.	1–3	TT	1 Chem.A.	
	92 Quiz	10	TT	8 Chem.A.	
	Lab.	8–10	TT	1 Chem.A.	

Chem. 5. Inorganic Chemistry and Qualitative Analysis.—(For students in agriculture, home economics, and premedical courses.) *Prerequisite:* Chem. 1, 2, or 3.

3 or 5[1]	Lect.	9	TT	112 Chem.A.	QUILL
For students in home economics and premedical courses:					
	50 Quiz	8	TT	8, 210 Chem.A.	
	Lab.	8–10	MWF	201 Chem.A.	
[1]Seniors will receive only 3 hours credit.	51 Quiz	3	TT	9 Chem.A.	
	Lab.	3–5	MWF	201 Chem.A.	
	52 Quiz	11	TT	9 Chem.A.	
	Lab.	10–12	MWF	201 Chem.A.	
	53 Quiz	1	TT	9 Chem.A.	
	Lab.	3–5 8–10	TT S	201 Chem.A.	
For students in the College of Agriculture:					
	58 Quiz	1	TT	210 Chem.A.	
	Lab.	3–5 8–10	TT S	201 Chem.A.	
	59 Quiz	11	TT	210 Chem.A.	
	Lab.	10–12	MWF	201 Chem.A.	

Chem. 6. Inorganic Chemistry.—(For all students except those in agriculture, engineering, home economics, and premedical courses.) *Prerequisite:* Chem. 1, 2, or 3.

3 or 5[1]	Lect.	10	TT	112 Chem.A.	STILLWELL
	66 Quiz	11	TT	8 Chem.A.	
[1]Seniors will receive only 3 hours credit.	Lab.	10–12	MWF	101 Chem.A.	
	67 Quiz	1	TT	8 Chem.A.	
	Lab.	1–3	MWF	101 Chem.A.	

Chem. 7. General Chemistry.—A general survey course in chemistry. This course may be applied toward meeting the science group requirements but is not accepted as filling the prerequisite for any other course in chemistry except Chemistry 2. *Note:* Students who have had high school chemistry are not admitted to Chemistry 7.

3 or 5[1]	Lect.	10	TT	100 Chem.	REED
	70 Quiz	10	MWF	210 Chem.A.	
	Lab.	8–11	S	1 Chem.A.	
[1]Seniors will receive only 3 hours credit.	71 Quiz	8	MWF	8 Chem.A.	
	Lab.	1–4	Th	1 Chem.A.	
	72 Quiz	1	MWF	9 Chem.A.	
	Lab.	2–5	M	1 Chem.A.	
	73 Quiz	1	MWF	308 Chem.A.	
	Lab.	2–5	F	1 Chem.A.	
	74 Quiz	10	MWF	163 Chem., 8 Chem.A.	
	Lab.	1–4	W	1 Chem.A.	
	75 Quiz	10	MWF	116, 301 Chem.	
	Lab.	1–4	Tu	1 Chem.A.	

Chem. 10. Qualitative Analysis.—(Open to all students; required of those majoring in chemistry or registered in the curricula of chemistry or chemical engineering.) *Prerequisite:* Chem. 6.

5 or 2[1]	Lect.	9	W	100 Chem.	REEDY
[1]Students who already have credit for the laboratory work of qualitative analysis may, with the consent of the instructor, register for lecture and quiz only, and receive a credit of 2 hours. Such students must register in section 4.	1 Quiz	9	MF	103, 111 Chem.	
	Lab.	8–11	TTS	310 Chem.A.	
	2 Quiz	9	MF	201, 300 Chem., 308 Chem.A.	
	Lab.	1–4	MWF	310 Chem.A.	
	3 Quiz	9	MF	8, 9 Chem.A.	
	Lab.	1–4 8–11	TT S	310 Chem.A. 310 Chem.A.	
	4 Quiz[1]	9	MF	116 Chem.	

Chem. 22. Elementary Quantitative Analysis.—*Prerequisite:* Chem. 4 or 5. (For all students who have not followed the sequence Chemistry 1, 2 or 3, 6 and 10.)

5	Lect.	11	W	112 Chem.A.	ENGLIS
	A Quiz	11	MF	308 Chem.A.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	11	MF	8, 9 Chem.A.	
	Lab.	1–4 8–11	TT S	301 Chem.A.	

Chem. 24. Quantitative Analysis.—*Prerequisite:* Chem. 10.

Credits	Section	Hours	Days	Room	Instructor
5	Lect.	9	F	112 Chem.A.	CLARK
	A Quiz	9	MW	204, 301 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	9	MW	303 Chem.	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S		

Chem. 32. Elementary Organic Chemistry.—(Especially for students in agriculture.) *Prerequisite:* Chem. 5 or 10.

3	Lect.	8	ThS	217 Chem.	FUSON and assistants
	Quiz	8	Tu	201, 217 Chem., 241 N.H.	
	A Lab.	1–4	Tu	250 Chem.	
	B Lab.	9–12	W	250 Chem.	

Chem. 33. Elementary Organic Chemistry.—(For students in home economics and pre-medical courses.) *Prerequisite:* Chem. 10 or 5. (Limited to 120 students.)

5	Lect.	8	MW	100 Chem.	SHRINER and assistants
	Quiz	8	F	100 Chem. 204 Chem. 163 Chem. 217 Chem. 303 Chem.	
	Conf.	8	Tu	100 Chem.	
	Lab.	9–11	Tu	250 Chem.	
		8–11	Th	250 Chem.	

Quiz section assignments will be made by the instructor after registration is complete.

Chem. 34a. Organic Chemistry.—(For students majoring in chemistry or for those registered in the curriculum of chemistry or of chemical engineering.) *Prerequisite:* Chem. 6, 10, and 24.

5	Lect.	9	MWF	217 Chem.	MARVEL and assistants
	Conf.	1	M	217 Chem.	
	Lab.	2–4	M	250 Chem.	
		1–4	W		

Chem. 90a. Thesis.—(*Note:* Beginning September 1932 senior research in chemistry and chemical engineering will be optional instead of required. Each student who desires research must receive special permission both from the instructor under whom he is to work and from the head of the division in which the research is to be taken. Such written permission should be presented, at the time of registration, to the adviser for the chemists or chemical engineers.) *Prerequisite:* Chem. 24, 34a, 40, 41, 42, and 43b, or the consent of the head of the department. (3 to 5).* Professor ADAMS (in charge).

Chem. 93a. General Chemistry.—Lectures, demonstrations, and recitations. An elementary résumé of the various fields of chemistry. (*Note:* This course is accepted in partial fulfilment of the general science requirement. It is not accepted as a prerequisite to other chemistry courses.) *Prerequisite:* Junior standing or consent of the instructor. (Registration for 1932-33 limited to 35 students.) (3). 2 MWF; 100 Chem. Professor BUSWELL and assistant.

Courses for Advanced Undergraduates and Graduates

Chem. 15a. Inorganic Chemistry.—*Prerequisite:* Senior standing. (2). 9 MW; 112 Chem.A.

Chem. 16a. Inorganic Chemistry.—(Laboratory.) *Prerequisite:* Senior standing, registration or credit in Chem. 15a.

2	Conf.	9	F	301 Chem.	
	Lab.	Arrange		350 Chem.	

Chem. 27. Special Methods and Instruments in Quantitative Analysis.—*Prerequisite:* Chem. 24, 34a, 40 and 41, or registration in 40 and 41.

3	Lect.	11	Tu	161 Chem.	SMITH
	A Lab.	1–4	TT	305 Chem.	
	B Lab.	1–4	F	305 Chem.	
		8–11	S	305 Chem.	

Chem. 38a. Qualitative Organic Analysis.—*Prerequisite:* Chem. 36b and 37b.

3	Conf.	1	TT	217 Chem.	FUSON
	Lab.	2–4	TT	250 Chem.	

Chem. 40. Elementary Physical Chemistry.—*Prerequisite:* Chem. 24; Physics 1a-1b or 7a-7b; Math. 7 or 8. (3). 10 MWF; 161 Chem. Professor RODEBUSH.

Chem. 41. Elementary Physical Chemistry.—(Laboratory.) To accompany Chem. 40.

1	A Lab.	1–4	Tu	124 Chem.	PHIPPS
	B Lab.	1–4	Th		
	C Lab.	1–4	F		

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Chem. 42. Elementary Physical Chemistry.—*Prerequisite:* Chem. 40. (3). 9 TTS; 161 Chem. Associate Professor PHIPPS.

Chem. 43. Elementary Physical Chemistry.—(Laboratory.) *Prerequisite:* Chem. 40, 41 and registration in Chem. 42.

Credits	Section	Hours	Days	Room	Instructor
1	A Lab.	1–4	M	124 Chem.	PHIPPS
	B Lab.	1–4	Tu	124 Chem.	
	C Lab.	1–4	W	124 Chem.	
	D Lab.	1–4	Th	124 Chem.	
	E Lab.	1–4	F	124 Chem.	

Chem. 44a. Advanced Physical Chemistry.—*Prerequisite:* Chem. 40, 41. (2). 10 TT; 161 Chem. Associate Professor PHIPPS.

Chem. 50a. Physiological Chemistry.—*Prerequisite:* Chem. 24 or 22 and 33 or 34a.

5	Lect.	9	TT	116 Chem.	ROSE
	A Lab.	1–4	TT	450 Chem.	
		8–11	S		
	B Lab.	1–4	MWF	450 Chem.	

Chem. 60a. Chemical Technology.—*Prerequisite:* Chem. 24, registration in Chem. 34a. (Estimated cost of inspection trip is $30-$35 per student.)

4	Lect.	11	MWF	161 Chem.	KISTLER
	A Lab.	1–5	Tu	50 Chem.	KISTLER
	B Lab.	1–5	Th	50 Chem.	
	C Lab.	1–5	F	50 Chem.	

Chem. 61a. Principles of Chemical Engineering.—*Prerequisite:* Chem. 42 or senior standing.

4	Lect.	9	MWF	161 Chem.	KRASE
	A Lab.	1–5	M	50 Chem.	HOWARD
	B Lab.	1–5	W	50 Chem.	HOWARD
	C Lab.	1–5	Tu	50 Chem.	HOWARD

Chem. 62a. Principles of Research and Development.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (2). Lect., 10 MW; 111 Chem. Professor KEYES.

Chem. 71a. Sampling, Grinding, and Mixing.—*Prerequisite:* Registration in Chem. 60a. (1). Lecture, arrange. Mr. HOWARD.

Chem. 73a. Metallurgy.—*Prerequisite:* Senior standing in engineering courses only. (3). Lect., 8 MWF; 161 Chem. Mr. HOWARD.

Chem. 86a. Chemistry of Sanitation.—*Prerequisite:* Chem. 24. Lectures, demonstrations, and field trips. (3). 10 MWF; 162 Chem. Professor BUSWELL.

Chem. 92a. Chemical Literature and Reference Work.—(Required of juniors in chemistry and chemical engineering; expected also of juniors taking major work in chemistry.) *Prerequisite:* 18 hours of chemistry, one year of French or German, junior standing.

1	A	10	Th	201 Chem.	BARTOW
	B	8	F	201 Chem.	
	K	Arrange		Graduates Only	

Chem. 95a. History of Science with Particular Reference to Chemistry.—*Prerequisite:* Junior standing and 20 hours of laboratory science. (2). 8 TT; 111 Chem. Dr. BARTOW.

Courses for Graduates

Chem. 101a. Inorganic Chemistry.—(½ unit). (For laboratory work see Chem. 102a.) Twice a week 8 MW; 303 Chem. Professor HOPKINS.

Chem. 102a. Inorganic Chemistry.—(Laboratory work to accompany or follow Chem. 101a.) Arrange. (¼ to 1 unit).* Professor HOPKINS.

Chem. 105a. Inorganic Seminar and Special Topics.—(¼ to 1 unit).* Once, twice, or three times per week. Seminar, 11 S; 162 Chem. Special topic: Chemistry of non-aqueous solvents. (Dr. AUDRIETH). 9 MW; 105 Chem.A. Professor HOPKINS.

Chem. 123a. Qualitative Analysis.—(½ to 1¼ units).* Twice a week. 11 MF; 162 Chem. Laboratory. Arrange. Associate Professor REEDY.

Chem. 125a. Quantitative Analysis.—(Seminar). (Required of all students taking a major or minor in analytical chemistry.) (¼ to 1 unit).* 9 S; 217 Chem. Professor CLARK.

Chem. 126a. Quantitative Instrumental and Chemical Methods of Analysis in Organic Chemical Research.—(Ultimate bomb analysis, gas density, polarimetry, refractometry, spectrophotometry, colorimetry, microscopy, etc.). (½ to 1¼ units).* Twice a week. 8 TT; 308 Chem.A. Laboratory, arrange; 305-A Chem. Assistant Professor ENGLIS.

Chem. 127a. Modern Applications of Radiation to Chemical and Industrial Problems.—(X-rays, radioactivity and optical spectroscopy). (½ to 1 unit).* 10 TT; 217 Chem. Professor CLARK.

Chem. 132a. Organic Chemistry.—(First course). (¾ unit). 11 TT; 217 Chem. Associate Professor SHRINER.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Chem. 134. Organic Chemistry.—Chiefly laboratory work. (½ to 1 unit).* Arrange. 219 Chem. Professor MARVEL.

Chem. 135a. Organic Chemistry.—(Seminar). (¼ unit). Once a week. 10 W; 217 Chem. Professor ADAMS.

Chem. 136a. Organic Chemistry.—Special Topics. (¾ unit). Twice a week. 11 TT; 103 Chem. Professor MARVEL.

Chem. 145a. Physical Chemistry.—(Seminar). (¾ unit). Twice a week. 10-12 S; 176 Chem. Professor RODEBUSH.

Chem. 152a. Physiological Chemistry.—Chiefly laboratory. (½ to 1 unit).* Arrange. 463 Chem. Professor ROSE and assistant.

Chem. 155a. Physiological Chemistry.—(Seminar required of all students majoring in physiological chemistry). (¾ unit). Two hours a week. 9-11 F; 456 Chem. Professor ROSE.

Chem. 160a. Advanced Chemical Technology and Chemical Engineering.—*Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 1 MW; 162 Chem. Professor KEYES.

Chem. 161a. Chemical Plant Design.—Calculations and layout of equipment for recently developed processes. *Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 9 TT; 162 Chem. Associate Professor KRASE.

Chem. 186a. Sanitary Chemistry.—(½ to 1¼ units).* Arrange. One to five times a week. 60-B Chem. Professor BUSWELL.

Chem. 190a. Research.—Work may be taken in the following subjects:

Physical and Electrochemistry.—Professor RODEBUSH, Associate Professor PHIPPS, Dr. COPLEY.

Inorganic Chemistry.—Professor HOPKINS; Associate Professor REEDY; Dr. AUDRIETH, Dr. BAILAR, Dr. STILLWELL, Dr. QUILL, Dr. COPLEY.

Analytical Chemistry.—Professor CLARK; Associate Professor REEDY; Assistant Professors SMITH, ENGLIS.

Food Chemistry.—Assistant Professor ENGLIS.

Applied X-rays.—Professor CLARK, Dr. STILLWELL.

Organic Chemistry.—Professors NOYES, ADAMS, MARVEL, FUSON; Associate Professor SHRINER; Dr. BAILAR.

Zymochemistry.—Professor BUSWELL.

Phytochemistry.—Assistant Professor ENGLIS.

Physiological Chemistry.—Professor ROSE.

Industrial Chemistry.—Professor KEYES; Associate Professor KRASE; Assistant Professor KISTLER.

Ceramic Chemistry.—Professor PARMELEE.

CIVIL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $2.50.

Courses for Undergraduates

C.E. 1. Plane Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

Credits	Section	Hours	Days	Room	Instructor
3	E1	8–10	MWF	C.E.S.B.	
	E2	8–10	MWF	C.E.S.B.	
	F1	10–12	MWF	C.E.S.B.	
	F2	10–12	MWF	C.E.S.B.	
	G	1–3	MWF	C.E.S.B.	

C.E. 3. Railway and Highway Surveying.—*Prerequisite:* C.E. 1, 15, 16 or 18.

4	E	8	TT	102 E.H.
		8–11	MF	407 E.H.

C.E. 15. General Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

3	E	8–11	MF	C.E.S.B.
	F	8–11	TT	C.E.S.B.
	G	1–4	MF	C.E.S.B.
	H1	1–4	TT	C.E.S.B.
	H2	1–4	TT	C.E.S.B.

C.E. 17. Surveying for Landscape Architects.—*Prerequisite:* Math. 4.

3	E	1–3	MWF	C.E.S.B.

C.E. 20. Highway Construction.—*Prerequisite:* C.E. 1.

2	E	8	TT	112 M.T.L.
	F	9	TT	102 E.H.
	G	10	TT	101 E.H.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

C.E. 21. Highway Construction.—*Prerequisite:* C.E. 20.

Credits	Section	Hours	Days	Room	Instructor
2	E	11	TT	102 E.H.	
	F	10	TT	102 E.H.	
	G	9	TT	112 M.T.L.	
	H	8	TT	101 E.H.	

C.E. 22. Highway Design.—*Prerequisite:* C.E. 21.

4	E	10	MWF	101 E.H.	
		2–5	Th	309 E.H.	

C.E. 30a. Highway Materials Laboratory.—*Prerequisite:* Registration or credit in C.E. 21 or 28a.

1	E	1–4	Th	201 M.T.L.	
	F	1–4	Tu	201 M.T.L.	
	G	1–4	F	201 M.T.L.	
	H	1–4	M	201 M.T.L.	

C.E. 35. Plain Concrete.—*Prerequisite:* Sophomore standing in engineering, architecture, or landscape architecture.

2	E	10	M	112 M.T.L.	
		8–11	Th	4 M.T.L.	

C.E. 40a. Water Supply.—*Prerequisite:* T.A.M. 3 and 4.

4	E	10	MWF	208 E.H.	
		1–4	Tu	211 E.H.	
	F	11	MWF	208 E.H.	
		1–4	Tu	214 E.H.	
	G	11	MWF	205 E.H.	
		1–4	Tu	309 E.H.	

C.E. 42a. Water Purification.—*Prerequisite:* Registration or credit in C.E. 40a, Chem. 80a, and Bact. 5a.

2	E	9	Tu	208 E.H.	
		2–5	Th	214 E.H.	

C.E. 49. Municipal Sanitation.—*Prerequisite:* Junior standing in engineering, architecture, or landscape architecture.

3	E	2	MWF	101 E.H.	

C.E. 50. Hydrology.—*Prerequisite:* Senior standing in civil engineering.

2	E	9	TT	205 E.H.	
	F	10	TT	205 E.H.	

C.E. 60a. Bridge and Building Construction.—*Prerequisite:* Sophomore standing in engineering.

3	E1	10	MWF	102 E.H.	
	E2	10	MWF	400 E.H.	
	F1	1	MWF	102 E.H.	
	F2	1	MWF	101 E.H.	
	G	8	MWF	400 E.H.	

C.E. 61a. Structural Stresses.—*Prerequisite:* Registration or credit in T.A.M. 3.

4	E	11	MWF	405 E.H.	
		1–4	Tu	419 E.H.	
	F	11	MWF	400 E.H.	
		1–4	Th	419 E.H.	
	G	9	MWF	405 E.H.	
		1–4	Tu	419 E.H.	
	H	9	MWF	400 E.H.	
		1–4	Th	419 E.H.	

C.E. 64a. Structural Design.—*Prerequisite:* C.E. 62 and 63a.

4	E	1	Th	405 E.H.	
		1–4	MWF	211 E.H.	
	F	1	Th	400 E.H.	
		1–4	MWF	214 E.H.	
	G	1	Th	205 E.H.	
		1–4	MWF	309 E.H.	

C.E. 66. Masonry Construction.—*Prerequisite:* C.E. 61a and 63a.

3	E	8	MWF	101 E.H.	

C.E. 67. Statically Indeterminate Structures.—*Prerequisite:* Registration or credit in C.E. 64a.

3	E	9	MWF	205 E.H.	
	F	10	MWF	205 E.H.	

C.E. 86. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 61a.

4	E	9	MF	408 E.H.	
		8–11	TT	408 E.H.	

C.E. 89a. Structural Engineering.—*Prerequisite:* Senior standing in engineering or architecture.

3	E	9	MWF	102 E.H.	

C.E. 90a. Contracts and Specifications.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	8	TT	205 E.H.	
	F	9	MW	101 E.H.	
	G	11	TT	208 E.H.	

C.E. 91. Estimates and Costs.—*Prerequisite:* Senior standing in engineering or architecture.

Credits	Section	Hours	Days	Room	Instructor
2	E	8	MW	405 E.H.	
	F	11	TT	405 E.H.	

C.E. 97. Thesis.—(2 or 3).* Arrange.

C.E. 99. No credit, but required for graduation.

Courses for Graduates

C.E. 101. Water Supply.—(1 unit). 11 TT; 204 E.H. Professor BABBITT.

C.E. 103. Highway Engineering.—(1 unit). 11 MW; 308 E.H. Professor CRANDELL.

C.E. 105. Reinforced Concrete Theory.—(1 unit). 4 MF; 205 E.H. Professor CROSS.

C.E. 106. Reinforced Concrete Structures.—(1 unit). 4 TT; 205 E.H. Professor CROSS.

C.E. 109. Water Purification and General Sanitation.—(1 unit). 3 MF; 304 E.H. Professor BABBITT.

C.E. 124. Steel Building Design.—(1 unit). 9 MW; 208 E.H. Professor HUNTINGTON.

C.E. 130. Hydrology.—(1 unit). 1 TT; 102 E.H. Professor PICKELS.

C.E. 140. Research.—(½ to 2 units).* Arrange.

CLASSICS

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, and 17.

Minors: 20 hours chosen from not more than two of the following: foreign language (Latin being especially recommended), English literature, history, and philosophy. At least eight hours must be taken in each subject, if two are chosen.

Latin

Major: 20 hours, excluding Latin 1a-1b, 6, 11a-11b, 13, and 20, and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours chosen from not more than two of the following: foreign language (Greek being especially recommended), English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17 and Latin 1a-1b, 6, 9, 11a-11b, 13, 20. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours chosen from not more than two of the following: foreign language, English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

A. GREEK

Courses for Undergraduates

Greek 1a. Elementary Greek.—(4). 8 TWTF; 114 L.H. Dr. MYLONAS.

Greek 3. Second Year Greek. Plato.—*Prerequisite:* Greek 1a-1b. (3). 11 MWF; 114 L.H. Mr. DUNKIN.

Courses for Advanced Undergraduates and Graduates

Greek 5. Herodotus and Lyric Poets.—*Prerequisite:* Greek 3 and 4 or an equivalent. (3). 9 TTS; 114 L.H. Associate Professor PERRY.

Greek Life and History

For courses 15, 16, 18, and History 55 a knowledge of Greek is not presupposed.

Greek 15. Greek Athletics.—*Prerequisite:* Sophomore standing. (1). 1 Tu; 202 L.H. Dr. MYLONAS.

Greek 16. Life of the Ancient Greeks.—*Prerequisite:* Sophomore standing. (1). 3 Th; 120 L.H. Dr. MYLONAS.

Greek 18. Greek Archaeology.—*Prerequisite:* Sophomore standing. (2). 2 TT; 120 L.H. Dr. MYLONAS.

Greek History.—See History 55. 1 MWF; 202 L.H. Professor OLDFATHER.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Courses for Graduates

Students desiring to take graduate work in Greek should have had at least three years of college Greek or an equivalent.

Greek 110a. See Latin 110a.

Greek 121. Thucydides.—(1 unit). Twice a week. Arrange. Associate Professor PERRY.

B. LATIN

Courses for Undergraduates

Latin 6. Cicero.—*Prerequisite:* Two entrance units in Latin or Latin 11a-11b. (4). 2 TWTF; 114 L.H. Mr. DUNKIN.

Latin 1a. Ovid.—*Prerequisite:* Three entrance units in Latin or Latin 6. (4). 1 TWTF; 114 L.H. Mr. RAPP.

Latin 12a. Plautus, Terence, Catullus.—*Prerequisite:* Four entrance units in Latin or Latin 1a-1b. (4). 9 TWTF; 120 L.H. Associate Professor PERRY.

Latin 3. Lucretius and Horace (Odes).—*Prerequisite:* Latin 12a-12b or an equivalent. (3). 10 MWF; 120 L.H. Professor CANTER.

Latin 5a. Latin Composition.—*Prerequisite:* Three entrance units in Latin or Latin 6. Required to secure the department's recommendation to teach. (1). 4 Th; 120 L.H. Professor CANTER.

Roman Life and History

Course 20 presupposes no knowledge of Latin and is open to all students except freshmen.

Latin 20. Mythology of Greece and Rome.—*Prerequisite:* Sophomore standing. (2). 11 TT; 202 L.H. Associate Professor PERRY.

Courses for Advanced Undergraduates and Graduates

Latin 23. Livy, Tibullus, and Propertius.—*Prerequisite:* 12 hours of Latin acceptable for a major. (3). 2 MWF; 120 L.H. Professor CANTER.

Latin 30a. Honors Course.—Thesis or a special course of study approved by the department. *Prerequisite:* Senior standing and 14 hours of Latin acceptable for a major. (2). Arrange. Professor CANTER.

Courses for Graduates

Students desiring to take graduate work in Latin should have had at least three years of College Latin in addition to the Latin presented to meet entrance requirements.

Latin 102. Roman Oratory.—(1 unit). Twice a week. 4 MW; 120 L.H. Professor CANTER.

Latin 104. Latin Paleography.—(1 unit). Twice a week. Arrange. Professor OLDFATHER.

Latin 110a. Bibliography and Criticism.—(1 unit). Arrange. Professors OLDFATHER, CANTER; and Associate Professor PERRY.

DAIRY HUSBANDRY

Note: Certain courses in this department require laboratory fees varying from $2 to $3.

Courses for Undergraduates

D.H. 1. Testing Dairy Products.—*Prerequisite:* D.H. 24b or 30 hours of university work. (3). 1-4 TT; 503 Agr. Assistant Professor OVERMAN, Mr. GARRETT.

D.H. 6a. Dairy Plant Operations.—*Prerequisite:* D.H. 1, 11, and 12, or registration therein. (3). Arrange. Associate Professor TRACY, Mr. TUCKEY.

D.H. 23a-j. Investigation with Thesis.—(Continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* 90 hours of university work including not less than 20 hours pertinent to thesis problem and approval of head of department. (5). Arrange.

(a) **Dairy Bacteriology.**—Professor PRUCHA, Assistant Professor BRANNON.
(c) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(e) **Dairy Farming and Economic Milk Production.**—Professor FRASER.
(g) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.
(j) **Dairy Production.**—Professors GAINES, YAPP; Associate Professor NEVENS.

D.H. 24a. Elementary Dairy Production.—

Credits	Section	Hours	Days	Room	Instructor
3[1]	Lect.	9	M	127 New Agr.	NEVENS, KUHLMAN, and SHAW
	Lab.	8–10	W	S.P.	
	Quiz	9	F	205 Agr.	

[1]Only 2 hours for juniors and seniors.

D.H. 24b. Elementary Testing and Manufacture of Dairy Products.—*Prerequisite:* Credit or registration in Chem. 1 or 2.

Credits	Section	Hours	Days	Room	Instructor
3[1]	Lect.	2	Th	D. Mfrs.	TUCKEY and RAMSEY
[1]Only 2 hours for juniors and seniors.	Lab.	1–3	Tu	D. Mfrs.	
	Quiz	1	Th	D. Mfrs.	

Courses for Advanced Undergraduates and Graduates

D.H. 4. Ice Cream Making.—*Prerequisite:* D.H. 1, 11, 12; and 60 hours of university work. This course is accompanied by an inspection trip costing from $15 to $20. (5). 1-4 TT, 4 MWF; D. Mfrs. Associate Professor TRACY.

D.H. 10. Advanced Dairy Bacteriology.—*Prerequisite:* Bact. 5a and 5b; 60 hours of university work. (4). 1-4 MWF; 456 Agr. Professor PRUCHA, Assistant Professor BRANNON.

D.H. 17. Advanced Study of Dairy Breeds.—*Prerequisite:* D.H. 2 and 60 hours of university work. (3). 10 MWF; 553 Agr. Professor YAPP.

D.H. 20. Economic Problems in Dairy Farming.—*Prerequisite:* 60 hours of university work. (3). 9 MWF; 553 Agr. Professor FRASER.

D.H. 25. Advanced Study of Dairy Cattle Feeding.—*Prerequisite:* D.H. 2; 60 hours of university work. (2). Arrange. Associate Professor NEVENS.

Courses for Graduates

D.H. 101. Economic Milk Production.—(½ to 2 units).* Twice a week. Arrange. Professor FRASER.

D.H. 104. Dairy Bacteriology.—(½ to 1 unit).* Arrange. Professor PRUCHA.

D.H. 105. Dairy Manufactures.—(½ to 2 units).* Arrange. Professor RUEHE, Associate Professor TRACY.

D.H. 106. Dairy Bacteriology.—(½ to 2 units).* Arrange. Professor PRUCHA.

D.H. 107. Dairy Chemistry.—(½ to 2 units).* Arrange. Assistant Professor OVERMAN.

D.H. 108. Physiology of Lactation.—(½ to 2 units).* Once a week. Arrange. Professor GAINES.

D.H. 112a-f. Research.—(1 to 4 units).* Arrange. *Note:* Graduate students writing a thesis should so indicate when registering in Dairy Husbandry 112.

(a) **Dairy Bacteriology.**—Professor PRUCHA.
(b) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(c) **Dairy Cattle Breeding.**—Professor YAPP.
(d) **Dairy Cattle Feeding.**—Associate Professor NEVENS.
(e) **Milk Production.**—Professor GAINES.
(f) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.

DRAWING

(See General Engineering Drawing.)

ECONOMICS

(See also Business Organization and Operation, Public Utilities and Transportation, and Agricultural Economics.)

Major: For students in the College of Liberal Arts and Sciences, 20 hours made up of Economics 1 and other courses in economics for which it is a prerequisite.

Minors: 20 hours in any one or two of the following subjects: geography, history, philosophy, political science, and sociology.

Note: Economics 22 and 27 are open only to freshmen, without previous requirements.

Economics 1 is the fundamental course in economics. It is a prerequisite for most of the advanced courses, and students expecting to do advanced work in economics should take it in their sophomore year.

Courses for Undergraduates

Econ. 1. Principles of Economics.—*Prerequisite:* 30 hours of university work.

5	Lect. I[1]	8	TT	114 Com.	BEHLING
	A1 Quiz	8	MWF	111 Com.	HOOVER
	A2 Quiz	8	MWF	329 Com.	ALLEN
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II.	A3 Quiz	8	MWF	312 Com.	FITZGERALD
	A4 Quiz	8	MWF	123 Com.	VAN ARSDELL
	A5 Quiz	8	MWF	326 Com.	ALYEA
	D1 Quiz	11	MWF	322 Com.	BEHLING
	E1 Quiz	1	MWF	310 Com.	SANFORD
	F1 Quiz	2	MWF	123 Com.	VAN ARSDELL

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Econ. 1. Principles of Economics (Concluded)

Credits	Section	Hours	Days	Room	Instructor
5	Lect. II[1]	9	TT	114 Com.	Behling
	B1 Quiz	9	MWF	123 Com.	Van Arsdell
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II.	B2 Quiz	9	MWF	312 Com.	Fitzgerald
	B3 Quiz	9	MWF	329 Com.	Allen
	B4 Quiz	9	MWF	326 Com.	Alyea
	B5 Quiz	9	MWF	111 Com.	Hoover
	C Quiz	10	MWF	329 Com.	Heckman
	D2 Quiz	11	MWF	329 Com.	Heckman
	E2 Quiz	1	MWF	123 Com.	Van Arsdell
	F2 Quiz	2	MWF	310 Com.	Sanford

Econ. 2. Elements of Economics.—*Prerequisite:* 30 hours of university work. Exclusively for non-commerce students. Not open to those who have had Econ. 1.

3	C1 Quiz	10	MWF	305 Com.	Lounsbury
	C2 Quiz	10	MWF	312 Com.	Tandy
	C3 Quiz	10	MWF	219 Com.	Bruce
	E1 Quiz	1	MWF	126 Com.	Tandy
	E2 Quiz	1	MWF	219 Com.	Bruce
	J Quiz	8	TTS	305 Com.	Long
	F Quiz	2	MWF	126 Com.	Tandy

Econ. 3. Money, Credit, and Banking.—*Prerequisite:* Econ. 1 or 2.

3	Lect.	9	W	114 Com.	Lee
	B1 Quiz	9	MF	310 Com.	Lee
	B2 Quiz	9	MF	305 Com.	Lounsbury
	B3 Quiz	9	MF	224 Com.	Sanford
	K1 Quiz	9	TT	305 Com.	Lounsbury
	K2 Quiz	9	TT	310 Com.	Sanford
	L Quiz	10	TT	310 Com.	Sanford
	M Quiz	11	TT	310 Com.	Lee

Econ. 22. Economic History of the United States.—Open to freshmen only.

3	Lect. I[1]	1	M	114 Com.	Bogart
	E1 Quiz	1	WF	113 Com.	Long
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II; etc.	E2 Quiz	1	WF	224 Com.	Brainard
	E3 Quiz	1	WF	108 Com.	Gay
	E4 Quiz	1	WF	101 Com.	Stalnaker
	E5 Quiz	1	WF	306 Com.	Curtis
	N1 Quiz	1	TT	101 Com.	Stalnaker
	N2 Quiz	1	TT	108 Com.	Gay
	Lect. II[1]	2	M	114 Com.	Bogart
	F1 Quiz	2	WF	306 Com.	Curtis
	F2 Quiz	2	WF	101 Com.	Stalnaker
	F3 Quiz	2	WF	113 Com.	Long
	F4 Quiz	2	WF	224 Com.	Brainard
	F5 Quiz	2	WF	111 Com.	Hoover
	O1 Quiz	2	TT	306 Com.	Curtis
	O2 Quiz	2	TT	108 Com.	Gay
	Lect. III[1]	8	S	114 Com.	Bogart
	J1 Quiz	8	TT	224 Com.	Brainard
	J2 Quiz	8	TT	325 Com.	Stalnaker
	J3 Quiz	8	TT	306 Com.	Curtis
	J4 Quiz	8	TT	111 Com.	Hoover
	K Quiz	9	TT	111 Com.	Hoover
	N3 Quiz	1	TT	224 Com.	Brainard

Courses for Advanced Undergraduates and Graduates

Econ. 4. History of Money and Banking in the United States.—*Prerequisite:* Econ. 3. (3). 10 MWF; 310 Com. Professor Lee.

Econ. 9. Advanced Theory and Practice of Banking.—*Prerequisite:* Econ. 1 or 2, and 3; senior standing.

3	Lect.	8	W	215 Com.	Wright
	A Quiz	8	MF	322 Com.	Wright
	J Quiz	8	TT	322 Com.	Wright
	K Quiz	9	TT	322 Com.	Wright

Econ. 11. Industrial Consolidation.—*Prerequisite:* Econ. 10.

3	Lect.	9	M	215 Com.	Robinson
	B1 Quiz	9	WF	325 Com.	Robinson
	B2 Quiz	9	WF	108 Com.	Brown
	C Quiz	10	WF	325 Com.	Robinson
	K1 Quiz	9	ThS	325 Com.	Robinson
	K2 Quiz	9	TT	108 Com.	Brown

Marketing and Prices of Agricultural Products.—See Agricultural Economics 30.

Economics of Agriculture.—See Agricultural Economics 10.

Econ. 25. Economic History of England.—*Prerequisite:* Econ. 1 or 2, and junior standing. (3). 9 TTS; 224 Com. Professor BOGART.

Econ. 31. Organization of Foreign Commerce.—*Prerequisite:* Econ. 1 or 2, and junior standing.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	10	W	215 Com.	LITMAN
	C Quiz	10	MF	322 Com.	LITMAN
	L Quiz	10	TT	322 Com.	LITMAN

Econ. 35. Corporation Finance.—*Prerequisite:* Econ. 1 or 2. For engineering students only. (3). 10 MWF; 104 P.L. Assistant Professor BROWN.

Econ. 41. Introduction to Labor Problems.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	2	F	215 Com.	HELBING
	F1 Quiz	2	MW	322 Com.	HELBING
	F2 Quiz	2	MW	108 Com.	GAY
	O Quiz	2	TT	322 Com.	HELBING

Econ. 44. Socialism and Economic Reform.—*Prerequisite:* Econ. 1 or 2, and senior standing. (3). 1 MWF; 322 Com. Dr. HELBING.

Econ. 51. Public Finance.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	11	M	114 Com.	HUNTER
	D1 Quiz	11	WF	312 Com.	HUNTER
	D2 Quiz	11	WF	326 Com.	ALYEA
	D3 Quiz	11	WF	325 Com.	ALLEN
	K Quiz	9	TT	326 Com.	ALYEA
	L Quiz	10	TT	312 Com.	HUNTER
	M1 Quiz	11	TT	312 Com.	HUNTER
	M2 Quiz	11	TT	326 Com.	ALYEA

Econ. 55. Economics of Insurance.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	9	F	215 Com.	DICKINSON
	B Quiz	9	MW	307 Com.	DICKINSON
	K Quiz	9	TT	307 Com.	DICKINSON

Econ. 61. Economic Theory.—*Prerequisite:* Econ. 1 or 2, and senior standing.

3	C Quiz	10	MWF	111 Com.	WASSERMAN
	D Quiz	11	MWF	111 Com.	WASSERMAN

Econ. 70. Elements of Statistics.—*Prerequisite:* Econ. 1 or 2, and 30 hours of university work. (3). Quiz, 11 MW, 305 Com.; lab., 10-12 Th, 317 Com. Dr. LOUNSBURY.

Econ. 71. Economic Statistics.—*Prerequisite:* Econ. 1 or 2, and junior standing. (3). Quiz, 10 Tu, 307 Com.; practice, 1-3 TT, 317 Com. Assistant Professor DICKINSON.

Principles of Public Utilities.—See Public Utilities 81.

Econ. 90a. Senior Thesis or Independent Study.—(A) Senior Thesis: primarily for candidates for graduation with High Honors. *Prerequisite:* Major in economics; senior standing. (2 or 4).* Arrange. (B) Independent Study: see *Annual Register*, page 83, "University Honors." *Prerequisite:* Senior standing and a grade average in upper ten percent of the junior class on Honors Day. (3 to 5).* Arrange. Assistant Professor WASSERMAN and other members of the staff.

Courses for Graduates

Econ. 101. Economic Theory.—(1 unit). 3 MWF; 125 Com. Professor WESTON.

Econ. 102. Monetary History and Theory from the Restriction Period to the Present.—(1 unit). Arrange. Assistant Professor WASSERMAN.

Econ. 103. The Distribution of Wealth.—(1 unit). 11 TT; 212 Com. Professor WESTON.

Econ. 104a. Theories and Policies of Foreign Commerce.—(1 unit). 3 TT; 212 Com. Professor LITMAN.

Econ. 105. Public Finance.—(1 unit). 4-6 Tu; 212 Com. Professor HUNTER.

Econ. 107. The Corporation in Economic Evolution.—(1 unit). Arrange. Assistant Professor BROWN.

Econ. 109. Comparison of the Theory and Practice of the Leading Central and Reserve Banks, with Special Reference to England, Germany, France, and the United States.—(1 unit). Arrange. Professor WRIGHT.

Econ. 110b. Finance and Investments.—(1 unit). 4-6 F; 212 Com. Professor ROBINSON.

Econ. 118. Seminar.—Thesis course. (All graduate students writing theses in economics must register in Economics 118; registration for other students optional.) 4-6 Th (alternate weeks); 420 Com.

(a) **Third Year Seminar.**—Professor WESTON.

(b) **First Year: General Economics.**—Assistant Professor BROWN.

(d) **First Year: Public Utilities.**—See Public Utilities 118.

Econ. 120. History of Economic Thought.—(1 unit). Arrange. Professor WESTON.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Econ. 123. Industrial and Financial Organization of Society.—(1 unit). Arrange. Professor LEE.

Econ. 124. International Finance.—(1 unit). 2 TT; 212 Com. Professor BOGART.

Econ. 143. Administration of Industrial Relations.—(1 unit). Arrange. Dr. HELBING.

Econ. 144. Economic Statistics with Special Reference to Time Series and Business Cycles.—(1 unit). Arrange. Assistant Professor DICKINSON.

Theory of Agricultural Economics.—See Agricultural Economics 110.

Agricultural Resources and Prices.—See Agricultural Economics 111.

Agricultural Economics Research.—See Agricultural Economics 113.

Management of Public Utilities.—See Public Utilities 180.

EDUCATION

A. GENERAL EDUCATION

Introductory Courses

Ed. 2. History of Education.—*Prerequisite:* Junior standing.

Credits	Section	Hours	Days	Room	Instructor
3	B	9	MWF	303 Adm.(E)	SEYBOLT
	C	10	MWF	303 Adm.(E)	SEYBOLT

Ed. 5. Comparative Education.—*Prerequisite:* Junior standing.

3	E	1	MWF	204 Adm.(E)	JOHNSTON
	F	2	MWF	204 Adm.(E)	JOHNSTON
	L	10	TTS	204 Adm.(E)	JOHNSTON

Ed. 6. Principles of Secondary Education.—*Prerequisite:* Ed. 10 and 25.

3	J	8	TTS	206 Adm.(E)	WEBER
	K	9	TTS	308 Adm.(E)	CLEMENT
	L	10	TTS	206 Adm.(E)	WILLIAMS
	M	11	TTS	204 Adm.(E)	JOHNSTON
	D	11	MWF	206 Adm.(E)	WEBER
	E1	1	MWF	206 Adm.(E)	WILLIAMS
	E2	1	MWF	304 Adm.(E)	PETERS
	F	2	MWF	304 Adm.(E)	PETERS
	G	3	MWF	304 Adm.(E)	POTTHOFF

Ed. 10. Technic of Teaching.—*Prerequisite:* Ed. 25.

3	A1	8	MWF	308 Adm.(E)	REAGAN
	A2[1]	8	MWF	117 W.B.	ROBINSON
[1]Section A2 is for Home Economics students.	B1	9	MWF	307 Adm.(E)	ODELL
	B2	9	MWF	308 Adm.(E)	REAGAN
	C1	10	MWF	307 Adm.(E)	ODELL
	C2	10	MWF	206 Adm.(E)	LAWSON
	D	11	MWF	308 Adm.(E)	MONROE
	E	1	MWF	308 Adm.(E)	REAGAN
	F	2	MWF	308 Adm.(E)	REAGAN
	G	3	MWF	206 Adm.(E)	LAWSON

Ed. 25. Educational Psychology.—*Prerequisite:* Psych. 1.

3	J1	8	TTS	312 Adm.(E)	DOLCH
	J2	8	TTS	307 Adm.(E)	PETERS
	K	9	TTS	307 Adm.(E)	PETERS
	L	10	TTS	312 Adm.(E)	DOLCH
	M	11	TTS	307 Adm.(E)	POTTHOFF
	E1	1	MWF	312 Adm.(E)	GRIFFITH
	E2	1	MWF	307 Adm.(E)	POTTHOFF
	F1	2	MWF	312 Adm.(E)	DOLCH
	F2	2	MWF	307 Adm.(E)	POTTHOFF
	G	3	MWF	204 Adm.(E)	CAMERON
	H	4	MWF	206 Adm.(E)	LAWSON

Ed. 91. Special Problems of Education in Rural Communities.—(Same as Agr. Ed. 91.) *Prerequisite:* Senior standing and at least 6 hours in education. (2). 2 TT; 122 Agr. Mr. LAWSON.

Courses for Advanced Undergraduates and Graduates

Ed. 7. School Program of Physical Education.—*Prerequisite:* Senior standing or consent of instructor. (3). 1 MWF; 209 New Gym. Professor STALEY.

Ed. 8. History, Systems, and Theories of Physical Education.—*Prerequisite:* Senior standing or consent of instructor. (2). 1 TT; 209 New Gym. Professor STALEY.

Ed. 11. Ancient and Medieval Education.—*Prerequisite:* Senior standing or Ed. 2. (2). 9 TT; 303 Adm.(E). Professor SEYBOLT.

Ed. 18. Educational Measurements.—*Prerequisite:* Ed. 25. (3). 8 MWF; 312 Adm.(E). Associate Professor ODELL.

Ed. 21. Supervision of Elementary Education.—*Prerequisite:* Junior standing and Ed. 25. (3). 2 MWF; 303 Adm.(E). Mr. BROWNE.

Ed. 41. Survey of Vocational Education.—(Same as Ind. Ed. 41.) *Prerequisite:* Senior standing. (3). 9 MWF; 304 Adm.(E). Professor MAYS.

Ed. 45. Genetic Psychology for Teachers.—*Prerequisite:* Ed. 25 and senior standing. (3). 11 MWF; 204 Adm.(E). Associate Professor GRIFFITH.

Ed. 46. Recent Research in Reading and Arithmetic.—*Prerequisite:* Ed. 25 and Ed. 10. (3). 7:30 p.m. MTT; 303 Adm.(E). Assistant Professor DOLCH.

Ed. 50. Psychology of the Pre-School Child.—*Prerequisite:* Ed. 25. (3). 9 MWF; 204 Adm.(E). Associate Professor GRIFFITH.

Ed. 53. Problems of Industrial Education.—(Same as Ind. Ed. 53.) *Prerequisite:* Junior standing or consent of instructor. (3). 10 MWF; 304 Adm.(E). Professor MAYS.

Ed. 54. Functions and Methods of the Part-Time School.—(Same as Ind. Ed. 54.) *Prerequisite:* Senior standing. (2). 9 TT; 304 Adm.(E). Professor MAYS.

Ed. 99a. Thesis.—*Prerequisite:* Senior standing. (2). Arrange. Dean BENNER and others.

Courses for Graduates

Education 6, 10, and 25, or their equivalents, are prerequisites for all courses for graduates.

For a master's degree in Education, course 125 is required. For students who have not taken a course in history of education as undergraduates, Education 11 or Education 30 is required.

Ed. 102. Research in History of American Education.—(1 unit). Arrange. 311 Adm.(E). Professor SEYBOLT.

Ed. 104. Educational Administration.—(1 unit). 4-6 W; 312 Adm.(E). Associate Professor WEBER.

Ed. 106. High School Administration.—(1 unit). 3 TT; 308 Adm.(E). Professor CLEMENT.

Ed. 123. Educational Statistics.—(1 unit). 4-6 M; 304 Adm.(E). Associate Professor ODELL.

Ed. 124. Reading in Educational Research.—(1 unit). 4-6 Th; 204 Adm.(E). Professor MONROE.

Ed. 125. Educational Psychology.—(1 unit). 4-6 F; 204 Adm.(E). Professor CAMERON.

Ed. 127. High School Curricula.—(1 unit). 4 TT; 308 Adm.(E). Professor CLEMENT.

Ed. 128. Junior High School.—(1 unit). 10-12 S; 308 Adm.(E). Professor CLEMENT.

Ed. 141. Problems in the Teaching of English in the Secondary School.—(1 unit). 10-12 S; 322 L.H. Professor PAUL.

Ed. 147. Psychology of the Elementary School Subjects.—(1 unit). 10-12 S; 303 Adm.(E). Professor CAMERON.

Ed. 150. Thesis.—(1 to 2 units).* Dean BENNER and others.

Ed. 170. Public School Business Administration.—(1 unit). 10-12 S; 304 Adm.(E). Associate Professor WEBER.

Ed. 185. Seminar in Educational Psychology.—*Prerequisite:* Ed. 125 and consent of instructor. (1 unit). Arrange. 203 Adm.(E). Professor CAMERON and Associate Professor GRIFFITH.

Ed. 190. Research in Education.—*Prerequisite:* 3 units of graduate credit in education and consent of instructor. (1 unit). Arrange. Dean BENNER and others.

B. METHODS COURSES IN SPECIAL SUBJECTS

The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 20 hours in Education for graduation; for the 15 hours in Education for the State High School Certificate; or for the hours of Education necessary as a qualification for teachers in the North Central Association accredited schools.

Agricultural Education 51. Teachers' Course in Agriculture.—*Prerequisite:* Ed. 10, 25, and senior standing. (3). (See Agricultural Education). Associate Professor NOLAN.

Art 15a. Course for Teachers.—*Prerequisite:* Art 2a. (3). (See Art). Miss ANDERSON.

English 41. Teaching of English Literature.—*Prerequisite:* 10 hours of English literature and junior standing. (2). (See English). Professor PAUL.

English 42. Teaching of English Composition.—*Prerequisite:* 9 hours of English composition. (2). (See English). Professor PAUL.

French 25. Methods of Teaching French.—*Prerequisite:* 20 hours in French, or 16 hours in French plus 20 hours in Spanish. (3). (See French). Assistant Professor GULLETTE.

Geography 9. Teaching of Geography.—*Prerequisite:* One regional course, Geography 14, and consent of instructor. (2). (See Geography). Dr. POGGI.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

History 18. Teaching of History.—*Prerequisite:* One year of college history and senior standing. (2). (See History). Assistant Professor WERNER.

Home Economics 11. Teachers' Course.—*Prerequisite:* Home Econ. 6, 29. Preregistration or concurrent registration in Education 10, Home Econ. 5, 10, 19. (3). (See Home Economics). Miss ROBINSON.

Home Economics 34. Teachers' Course in Clothing.—*Prerequisite:* Home Economics 19. (1). (See Home Economics). Miss KING.

Industrial Education 57.—(3). (See Industrial Education). Professor MAYS.

Industrial Education 62.—(3). (See Industrial Education). Professor MAYS.

Mathematics 35. Teachers' Course.—*Prerequisite:* 18 hours in mathematics, including Math. 7 and 9. (3). (See Mathematics). Associate Professor LYTLE.

Music 25a. Public School Methods.—*Prerequisite:* Junior standing in the curriculum in Public School Music Education or consent of instructor. (3). (See Music). Mr. HOLMES.

Music 26a. Public School Methods.—*Prerequisite:* Senior standing in the curriculum in Public School Music Education or consent of instructor. (3). (See Music). Miss KITCHELL.

Physical Education for Women 95a.—Methods. *Prerequisite:* Junior standing in Physical Education. (3). (See Physical Education for Women). Miss ROBERTSON.

C. EDUCATIONAL PRACTICE

The following courses are open to seniors. *Prerequisite:* Education 25 and Education 10. For Educational Practice in Physical Education, see Mr. JACKSON at 202 New Gymnasium. For Educational Practice in Agriculture, see Associate Professor NOLAN at 116 Old Agriculture. For Educational Practice in Home Economics, see Miss ROBINSON, Miss TODD, and Miss KING at 119 Woman's Building. Arrange for all other courses in Educational Practice with Principal C. W. SANFORD at 102 University High School.

Ed. Prac. 1. Physical Education for Men.—(2 to 4).*

Ed. Prac. 2. Physical Education for Men.—(2 to 4).*

Ed. Prac. 3. Physical Education for Men.—(2 to 4).*

Ed. Prac. 4. Physical Education for Men.—(2 to 4).*

Ed. Prac. 5. Agricultural Education.—(3 to 5).* (Same as Agr. Ed. 50.)

Ed. Prac. 6. Biology.—(5).

Ed. Prac. 7. Chemistry.—(5)

Ed. Prac. 8. Civics.—(5).

Ed. Prac. 9. Drawing, Art.—(3 to 5).*

Ed. Prac. 10. Drawing, Mechanical.—(3 to 5).*

Ed. Prac. 11. English.—(5).

Ed. Prac. 11a. Speech.—(5).

Ed. Prac. 12. French.—(5).

Ed. Prac. 13. General Science.—(5).

Ed. Prac. 14. Home Economics Education.—(5).

Ed. Prac. 15. History.—(5).

Ed. Prac. 16. Industrial Education.—(3 to 5).*

Ed. Prac. 17. Latin.—(5).

Ed. Prac. 19. Mathematics.—(5).

Ed. Prac. 20. Music.—(3 to 5).*

Ed. Prac. 21. Physics.—(5).

Ed. Prac. 24. Stenography and Typewriting.—(3 to 5).*

Ed. Prac. 25. Elementary Education.—(5).

Ed. Prac. 26. Bookkeeping.—(5).

Ed. Prac. 27. Economics.—(5).

Ed. Prac. 28. German.—(5).

D. AGRICULTURAL EDUCATION

Agr. Ed. 1. Introduction to Agricultural Education.—*Prerequisite:* Sophomore standing and 10 hours of technical agriculture. (2). 11 TT; 122 Agr. Associate Professor NOLAN.

Agr. Ed. 50. Teaching.—*Prerequisite:* Ed. 10 and senior standing. (Same as Ed. Prac. 5.)

Credits	Section	Hours	Days	Room	Instructor
2 to 5*	A	8:30- 9:52 10:44-12:06	Daily	Tolono H.S.	HENDERSON
	B	9:00-10:26 1:28- 3:00	Daily	St. Joseph H.S.	RUCKER
	C	Apprentice teaching in State			NOLAN

One conference hour per week with staff teacher for all student teachers.

Agr. Ed. 51. Teachers' Course in Agriculture.—*Prerequisite:* Ed. 10, 25, and senior standing. (3). 4 MWF; 122 Agr. Associate Professor NOLAN.

Agr. Ed. 91. Special Problems of Education in Rural Communities.—(Same as Ed. 91.) *Prerequisite:* Senior standing and at least 6 hours in Education. (2). 2 TT; 122 Agr. Mr. LAWSON.

Agr. Ed. 92. Adult Education in Vocational Agriculture.—*Prerequisite:* 25 hours of technical agriculture, Ed. 25, Ed. 10, and senior standing. (Subject-matter and methods in part-time and evening classes, and other extension service in vocational agriculture.) (2). 11 MW; 122 Agr. Associate Professor NOLAN.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

E. INDUSTRIAL EDUCATION

Ind. Ed. 1. Manual Arts.—First Course.

Credits	Section	Hours	Days	Room	Instructor
4	Lect.	10	TT	U.H.S.	BRAUCHER and assistant
	Shop A	10–12	MWF	U.H.S.	
[1]Shop B will not be opened until Shop A is filled.	Shop B[1]	8–10	TTS	U.H.S.	

Ind. Ed. 2. Advanced Manual Arts.—

4	Lect.	2	TT	U.H.S.	BRAUCHER and assistant
	Shop A	2–4	MWF	U.H.S.	

The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 25 hours in Industrial Education.

G.E.D. 1. Elements of Drawing.—*Prerequisite:* Plane geometry. (4). (See General Engineering Drawing).

G.E.D. 2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry. (4). (See General Engineering Drawing).

G.E.D. 4. Advanced Drawing.—*Prerequisite:* Three years of work in the better high schools or equivalent in commercial practice necessary basis for consideration. (4). (See General Engineering Drawing).

Journ. 9a. History and Practice of Printing and Publishing.—*Prerequisite:* Sophmore standing. (2 or 3). See Journalism.

M.E. 85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing. (3). (See Mechanical Engineering).

M.E. 87. Machine Laboratory.—*Prerequisite:* M.E. 85 or junior standing. (3). (See Mechanical Engineering).

Courses for Advanced Undergraduates and Graduates

Ind. Ed. 41. Survey of Vocational Guidance.—(Same as Ed. 41 and Ind. Ed. E. 41.) *Prerequisite:* Senior standing. (3). 9 MWF; 304 Adm.(E). Professor MAYS.

Ind. Ed. 53. Problems of Industrial Education.—(Same as Ed. 53.) *Prerequisite:* Junior standing or consent of instructor. (3). 10 MWF; 304 Adm.(E). Professor MAYS.

Ind. Ed. 54. Problems and Methods of the Part-Time School.—(Same as Ed. 54.) *Prerequisite:* Senior standing. (2). 9 TT; 304 Adm.(E). Professor MAYS.

Ind. Ed. 57. Methods of Trade Teaching.—(3). Arrange. 310 Adm.(E). Professor MAYS.

Ind. Ed. 62. History and Organization of Industrial Arts.—(3). 11 MWF; 310 Adm.(E). Professor MAYS.

Extra-mural Courses

Ind. Ed. E. 41. Survey of Vocational Education.—Same as Ed. 41 and Ind. Ed. 41. Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 52. Teaching Related Trade Subjects.—(1 to 3). Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 53. Problems of Industrial Education.—Same as Ed. 53 and Ind. Ed. 53. Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 54. Principles and Methods of the Part-Time School.—Same as Ed. 54 and Ind. Ed. 54. Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 54a. Continuation of Ind. Ed. E. 54.

Ind. Ed. E. 55. Problems of Vocational Guidance.—Same as Ed. 55 and Ind. Ed. 55. Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 55a. Continuation of Ind. Ed. E. 55.

Ind. Ed. E. 56. Teaching Shopwork.—*Prerequisite:* (a) Two years of trade or industrial experience beyond apprenticeship; (b) completion of elementary school curriculum. (1 to 3). Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 56a. Continuation of Ind. Ed. E. 56.

ELECTRICAL ENGINEERING

Note: Certain courses in this department require laboratory fees of $2.

Courses for Undergraduates

E.E. 11. Direct Current Apparatus.—*Prerequisite:* Physics 1a, 1b, 3a, 3b; Math. 8 or 9; registration in E.E. 61.

3	C	8	TTS	305 E.H.
	J	11	MWF	305 E.H.
	P	1	MWF	305 E.H.
	Q	10	MWF	305 E.H.
	X	8	MWF	305 E.H.

E.E. 25. Direct Current Apparatus.—*Prerequisite:* Math. 9; registration in E.E. 75 and Physics 44a.

Credits	Section	Hours	Days	Room	Instructor
4	K	1	MTWTF	208 E.H.	
	L	11	MTWTF	104 P.L.	
	M	11	MTWTF	111 E.H.	
	N	1	MTWTF	111 E.H.	
	Y	9	MTWTF	111 E.H.	

E.E. 35. Alternating Current Apparatus.—*Prerequisite:* E.E. 26 and 76; registration in E.E. 85.

4	K	8	MTWTF	208 E.H.
	L	8	MTWTF	109 E.H.
	M	11	MTWTF	101 E.H.
	N	11	MTWTF	109 E.H.

E.E. 51. Radio Communication.—*Prerequisite:* E.E. 26 or consent of instructor.

3	Quiz	10	TT	111 E.H.
	K Lab.	2–5	Tu	311-A E.E.L.
	L Lab.	2–5	Th	311-A E.E.L.

E.E. 54. Vacuum Tubes and Controls.—*Prerequisite:* E.E. 26. (1 to 3).* 4 W and 9 S; 305 E.H. Laboratory, arrange.

E.E. 55. Electrical Design.—*Prerequisite:* E.E. 26; registration in E.E. 35.

2	Lect. L1[1]	9	Th	305 E.H.
	Lect. L2	9	Th	119 P.L.
	Lab. K2	10–12	MF	312 E.H.
	Lab. L1[1]	2–4	TT	312 E.H.
	Lab. L2	2–4	TT	314 E.H.
	Lab. M	1–3	MF	312 E.H.
	Lab. N	3–5	M	312 E.H.
		9–11	W	312 E.H.
	Lab. Y	1–3	W	312 E.H.
		8–10	S	312 E.H.

[1]Section L1 is open only to those having a grade of "B" or above in mathematics or by special permission of the instructor.

E.E. 61. Direct Current Laboratory.—*Prerequisite:* Registration in E.E. 11.

1	P	9–12	Tu	200 E.E.L.
	Q	2–5	Tu	200 E.E.L.
	R	9–12	Th	200 E.E.L.
	S	2–5	Th	200 E.E.L.
	C	9–12	S	214 E.E.L.
	X	1–4	W	214 E.E.L.
	Y	2–5	F	214 E.E.L.

E.E. 71. Special Electrical Engineering Laboratory.—(Elective). *Prerequisite:* Junior or senior standing in E.E. (1 to 3).* Arrange.

E.E. 75. Electrical Engineering Laboratory.—*Prerequisite:* Registration in E.E. 25.

2	KNY	11	Th	119 P.L.
	LM	1	W	119 P.L.
	K	8–11	W	200 E.E.L.
	L1	8–11	M	200 E.E.L.
	L2	8–11	F	200 E.E.L.
	M	1–4	M	200 E.E.L.
	N	1–4	F	200 E.E.L.

E.E. 85. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 76; registration in E.E. 35.

2	KLMNY	9	Tu	119 P.L.
	K1	9–12	M	200 E.E.L.
	K2	8–11	W	200 E.E.L.
	L1	2–5	Tu	200 E.E.L.
	L2	2–5	Th	200 E.E.L.
	M	1–4	M	200 E.E.L.
	N	1–4	F	200 E.E.L.
	Y	1–4	W	200 E.E.L.

E.E. 90. Building Lighting.—*Prerequisite:* College physics. (1). Section K, for students in architecture, 10 Tu; 215 E.E.L. Section L, for students in industrial administration, 11 Tu; 215 E.E.L.

E.E. 92. Building Lighting and Wiring.—*Prerequisite:* College physics.

2	K	11	TT	215 E.E.L.
	L	1	TT	215 E.E.L.

E.E. 95. Seminar.—*Prerequisite:* Senior standing in E.E.

1	K	9	M	305 E.H.
	L	9	F	305 E.H.
	M	1	Tu	305 E.H.
	N	1	Th	305 E.H.
	Y	9	W	305 E.H.

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E.E. 97. Thesis.—Arrange.

E.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

E.E. 101. Advanced Course in Alternating Currents.—(1½ units). Twice a week. Professor PAINE; Associate Professor KNIGHT; Assistant Professors REICH, KEENER, KRAEHENBUEHL.

E.E. 103. Electrical Design.—(1 unit). Once a week. Associate Professor WALDO.

E.E. 104. Advanced Course in Vacuum Tube Control.—(1 unit).* 4 W, 9 S; 305 E.H. Laboratory, arrange. Assistant Professor REICH.

E.E. 105. Electrical Engineering Research.—(1 to 3 units).* Twice a week. Professors PAINE, TYKOCINER; Associate Professors WALDO, KNIGHT; Assistant Professors BROWN, REICH, KEENER, KRAEHENBUEHL.

ENGLISH

(Including Rhetoric, Speech, and Scandinavian Languages.)

Major: 20 hours in English *excluding* Rhetoric 1, 2, 10, 12, 21, 22, English 10a, 10b, 20a, 20b, 41, 42, and *including* at least 10 hours in English literature, at least 3 hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours in (a) Latin or Greek or French or German or Spanish; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history. No language courses may be regarded as satisfying the minor requirement if they are excluded from the major of that department (excepting elementary courses in Greek, Latin, French 2a and Spanish 2a). At least eight hours must be offered in each subject.

Major in Speech

Major: 10 hours in speech, inclusive of Speech 7 and 8 and either 4 or 6; and 10 hours of English, exclusive of English 10a, 10b, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, 22, and inclusive of one course in English literature from the advanced group.

Minors: 20 hours, in any one or two of the following subjects: psychology, philosophy, Greek, Latin, French, German, history, political science, economics, law, or sociology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in English 10 and Rhetoric 1-2.

A. ENGLISH LANGUAGE AND LITERATURE

Undergraduate Courses

Engl. 1. Survey of English Literature.—*Prerequisite:* Consent of instructor.

3	D	11	MWF	120 L.H.	FINNEY
	F	2	MWF	142 L.H.	PARRY

Engl. 10a. An Introduction to Literature.—Forms of poetry, mainly narrative. *Prerequisite:* The minimum entrance requirements in English. (Credit is not given for English 10a in addition to 20a and 20b.)

Credits	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	204-A L.H.	KELSO
	A2	8	MWF	311 U.H.	GOLDMAN
[1]Seniors will receive	B1	9	MWF	113 L.H.	FINNEY
only 2 hours credit.	B2	9	MWF	204-A L.H.	RINAKER
	B3	9	MWF	219 L.H.	TUPPER
	C1	10	MWF	204 U.H.	FRENCH
	C2	10	MWF	205 L.H.	RINAKER
	C3	10	MWF	204-A L.H.	RAPP
	D1	11	MWF	204-A L.H.	LANDIS
	D2	11	MWF	213 U.H.	BUSEY
	E1	1	MWF	120 L.H.	WEIRICK
	E2	1	MWF	105 L.H.	KELLEY
	F1	2	MWF	133 L.H.	HASKELL
	F2	2	MWF	203 U.H.	BLOOM
	G1	3	MWF	105 L.H.	PARRY
	G2	3	MWF	202 L.H.	SANDIN
	K1	8	TTS	148 L.H.	SUMMERS
	L1	9	TTS	207 U.H.	MOOD

Engl. 10b. An Introduction to Literature.—Forms of poetry, mainly lyrical. (Credit is not given for English 10b in addition to 20a and 20b). *Prerequisite:* English 10a.

3[1]	A	8	MWF	207 U.H.	SECORD
[1]Seniors will receive	C	10	MWF	123 L.H.	ZEITLIN
only 2 hours credit.	D	11	MWF	207 U.H.	GLENN

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Engl. 12. American Literature.—*Prerequisite:* English 10a-10b, or junior standing. (2). 1 TT; 103 New Agr. Professor PAUL.

Engl. 20a. Chief English Writers of the Nineteenth Century.—Intended for students in professional and technical courses such as law, medicine, commerce, engineering, etc. *Prerequisite:* One year of college work. (Credit is not given for Engl. 20a in addition to Engl. 10a and 10b.)

Credits	Section	Hours	Days	Room	Instructor
4	A1	8	MTWT	203 U.H.	PETERSON
	A2	8	MTWT	411 U.H.	GLENN
	B1	9	MTWT	203 U.H.	JEFFERSON
	C1	10	MTWT	311 U.H.	TRELEASE
	C2	10	MTWT	203 L.H.	KELSO
	D1	11	MTWT	203-A L.H.	WEIRICK
	D2	11	MTWT	203 L.H.	TUPPER
	E1	1	MTWT	207 U.H.	FRENCH
	F1	2	MTWT	311 U.H.	SANDIN
	G1	3	MTWT	128 L.H.	TEMPLEMAN

Engl. 21. Literary Study of the Bible.—*Prerequisite:* Six hours of English literature. (3). 9 MWF; 103 New Agr. Professor E. C. BALDWIN.

Engl. 23. Introduction to Shakespeare.—*Prerequisite:* Engl. 10a-10b, or 20a-20b with a grade of B, or junior standing.

3	B	9	MWF	109 L.H.	SECORD
	E	1	MWF	109 L.H.	FLETCHER
	F	2	MWF	109 L.H.	TEMPLEMAN

Engl. 29. English Literature from 1557 to 1688, exclusive of the Drama.—*Prerequisite:* Six hours of English literature. (3). 11 MWF; 304 L.H. Professor E. C. BALDWIN.

Engl. 33. English Literature from 1789 to 1837.—*Prerequisite:* Six hours of English literature or junior standing. (3). 9 MWF; 203 L.H. Professor ZEITLIN.

Engl. 34. Dr. Johnson and His Circle.—*Prerequisite:* Six hours of English literature or junior standing. (3). 2 MWF; 123 L.H. Assistant Professor RINAKER.

Courses for Advanced Undergraduates and Graduates

Prerequisite: Junior or senior standing and either ten hours of English literature or the consent of the instructor.

Engl. 4. English Versification.—(2). 10 TT; 308 L.H. Assistant Professor LANDIS.

Engl. 8. Old English (Anglo-Saxon).—(3). 11 MWF; 206 L.H. Professor FLOM.

Engl. 25. Chaucer.—(3). 9 MWF; 114 L.H. Professor JONES.

Engl. 30. Tendencies in American Fiction since 1870.—(3). *Prerequisite:* Consent of instructor. 10 MWF; 219 L.H. Dr. TUPPER.

Engl. 35. The English Drama (Previous to Shakespeare).—(3). 2 MWF; 204-A L.H. Professor HILLEBRAND.

Engl. 39. Introduction to Medieval Literature.—(3). 1 MWF; 104 L.H. Associate Professor PARRY.

Engl. 41. The Teaching of English Literature.—(2). 2 TT; 306 L.H. Professor PAUL, Mrs. SWENEY.

Engl. 42. The Teaching of English Composition.—(2). 3 TT; 204 L.H. Professor PAUL, Mrs. SWENEY.

Engl. 45. The Development of the Modern Drama.—(3). 3 MWF; 109 L.H. Professor HILLEBRAND.

Engl. 52. The Great Novelists of the Nineteenth Century.—(Scott, Jane Austen, Dickens, Thackeray, etc.) (3). 11 MW; 303 L.H. Professor BERNBAUM.

Engl. 54a. Introduction to Comparative Literature.—Introductory and comparative survey of the greatest Greek, Latin, Italian, Spanish, French, German, and English authors.

3	Lect.	10	WF	202 L.H.	OLDFATHER, VAN HORNE, HAMILTON
	A Disc.	10	M	211 L.H.	LANDIS
	B Disc.	10	M	224 L.H.	VAN HORNE
	C Disc.	10	M	227 L.H.	PARRY

Engl. 56. Tennyson.—Intensive study of the principal poems of Tennyson and his contemporaries. (3). 10 MWF; 303 L.H. Professor GRAHAM.

Engl. 60a. Thesis.—(2). Primarily for candidates for honors. Arrange. Dr. TUPPER and others.

Courses for Graduates

Engl. 101. Research in Special Topics.—(1 to 2 units).* Professors GRAHAM, BERNBAUM, PAUL, FLOM, ZEITLIN, T. W. BALDWIN, E. C. BALDWIN, JONES, HILLEBRAND, JEFFERSON; Associate Professors SANDFORD, FLETCHER, PARRY; Assistant Professors RINAKER, SECORD, FINNEY.

Engl. 111. Caedmon and Cynewulf.—(1 unit). Arrange; 419 L.H. Professor JONES.

Engl. 114. The Development of the Essay.—(1 unit). 11 TT; 309 Lib. Professor ZEITLIN.

Engl. 121. History of Rhetorical Theory, II.—(1 unit). 3 TT; 148 L.H. Associate Professor SANDFORD.

Engl. 129. English Literature from the Norman Conquest to 1400.—(1 unit). 10 TT; 104 L.H. Professor JONES.

Engl. 130. Tragedy.—(1 unit). 1 TT; 204-A L.H. Professor HILLEBRAND.

Engl. 135. Problems in American Literature.—First semester, American essayists; second semester, Lowell and Whitman. (1 unit). 8 TT; 113 L.H. Professor PAUL.

Engl. 138. The Romantic Movement.—(1 unit). 2 TT; 303-A L.H. Professor BERNBAUM.

Engl. 140. Investigations in Modern English Literature.—(1 to 3 units).* Three hours once a week. Arrange. 220 L.H. Professor BERNBAUM.

Engl. 141. Literature of the Seventeenth Century.—(1 unit). 3 TT; 302 L.H. Professor E. C. BALDWIN.

Engl. 143. Seminar in the History and Theory of Prose Fiction.—(1 unit). Two hours a week. Arrange. 220 L.H. Professor BERNBAUM.

Engl. 145. Studies in Eighteenth Century Literature.—(1 unit). 2 MW; 113 L.H. Professor GRAHAM.

Engl. 147. Shakespeare and Elizabethan Drama.—(1 unit). 10 MW; 303-A L.H. Professor T. W. BALDWIN.

Engl. 148. Seminar in Elizabethan Drama.—(1 unit). Arrange. Professor T. W. BALDWIN.

Engl. 149. The Development of Tudor Drama.—(1 unit). Arrange. Professor T. W. BALDWIN.

B. RHETORIC

Courses for Undergraduates

Rhet. 1. Rhetoric and Composition.—*Prerequisite:* The minimum entrance requirements in English.

Credits	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	403 U.H.	STUTZMAN
	A2	8	MWF	404 U.H.	WASHBURN
[1]Seniors will receive only 2 hours credit.	A3	8	MWF	321 L.H.	GETTMANN
	A4	8	MWF	413 U.H.	DAVIDSON
	A5	8	MWF	203-A L.H.	GRESS
	A6	8	MWF	303 L.H.	
	A7	8	MWF	407 U.H.	BLAIR
	A8	8	MWF	212 U.H.	CHARLES
	B1	9	MWF	312 Adm.(E)	GLENN
	B2	9	MWF	315 U.H.	PETERSON
	B3	9	MWF	311 U.H.	KELLEY
	B4	9	MWF	213 U.H.	FRENCH
	B5	9	MWF	302 U.H.	TRELEASE
	B6	9	MWF	406 U.H.	CHARLES
	B7	9	MWF	407 U.H.	NOBLE
	B8	9	MWF	412 U.H.	HARRIS
	C1	10	MWF	203 U.H.	BLAIR
	C2	10	MWF	213 U.H.	MARTIN
	C3	10	MWF	407 U.H.	STUTZMAN
	C4	10	MWF	403 U.H.	KELLEY
	C5	10	MWF	412 U.H.	JEFFERSON
	C6	10	MWF	413 U.H.	CHARLES
	C7	10	MWF	109 L.H.	PETERSON
	C8	10	MWF	323 New Agr.	HURLEY
	D1	11	MWF	311 U.H.	TEMPLEMAN
	D2	11	MWF	318 U.H.	SECORD
	D3	11	MWF	413 U.H.	MAXWELL
	D4	11	MWF	406 U.H.	GOLDMAN
	D5	11	MWF	411 U.H.	
	D6	11	MWF	235 L.H.	RAPP
	D7	11	MWF	412 U.H.	DAVIDSON
	D8	11	MWF	212 U.H.	STUTZMAN
	E1	1	MWF	213 U.H.	NOBLE
	E2	1	MWF	123 L.H.	SANDIN

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Rhet. 1 Retoric and Composition (Concluded)

Credits	Section	Hours	Days	Room	Instructor
3[1]	E3	1	MWF	413 U.H.	Roberts
	E4	1	MWF	214 U.H.	
[1]Seniors will receive only 2 hours credit.	E5	1	MWF	407 U.H.	Bloom
	E6	1	MWF	406 U.H.	Griswold
	E7	1	MWF	204 U.H.	Fisher
	E8	1	MWF	203 U.H.	Hamilton
	F1	2	MWF	204 U.H.	
	F2	2	MWF	213 U.H.	Dolk
	F3	2	MWF	406 U.H.	Hamilton
	F4	2	MWF	412 U.H.	Noble
	F5	2	MWF	404 U.H.	
	F6	2	MWF	104 L.H.	Fisher
	F7	2	MWF	411 U.H.	Osenburg
	F8	2	MWF	207 U.H.	Griswold
	G1	3	MWF	406 U.H.	Hamilton
	G2	3	MWF	311 U.H.	Osenburg
	G3	3	MWF	403 U.H.	Bloom
	G4	3	MWF	212 U.H.	Haskell
	G5	3	MWF	404 U.H.	Fisher
	G6	3	MWF	203-A L.H.	Lang
	G7	3	MWF	413 U.H.	Johnson
	H1	4	MWF	404 U.H.	Johnson
	H2	4	MWF	204 U.H.	Dolk
	H3	4	MWF	407 U.H.	Griswold
	H4	4	MWF	213 U.H.	Foley
	K1	8	TTS	112 U.H.	Wheeler
	K2	8	TTS	315 U.H.	Orlovich
	K3	8	TTS	105 L.H.	Fielder
	K4	8	TTS	404 U.H.	Riebel
	L1	9	TTS	315 U.H.	Summers
	L2	9	TTS	406 U.H.	
	L3	9	TTS	211 L.H.	Gress
	L4	9	TTS	311 U.H.	Orlovich
	M1	10	TTS	413 U.H.	Orlovich
	M2	10	TTS	109 L.H.	Riebel
	M3	10	TTS	213 U.H.	Brawner
	M4	10	TTS	403 U.H.	Wheeler
	N1	11	TTS	212 U.H.	Summers
	N2	11	TTS	207 U.H.	Wheeler
	N3	11	TTS	407 U.H.	Fielder
	N4	11	TTS	411 U.H.	Gress

Rhet. 2. Rhetoric and Composition.—*Prerequisite:* Rhet. 1.

3[1]	A1	8	MWF	213 U.H.	Maxwell
	A2	8	MWF	315 U.H.	Harris
[1]Seniors will receive only 2 hours credit.	B1	9	MWF	411 U.H.	Blair
	B2	9	MWF	118 New Agr.	Hurley
	C1	10	MWF	212 U.H.	Gettmann
	C2	10	MWF	207 U.H.	Davidson
	D1	11	MWF	123 L.H.	Martin
	E1	1	MWF	312 U.H.	Dolk
	F	2	MWF	203 L.H.	Foley
	G	3	MWF	204 U.H.	Roberts
	H	4	MWF	208 U.H.	Osenburg
	K	8	TTS	207 U.H.	Brawner
	M	10	TTS	404 U.H.	Fielder

Rhet. 3. Exposition.—*Prerequisite:* Rhetoric 1 and 2.

3	B	9	MWF	104 L.H.	Goldman
	D	11	MWF	104 L.H.	Kelso
	G	3	MWF	104 L.H.	Landis

Rhet. 4. Narration and Description.—Elements of narrative writing. (Not a course in short-story writing.) *Prerequisite:* Rhetoric 1 and 2.

3	B	9	MWF	304 L.H.	Rapp
	C	10	MWF	232 L.H.	Finney
	D	11	MWF	407 U.H.	Trelease
	F	2	MWF	407 U.H.	Busey

Rhet. 6. Advanced Narrative Composition.—*Prerequisite:* Two years of college work and consent of instructor. (3). 3 MWF; 204-A L.H. Assistant Professor Weirick.

Rhet. 10. Business Letter Writing.—*Prerequisite:* Rhet. 1 and 2. (Registration limited first semester.)

2	A1 L.A.S., Agr., Ed.	8	TT	117 L.H.	Mood
	B1 Com.	9	MW	125 Com.	Anderson
	B2 Eng.	9	TT	204 U.H.	Lang
	C1 Com.	10	MW	125 Com.	Anderson
	C2 Com.	10	TT	224 Com.	Coleman
	C3 L.A.S., Agr., Ed.	10	TT	232 L.H.	Lang
	D1 Eng.	11	TT	213 U.H.	Mood

Rhet. 10. Business Letter Writing (Concluded)

Credits	Section	Hours	Days	Room	Instructor
2	D2 Com.	11	TT	125 Com.	ANDERSON
	E1 Com.	1	MW	305 Com.	SAUNDERS
	E2 Com.	2	MW	125 Com.	COLEMAN
	E3 L.A.S., Agr., Ed.	1	TT	117 L.H.	COLEMAN
	F1 Com.	2	MW	305 Com.	SAUNDERS
	F2 Com.	2	TT	305 Com.	SAUNDERS
	F3 Eng.	2	TT	204 U.H.	COLEMAN

Rhet. 21. Advanced Business Writing.—(Sales letter campaigns and advertising copy). *Prerequisite:* Grade of "A" or "B" in Rhet. 10. (2). 1 TT; 305 Com. Associate Professor SAUNDERS.

Rhet. 22. Special Types of Business Writing.—(Business reports and articles for business magazines). *Prerequisite:* Rhet. 10. (2). 10 TT; 125 Com. Assistant Professor ANDERSON.

C. SPEECH

Courses for Undergraduates

Speech 1. Principles of Effective Speaking.—*Prerequisite:* Rhet. 1 and 2.

3	A1	8	MWF	148 L.H.	HUSTON
	A2	8	MWF	202 Entom.	
	B1	9	MWF	148 L.H.	HUSTON
	B2	9	MWF	202 Entom.	
	C1	10	MWF	148 L.H.	NELSON
	C2	10	MWF	202 Entom.	HENDERSON
	D1	11	MWF	148 L.H.	NELSON
	D2	11	MWF	202 Entom.	HENDERSON
	E1	1	MWF	148 L.H.	SWANSON
	E2	1	MWF	202 Entom.	HUSTON
	F1	2	MWF	148 L.H.	WALTZ
	G1	3	MWF	202 Entom.	HENDERSON

Speech. 2. Business and Professional Speaking.—*Prerequisite:* Speech 1.

2	K	9	TT	142 L.H.	SANDFORD
	L	10	TT	142 L.H.	WALTZ
	N	1	TT	142 L.H.	HUSTON

Speech 3. Elements of Debating.—*Prerequisite:* Speech 1.

3	C	10	MWF	142 L.H.	WALTZ
	E	1	MWF	142 L.H.	WALTZ

Speech 10. Oral Interpretation of Literature.—*Prerequisite:* Speech 1.

2	K	9	TT	148 L.H.	NELSON
	L	10	TT	148 L.H.	NELSON
	N	1	TT	148 L.H.	HENDERSON

Courses for Advanced Undergraduates and Graduates

Speech 4. Advanced Debating.—*Prerequisite:* Speech 3, junior standing. (3). 9 MWF; 142 L.H. Associate Professor SANDFORD.

Speech 6. Persuasion and the Forms of Public Address.—*Prerequisite:* Speech 2, junior standing. (3). 11 MWF; 142 L.H. Associate Professor SANDFORD.

Speech 8. Dramatization.—*Prerequisite:* Speech 9 or 10, junior standing. (3). 2 MWF; L.H. Theatre. Mr. SWANSON.

Speech 9. The Acting of Shakespearean Plays.—*Prerequisite:* Speech 10, junior standing. (2). 1 TT; L.H. Theatre. Miss NELSON.

Speech 16. Advanced Study of Acting.—*Prerequisite:* Speech 11, junior standing. (2). 11 TT; L.H. Theatre. Mr. SWANSON.

D. SCANDINAVIAN LANGUAGES AND LITERATURE

Courses for Undergraduates

Scand. 12. Norse Mythology.—*Prerequisite:* Junior standing. Lectures. (2). 9 TT; 202 L.H. Professor FLOM.

Scand. 22a. Elementary Swedish.—(Not open to freshmen.) Grammar; conversation; readings from present-day writers. (3). 1 MWF; 201-A L.H. Mr. JOHNSON.

Courses for Graduates

Scand. 101. Old Norse.—(1 unit). Arrange; 209 L.H. Professor FLOM. (May be taken for a single semester.)

Scand. 150. Research.—Special problems in Scandinavian philology or literature. (½ to 1 unit).* Arrange. Professor FLOM.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

ENTOMOLOGY

Note: Certain courses in this department require laboratory fees varying from $1.50 to $5.

Major: 20 hours exclusive of Entomology 1, 2, 31. At least five hours must be offered from the advanced group.

Minors: 20 hours in not more than two of the following, with not less than eight hours in either department, if two subjects are chosen: zoology, botany, chemistry, physiology, horticulture, and agronomy.

Entomology 1 is open to freshmen, without prerequisite, and may be followed by any of the other courses for undergraduates or by 6, 10, 20, or 21 in the senior year. Agricultural students and others desiring strictly practical work may take 1, 8, and 20 in sequence. Students majoring in entomology should take as many of the courses offered as possible, including some work in classification, morphology, and control, and should consult the head of the department. Seniors receive reduced credit in Entomology 1.

Courses for Undergraduates

Entom. 1. Destructive and Useful Insects.—

Credits	Section	Hours	Days	Room	Instructor
3[1]	A Disc.	8	MF	309 Entom.	Hayes
[1]Seniors will receive only 2 hours credit.	A Lab.	9 8–10	MF and W	309 Entom.	Hayes and Milum
	B Disc.	10	MF	309 Entom.	Metcalf
	B Lab.	11 10–12	MF and W	309 Entom.	Milum and Kearns
	C Disc.	1	MF	309 Entom.	Metcalf
	C Lab.	2 1–3	MF and W	309 Entom.	Balduf and Kearns

Entom. 2. Insects: Their Ways and Their Relations to Man.—A non-technical, cultural course. *Prerequisite:* 30 hours of university work. (Not open to students who have taken Entomology 1.)

2	A Lect.	11	TT	202 Entom.	Balduf
	B Lect.	2	TT	202 Entom.	Balduf

Entom. 3a. Classification of Insects: Orders with gradual metamorphosis and principles of systematic entomology.—*Prerequisite:* Entom. 1, and 30 hours of university work. (5). Lab., 8-11 TT; Lect., to be arranged; 310 Entom. Assistant Professor Balduf.

Entom. 7a. Insect Morphology.—*Prerequisite:* Entom. 1, and 30 hours of university work. (3). 10-12 MWF; 312 Entom. Associate Professor Hayes.

Entom. 8a. Advanced Economic Entomology.—*Prerequisite:* Entom. 1, and 30 hours of university work. (3 or 5).* 1-4 TT; 312 Entom. Associate Professor Hayes.

Entom. 31. Essentials of Beekeeping.—*Prerequisite:* 30 hours of university work. (2). 1-3 TT; 104 Viv. Assistant Professor Milum.

Courses for Advanced Undergraduates and Graduates

Entom. 6. Special Problems.—*Prerequisite:* Any of the following: Entom. 3, 7, 8, 10, 20, 21, 22, or 31; senior standing. (2 to 5).* Saturday morning; additional hours to be arranged. Various instructors.

Entom. 20. Insect Control.—*Prerequisite:* Entom. 1 and senior standing. (4). Lab., 1-4 TT; Lect., to be arranged; 109 Entom. Professor Metcalf.

Courses for Graduates

The prerequisite for graduate work in entomology is two years of undergraduate biology, including zoology and entomology.

Entom. 102. Research in the Morphology and Embryology of Insects.—(½ to 2 units).* Arrange. Associate Professor Hayes.

Entom. 107a. Insect Anatomy.—(½ unit). 10-12 MWF; 312 Entom. Associate Professor Hayes.

Entom. 108. Research in Economic Entomology.—(½ to 2 units).* Arrange. Professor Metcalf.

Entom. 109. Research in Systematic Entomology.—(½ to 2 units).* Arrange. Professor Metcalf, Assistant Professor Balduf.

Entom. 110. Research in the Biology and Ecology of Insects.—(½ to 2 units).* Arrange. Professor Metcalf.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

FARM MECHANICS
(See Agricultural Engineering.)

FARM ORGANIZATION AND MANAGEMENT
(See Agricultural Economics.)

FINE AND APPLIED ARTS
(See Architecture, Art, Landscape Architecture, and Music.)

FLORICULTURE
(See Horticulture.)

FRENCH
(See Romance Languages and Literature, A.)

GAS ENGINEERING

Courses for Undergraduates

Gas E. 41. Design.—*Prerequisite:* Senior standing in Gas Engineering. (3). 9, 1-4 Th, 1-4 F; 207 T.B. Assistant Professor MITCHELL.

Gas E. 51. Manufacture of Gas.—*Prerequisite:* Senior standing in Gas Engineering. (2). Arrange. 206 T.B. Professor CALLEN, Assistant Professor MITCHELL.

Gas E. 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

GENERAL ENGINEERING DRAWING

Note: All courses in this department require laboratory fees of $1.50.

Courses for Undergraduates

G.E.D. 1. Elements of Drawing.—*Prerequisite:* Plane Geometry.

Credits	Section	Hours	Days	Room	Instructor
4	A	8–11 8–10	MF W	To be assigned at registration	
	B	1–4 1–3	MF W		
	C	8–11 8–10	TT S		
	D	1–4 10–12	TT S		

G.E.D. 2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry.

4	A	8–11 8–10	MF W	To be assigned at registration
	B	1–4 1–3	MF W	
	C	8–11 8–10	TT S	
	D	1–4 10–12	TT S	

G.E.D. 4. Advanced Drawing.—*Prerequisite:* Three years of work in the better high schools or equivalent in commercial practice necessary basis for consideration. (To be determined by the department at registration time.)

4	B	1–4 1–3	MF W	303 T.B. 303 T.B.
	C	8–11 8–10	TT S	303 T.B. 303 T.B.
	D	1–4 10–12	TT S	303 T.B. 303 T.B.

G.E.D. 7. Architectural Projections.—*Prerequisite:* Plane and solid geometry

2	A	8–11	MF	103 T.B.
	B	2–5	MF	103 T.B.
	C	9–12	TT	103 T.B.
	D	2–5	TT	103 T.B.

GEOLOGY

(Including Geography.)

Note: Certain courses in this department require laboratory fees varying from $1 to $2.50.

A. GEOLOGY

Major: 20 hours in Geology exclusive of Geology 1, 43 and 44, and inclusive of at least 5 hours of courses not open to freshmen or sophomores.

Minors: 20 hours of courses in one or two of the following named departments: astronomy, botany, chemistry, geography, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in Geology 1 and 2.

Courses for Undergraduates

Geol. 1. General Geology.—

Credits	Section	Hours	Days	Room	Instructor
5[1]	Lect. A[2]	8	MWF	228 N.H.	DeWolf, Quirke, Sutton, and other members of the department
[1]Seniors receive only 4 credits; students who have credit for Geog. 1 receive only 3 credits for Geol. 1.	Quiz 1	8	TT	134 N.H.	
	Quiz 2	9	TT	134 N.H.	
	Quiz 3	10	TT	150 N.H.	
	Quiz 4	11	TT	150 N.H.	
	Quiz 5	2	TT	150 N.H.	
[2]Students in Lecture A must elect a quiz in the 1-5 group.	Lect. B[3]	10	MWF	Morrow Hall	DeWolfe, Quirke, Savage, and other members of the department
	Quiz 6	8	TT	150 N.H.	
	Quiz 7	9	TT	150 N.H.	
[3]Students in Lect. B must elect a quiz in the 6-10 group.	Quiz 8	10	TT	134 N.H.	
	Quiz 9	11	TT	134 N.H.	
	Quiz 10	2	TT	134 N.H.	

Geol. 1a. General Geology Laboratory.—*Prerequisite:* Geol. 1 or concurrent registration in it. (Not open to students who already have credit for Geol. 1). (2). 8-10 TT; 251 N.H. Assistant Professor Wanless and assistants.

Geol. 2a. Historical Geology.—*Prerequisite:* Geol. 1.

5[1]	A Lect.	9	MTWTF	247 N.H.	Sutton
[1]Seniors will receive only 4 hours credit.	B Lect.	11	MTWTF	247 N.H.	Savage

Geol. 17. Physiographic Geology.—*Prerequisite:* Geol. 1. (3). 10 MWF; 134 N.H. Assistant Professor Shepard.

Geol. 20. General Mineralogy.—*Prerequisite:* One year of chemistry. (3). 10-12 MWF; 147 N.H. Professor Quirke.

Geol. 43. Engineering Geology.—*Prerequisite:* Sophomore standing in the College of Engineering. (3). Lect. and quiz, 11 TT, 9 S; 241 N.H. Lab., 10-12 S; 251 N.H. Associate Professor Howard.

Geol. 44. Agricultural Geology.—*Prerequisite:* Sophomore standing in the College of Agriculture.

3	Lect.	1	MW	247 N.H.	Wanless
	A Quiz	10	Tu	247 N.H.	Wanless
	B Quiz	1	F	247 N.H.	Wanless
	Lab. 1	1–3	Th	251 N.H.	Wanless
	Lab. 2	10–12	F	251 N.H.	Wanless

Courses for Advanced Undergraduates and Graduates

Geol. 9. Invertebrate Paleontology.—*Prerequisite:* Geol. 2a and junior standing. (3). 8 MWF; 236 N.H. Laboratory hours to be arranged. Professor Savage.

Geol. 38. Regional Geology of the United States.—*Prerequisite:* Geol. 2a. (3). 3 MWF; 134 N.H. Assistant Professor Crickmay.

Geol. 60a. Introduction to Research.—Limited to seniors majoring in geology. (2). Members of the department.

Geol. 95. Economic Geology.—*Prerequisite:* Geol. 2a, or 43, and 20 or 48 or 49. (3). 1 MWF; 150 N.H. Professor DeWolf.

Courses for Graduates

Geol. 102. Igneous Petrography.—(1 unit). Twice a week. Hours to be arranged. 253 N.H. Professor Quirke.

Geol. 125. Sedimentation.—(1 unit). Three times a week. Hours to be arranged. Assistant Professor Wanless.

Geol. 135. Research.—(½ to 4 units).* Once a week. Hours to be arranged. Members of the department.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Geol. 141. Advanced Paleontology.—(1 unit). Arrange. Assistant Professor SUTTON.

Geol. 142. Stratigraphic Paleontology: Paleozoic.—(1 unit). Hours to be arranged. 236 N.H. Professor SAVAGE.

Geol. 143. Stratigraphic Paleontology: Mesozoic and Cenozoic.—(1 unit). Hours to be arranged. 134 N.H. Assistant Professor SUTTON.

Geol. 144. Micropaleontology: Microscopic Fossil Faunas.—(1 unit). Twice a week. Hours to be arranged. Assistant Professor CRICKMAY.

Geol. 151. Advanced Dynamic Geology.—(1 unit). Three times a week. Hours to be arranged. Assistant Professor SHEPARD.

Geol. 160. Principles of Petroleum Geology.—(1 unit). Three times a week. Hours to be arranged. Associate Professor HOWARD.

Geol. 163. Geologic Development of the Continents.—(1 unit). Three times a week. Hours to be arranged. Associate Professor HOWARD.

B. GEOGRAPHY

Major: 20 hours of courses that have prerequisites in geography, exclusive of Geography 1, and including at least 5 hours of courses not open to freshmen.

Minors: 20 hours selected from not more than two of the following named departments: economics, education, history, zoology, botany, and geology. At least eight hours must be offered in each subject, if two are chosen.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, or 10 or 11, or 12 or 8 or 53.

Courses for Undergraduates

Geog. 1. Elements of Geography.—Lectures and discussions; two or three field trips.

Credits	Section	Hours	Days	Room	Instructor
5[1]	A	8	MTWTF	435 N.H.	BURGY
[1]Seniors receive only 4	B	9	MTWTF	435 N.H.	BURGY
credits; students who	C	10	MTWTF	435 N.H.	PAGE
have credit for Geol. 1	D	11	MTWTF	435 N.H.	POGGI
receive only 3 credits	E	1	MTWTF	435 N.H.	PAGE
for Geog. 1.					

Geog. 2. Economic Geography.—*Prerequisite:* Geog. 1. Lectures and discussion.

5[1]	A	8	MTWTF	434 N.H.	BLANCHARD
[1]Seniors will receive	B	9	MTWTF	434 N.H.	POGGI
only 4 hours credit.					

Geog. 4. Geography of North America.—*Prerequisite:* Geog. 2. (3). 2 MWF; 435 N.H. Dr. BURGY.

Geog. 9. Teaching of Geography.—*Prerequisite:* One regional course, Geog. 14 and consent of instructor. (2). 2 TT; 434 N.H. Dr. POGGI.

Geog. 14. Weather and Climate.—*Prerequisite:* Geog. 1. (3). 9 MWF; 422 N.H. Assistant Professor PAGE.

Courses for Advanced Undergraduates and Graduates

Geog. 8. Geography of Europe.—*Prerequisite:* Geog. 2 and senior standing. (3). 1 MWF; 422 N.H. Professor BLANCHARD.

Geog. 53a. Production of the Great World Staples.—*Prerequisite:* Geog. 2, one regional course, and senior standing. (3). 10 MWF; 422 N.H. Professor BLANCHARD.

Geog. 60a. Introduction to Research.—Limited to seniors majoring in Geography. (2). Arrange. Members of the staff.

GERMAN

Major: 20 hours in German, excluding courses 1 and 2, and including 6 hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list, with not less than eight hours in each subject: education, English (excluding Rhetoric 1 and 2), French (excluding 1a), Greek, history, Italian, Latin, philosophy, Spanish (excluding 1a).

Note: Seniors taking German 1-2 will receive only three hours credit.

Elementary and Intermediate Courses

German 1. Elemenśary Course.—

4[1]	A1	8	MTWT	312 U.H.	BALD
	A2	8	MTWT	224 L.H.	GENSCHMER
[1]Seniors will receive	A3	8	MTWT	205 L.H.	MUNRO
only 3 hours credit.	A4	8	MTWT	206 L.H.	MUELLER
	B1	9	MTWT	205 L.H.	BROOKS
	B2	9	MTWT	310 U.H.	MOORE
	B3	9	MTWT	240 L.H.	JEHLE

German 1. Elementary Course (Concluded)

Credits	Section	Hours	Days	Room	Instructor
4[1]	C1	10	MTWT	233 L.H.	Munro
	C2	10	MTWT	206 L.H.	Genschmer
[1]Seniors will receive only 3 hours credit.	D1	11	MTWT	312 U.H.	Robinson
	D2	11	MTWT	310 U.H.	Bald
	E1	1	MTWT	224 L.H.	Robinson
	E2	1	MTWT	205 L.H.	Krauss
	F	2	MTWT	232 L.H.	Jehle
	G	3	MTWT	206 L.H.	Moore
	H1	4	MTWT	232 L.H.	Krauss
	H2	4	MTWT	205 L.H.	Schreiber

German 2. Elementary Course (continued).—*Prerequisite:* German 1 or one year of high-school German.

4[1]	A	8	MTWT	233 L.H.	Schreiber
[1]Seniors will receive only 3 hours credit.	B	9	MTWT	211 U.H.	Koller
	C	10	MTWT	238 L.H.	Jehle
	D	1	MTWT	206 L.H.	Moore
	E	4	MTWT	310 U.H.	Munro

German 4. Intermediate Course.—*Prerequisite:* German 2 or two years of high school German, or equivalent.

4	A1	8	MTWT	238 L.H.	Williams
	A2	8	MTWT	219 L.H.	Robinson
	B	9	MTWT	302 L.H.	Geissendoerfer
	C	10	MTWT	310 U.H.	Mueller
	D	11	MTWT	404 U.H.	Schreiber
	E	1	MTWT	211 L.H.	Koller
	F	3	MTWT	235 L.H.	Jehle
	G	4	MTWT	206 L.H.	Moore

German 5. Intermediate Course (continued).—Literary reading. *Prerequisite:* German 4, or three years of high school German, or equivalent.

4	A	8	MTWT	308 L.H.	Geissendoerfer
	B	10	MTWT	312 U.H.	Koller

Courses for Advanced Undergraduates

German 14. Introductory Schiller Course.—*Prerequisite:* German 5 or equivalent. (3). 11 MWF; 205 L.H. Professor Aron.

German 16a. Conversation and Writing.—*Prerequisite:* German 5 or equivalent. (2). 2 TT; 206 L.H. Assistant Professor Koller.

German 24a. Nineteenth Century Drama.—*Prerequisite:* German 5 or equivalent. (2). 3 TT; 204-A L.H. Assistant Professor Geissendoerfer.

German 28a. Lyrics and Ballads.—*Prerequisite:* German 5 or equivalent, and sophomore standing. (2). 9 TT; 204-A L.H. Associate Professor Williams.

German 29a. Advanced Conversation and Writing.—*Prerequisite:* German 16b or equivalent. (2). 2 TT; 211 L.H. Assistant Professor Geissendoerfer.

German 30a. Senior Thesis and Honors Course.—*Prerequisite:* Senior standing; three years of college German or equivalent. (2). Arrange. Professor Aron and others.

Courses for Advanced Undergraduates and Graduates

German 19a. Goethe's Faust I.—*Prerequisite:* Three years of college German or equivalent. (2). 11 TT; 425 Lib. Professor Brooks.

German 26a. German Literature to 1800.—*Prerequisite:* Three years of college German or equivalent. (3). 9 MWF; 233 L.H. Professor Aron.

German 31. Middle High German.—*Prerequisite:* Senior or graduate standing; three years of college German or equivalent. (2). Arrange. Associate Professor Williams.

German 54. Introduction to Comparative Literature.—See English 54.

Courses for Graduates

German 101. Seminar in Goethe and Schiller.—(1 unit). Twice a week. Arrange. Professor Aron.

German 102. Thesis.—(½ to 2 units).* Arrange. Professors Aron, Brooks; Associate Professor Williams; Assistant Professor Geissendoerfer.

German 103. Introduction to the Historical Study of the Germanic Languages.—(1 unit). Twice a week. Arrange. Associate Professor Williams.

German 113. German Literature of the Fifteenth and Sixteenth Centuries.—(1 unit). Twice a week. Arrange. Professor Brooks.

German 117. German Literature of the Seventeenth and Eighteenth Centuries.—(1 unit). Twice a week. Arrange. Professor Aron.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

GREEK

(See Classics, A.)

HISTORY

Major: 20 hours, including (a) ten hours in courses having junior standing as a prerequisite, and (b) any other courses offered by the department (except courses taken in the freshman year).

Minors: 20 hours selected from one or two of the following subjects: economics, political science, geography, philosophy, law, sociology, and English and American literature (except such courses as are taken in the freshman year). Courses in one modern language (except such as are primarily designed for freshmen) will be accepted as one of two minor subjects.

Note: Seniors receive reduced credit in History 1 and 2.

Courses for Undergraduates

Hist. 1a. Continental European History.—Professor JONES, Professor RONALDS, Dr. ERICKSON, Dr. KING, Dr. SHAY, and assistants.

Credits	Section	Hours	Days	Room	Instructor
4[1]	Lect. 1[2]	10	TT	Morrow Hall	JONES
[1]Seniors will receive only 3 hours credit.	A Disc.	8	WF	211 U.H.	
	B Disc.	8	WF	335 L.H.	
	C Disc.	9	WF	320 New Agr.	
[2]Students in Lecture 1 must elect a discussion in the A-I group. Students in Lecture 2 must elect a discussion in the J-O group.	D Disc.	10	WF	211 L.H.	
	E Disc.	10	WF	211 U.H.	
	F Disc.	10	WF	335 L.H.	
	G Disc.	11	WF	238 L.H.	
	H Disc.	1	WF	211 U.H.	
	I Disc.	2	WF	211 U.H.	
	Lect. 2[2]	2	MW	228 N.H.	RONALDS
	J Disc.	10	TT	329 L.H.	
	K Disc.	11	TT	321 L.H.	
	L Disc.	1	TT	305 L.H.	
	M Disc.	2	TT	335 L.H.	
	N Disc.	2	TT	321 L.H.	
	O Disc.	2	TT	238 L.H.	

Hist. 2a. English History.—Professor DIETZ, Dr. ERICKSON, Dr. SHAY, and assistants.

3[1]	Lect. 1	11	M	L.H. Theatre	DIETZ
	Lect. 2	2	M	Morrow Hall	DIETZ
[1]Seniors will receive only 2 hours credit.	A Disc.	10	WF	321 L.H.	
	B Disc.	11	WF	321 L.H.	
	C Disc.	11	WF	329 L.H.	
	D Disc.	11	WF	224 L.H.	
	E Disc.	11	WF	335 L.H.	
	F Disc.	11	WF	240 L.H.	
	G Disc.	1	WF	305 L.H.	
	H Disc.	2	WF	340 L.H.	
	I Disc.	2	WF	311 L.H.	
	J Disc.	2	WF	329 L.H.	
	K Disc.	2	TT	203 L.H.	
	L Disc.	3	TT	305 L.H.	

Hist. 3a. History of the United States to 1828.—*Prerequisite:* One year of college work. Professor HANSEN; Assistant Professors DUNBAR, WERNER; Dr. KING, and assistants.

3	Lect. 1[1]	8	MF	218 U.H.	WERNER
	A Disc.	8	Tu	305 L.H.	
[1]Students in Lecture 1 must elect a discussion in the A-E group. Students in Lecture 2 must elect a discussion in the F-J group. Students in Lecture 3 must elect a discussion in the K-O group.	B Disc.	8	W	305 L.H.	
	C Disc.	8	W	303-A L.H.	
	D Disc.	8	W	311 L.H.	
	E Disc.	8	Th	305 L.H.	
	Lect. 2[1]	11	MF	Morrow Hall	DUNBAR
	F Disc.	10	Tu	305 L.H.	
	G Disc.	11	W	334 L.H.	
	H Disc.	11	W	320 New Agr.	
	I Disc.	11	W	211 U.H.	
	J Disc.	10	Th	321 L.H.	
	Lect. 3[1]	2	MF	218 U.H.	HANSEN
	K Disc.	2	Tu	204-A L.H.	
	L Disc.	2	W	321 L.H.	
	M Disc.	2	W	304 L.H.	
	N Disc.	2	W	308 L.H.	
	O Disc.	2	Th	311 L.H.	

Hist. 5a. The Ancient World.—*Prerequisite:* Sophomore standing. Professor SWAIN and assistant.

3	Lect.	2	MW	303 L.H.	SWAIN
	A Disc.	2	Tu	240 L.H.	
	B Disc.	2	W	240 L.H.	
	C Disc.	2	W	105 L.H.	
	D Disc.	2	Th	240 L.H.	

Hist. 14. The American Colonies in the Seventeenth Century.—*Prerequisite:* Junior standing. (3). 11 MWF; 305 L.H. Assistant Professor WERNER.

Hist. 18. The Teaching of History.—*Prerequisite:* One year of college history and senior standing. (2). 3 TT; 303 L.H. Assistant Professor WERNER.

Hist. 22a. History of the West, 1634-1815.—*Prerequisite:* History 3a and junior standing. (2). 10 TT; 410 U.H. Professor PEASE.

Hist. 23a. The Puritan Revolution in England and America.—*Prerequisite:* Sophomore standing and one year of college history. (2). 11 TT; 410 U.H. Professor PEASE.

Hist. 30a. The Mohammedan World: The Saracen Empire and the Crusades.—*Prerequisite:* One year of college history. (3). 10 MWF; 305 L.H. Professor LYBYER.

Hist. 33a. History of Russia and Her Slavic Neighbors to 1796.—*Prerequisite:* Junior standing and one year of college history. (3). 8 MWF; 105 L.H. Associate Professor RODKEY.

Hist. 34a. Development of Modern Europe, 1648-1789.—*Prerequisite:* Junior standing and one year of college history. (3). 11 MWF; 109 L.H. Dr. ERICKSON.

Hist. 40. History of the British Empire.—*Prerequisite:* One year of college history. (2). 1 TT; 204 L.H. Dr. ERICKSON.

Hist. 41. The Middle Ages: The Formation and the Development of the European States.—*Prerequisite:* Sophomore standing. (3). 2 MWF; 302 L.H. Professor LARSON.

Hist. 45a. History of England in the Eighteenth and Early Nineteenth Centuries (1688-1837).—*Prerequisite:* Junior standing and one year of college history. (2). 2 TT; 303 L.H. Assistant Professor RONALDS.

Hist. 51a. Hebrew History.—*Prerequisite:* Junior standing. (2). 2 TT; 305 L.H. Associate Professor SWAIN.

Hist. 90a. Thesis.—*Prerequisite:* Senior standing. (2). Arrange. Associate Professor RODKEY.

Hist. 91a. Honors Course.—*Prerequisite:* Senior standing. (2). Arrange. Professor LYBYER.

Courses for Advanced Undergraduates and Graduates

(Open to seniors and juniors of high standing)

Hist. 16a. The Foundations of American Society: The Colonies in the Eighteenth Century.—*Prerequisite:* History 3a. (3). 10 MWF; 311 L.H. Assistant Professor DUNBAR.

Hist. 17a. Social and Economic Forces in the Nineteenth Century (to 1850).—*Prerequisite:* History 3b. (3). 9 MWF; 303 L.H. Professor HANSEN.

Hist. 19a. The History of American Immigration.—*Prerequisite:* History 3. (2). 9 TT; 203 L.H. Professor HANSEN.

Hist. 20a. History of the Old South.—*Prerequisite:* History 3a-3b. (2). 8 TT; 335 L.H. Professor RANDALL.

Hist. 21. The Recent History of the United States.—*Prerequisite:* History 3b. (3). 9 TT; 303 L.H. Professor ROBERTSON.

Hist. 25. The Civil War and Reconstruction.—*Prerequisite:* History 3b. (3). 11 MWF; 204 L.H. Professor RANDALL.

Hist. 26. History of the Latin American Colonies.—*Prerequisite:* One year of college history. (3). 2 MWF; 305 L.H. Professor ROBERTSON.

Hist. 32a. The History of Europe, 1878-1904.—*Prerequisite:* One year of college history, economics, or political science. (3). 8 MWF; L.H. Theatre. Professor LYBYER.

Hist. 36a. History of the German People to the End of the Thirty Years War.—*Prerequisite:* One year of college history. (3). 9 MWF; 305 L.H. Associate Professor RODKEY.

Hist. 38a. Development of the French Monarchy in Early Modern Times, 1285-1648.—*Prerequisite:* History 1a. (3). 9 MWF; 329 L.H. Professor JONES.

Hist. 44a. The Constitutional History of England.—*Prerequisite:* One year of college history. (3). 3 MWF; 303 L.H. Professor LARSON.

Hist. 46a. The Industrial Revolution and English Social Politics, 1750-1832.—*Prerequisite:* One year of college history. (3). 9 MWF; 335 L.H. Professor DIETZ.

Hist. 55. History of the Ancient Greek States.—*Prerequisite:* One year of college history. (3). 1 MWF; 202 L.H. Professor OLDFATHER.

Hist. 57a. Ancient Imperialism.—*Prerequisite:* One year of college history. (3). 11 MWF; 311 L.H. Associate Professor SWAIN.

Hist. 62a. Political and Constitutional Development of the United States.—*Prerequisite:* One year of college history. (3). 10 MWF; 329 L.H. Professor RANDALL.

Courses for Graduates

Hist. 101a. Seminar in American History: Introduction to Research.—(1 unit). 4-6 Tu. Professor ROBERTSON.

Hist. 102a. Seminar in English History.—(1 unit). Arrange. Professor DIETZ.

Hist. 103. Studies in Historical Method.—(½ unit). 3 TT. Professor RANDALL.

Hist. 104a. Seminar in European History.—(1 unit). 4-6 W. Professor LYBYER.

Hist. 105. Research in Special Topics (Thesis Course).—(1 to 2 units).* Professors LARSON, LYBYER, PEASE, JONES, RANDALL, DIETZ, HANSEN; Associate Professors SWAIN, RODKEY; Assistant Professors DUNBAR, RONALDS, WERNER.

Hist. 106a. Seminar in the History of the Later Middle Ages.—(1 unit). Arrange. Professor LARSON.

Hist. 122a. The Westward Movement, 1760-1774.—(1 unit). Two hours. 4 MTh. Professor PEASE.

Hist. 126. Spain in Europe and America, 1750-1825.—(1 unit). Arrange. Professor ROBERTSON.

Hist. 133a. Studies in the History of Europe in the Nineteenth Century.—(1 unit). 9-11 S. Associate Professor RODKEY.

Hist. 138a. History of France during the Religious Civil Wars.—(1 unit). Arrange. Professor JONES.

Hist. 150a. Research in Ancient History.—(1 unit). 3-5 M. Associate Professor SWAIN.

HOME ECONOMICS

Note: Certain courses in this department require laboratory fees varying from $1 to $16.

College of Agriculture

Curriculum in General Home Economics. (See *Directions for Registration*, page 46.)
Curriculum in Nutrition and Dietetics. (See *Directions for Registration*, page 47.)

College of Education

Requirements in Home Economics Education. (See *Directions for Registration*, page 53.)

College of Liberal Arts and Sciences

Major A.—General Home Economics: 20 hours from courses offered by the department, excluding Home Economics 7 and 58, and including Home Economics 2, 5, 10, 29, 59, and two or more of the following: Home Economics 14, 20, 28, 31, 33, 35, 41, 43a or b, 48, 55, 57a or b.

Major B.—Nutrition: 20 hours excluding Home Economics 58, and including Home Economics 5, 39a and b, 41, 59, and two or more of the following: Home Economics 20, 33, 35, 45, 47.

Minor A.—20 hours chosen from one or two of the following subjects and taken after the freshman year: chemistry, bacteriology. At least eight hours must be offered in each subject, if two are chosen.

Minor B.—20 hours chosen from one or two of the following subjects and taken after the freshman year: economics, sociology. At least eight hours must be offered in each subject, if two are chosen.

Transfer Students: To satisfy the requirements for graduation, students transferring home economics credits from other institutions must take five hours in residence from the following: Home Economics 20, 28, 31, 33, 35, 39a, 39b, 41, 43a, 43b, 47, 48, 50, 51, 55, 57a, 57b.

Electives: In addition to the required subjects in each college, it is expected that students will choose electives in accord with their special interests, as follows:

1. Textiles, clothing and costume design: Home Economics 19, 30, 31, 42, 43a, 43b, 50, 51.
2. Institution management and hospital dietetics: Home Economics 20, 33, 35, 46, 47, 48, 55.
3. Household management: Home Economics 14, 28, 57a, 57b, and additional courses in economics.
4. House planning and furnishing: Art 16a, 16b; Architecture 11, 12; Home Economics 3, 43a, 43b, and additional courses in art and history.
5. Nutrition: Chemistry 24, 50a; Zoology 1; Home Economics 20, 33, 35, 39a, 39b, 41, 45.
6. Teaching of home economics: Home Economics 11, 13, 34, 45; Education 6, 10, 25.

Courses for Undergraduates

Home Econ. 2. Home Architecture.—*Prerequisite:* Art 13a and sophomore standing. *Prerequisite or concurrent:* Art 13b.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	9	TT	117 W.B.	FOSTER, WEAVER
	Lab.	10-12	S	300 Arch.	FOSTER, WEAVER

Home Econ. 3. Home Decoration.—*Prerequisite:* Art 13a, 13b, Home Econ. 2.

3	Lect.	2	W	117 W.B.	WEAVER
	L Lab.	10-12	TT	309 W.B.	
	N Lab.	1-3	TT	309 W.B.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Home Econ. 5. Dietetics.—*Prerequisite:* Chem. 33; Home Econ. 58; Physiol. 4. *Prerequisite or concurrent:* Home Econ. 59.

Credits	Section	Hours	Days	Room	Instructor
4	Lect.	9	M	121 W.B.	Barto
	B1 Quiz	9	W	121 W.B.	Barto
	B2 Quiz	9	F	121 W.B.	Barto
	C Lab.	10–12	MW	229 W.B.	Barto
	L Lab.	10–12	TT	229 W.B.	Barto
	P Lab.	3–5	TT	229 W.B.	Munger

Home Econ. 6. Foods.—*Prerequisite:* Home Econ. 1.

4	Lect.	11	Th	210 W.B.	Woodruff
	Quiz	11	Tu	210 W.B.	Munger
	G Lab.	3–5	MW	235 W.B.	Munger
	P Lab.	3–5	TT	235 W.B.	Pickens

Home Econ. 7. Textiles.—

3[1]	Lect.	10	M	210 W.B.	Jacobsen
	B Quiz	9	W	117 W.B.	Jacobsen
[1]Seniors will receive only 2 hours credit.	C1 Quiz	10	W	117 W.B.	Beam
	C2 Quiz	10	F	117 W.B.	Jacobsen
	D Quiz	11	F	117 W.B.	Jacobsen
	L1 Lab.	10–12	Tu	304 W.B.	Jacobsen
	C Lab.	10–12	W	304 W.B.	Jacobsen
	L2 Lab.	10–12	Th	304 W.B.	Jacobsen
	E2 Lab.	1–3	F	304 W.B.	Beam

Home Econ. 10. Organization and Management of the Home.—*Prerequisite:* Econ. 1 or 2; Home Econ. 7, 59 (or 6); *Prerequisite or concurrent:* Home Econ. 2.

3	Lect.	1	F	121 W.B.	Nickell
	A Quiz	8	MW	121 W.B.	Nickell
	E Quiz	1	MW	121 W.B.	Nickell

Home Econ. 11. The Teaching of Home Economics.—*Prerequisite:* Home Econ. 59 (or 6), 29. *Prerequisite or concurrent:* Education 10; Home Econ. 5, 10, 19. *Recommended:* Home Econ. 34. One inspection trip (approximate cost $3). Required of all who wish to be recommended to teach home economics. (3). Lecture and discussion, 2 TT; 121 W.B. Miss Robinson.

Home Econ. 11a. Supervised Teaching.—*Prerequisite or concurrent:* Home Econ. 11. (2). Time to be arranged, daily for twenty lessons. University High School and Urbana High School. Miss Robinson, Miss Todd, Miss King.

Note: Students wishing a five-hour course in supervised teaching in home economics should take Educational Practice 14 (see Education). Credit is not allowed for supervised teaching in the College of Liberal Arts and Sciences.

Home Econ. 13. Home Economics in Education.—*Prerequisite or concurrent:* Home Econ. 10, 29. Recommended for all seniors in Home Economics. (3). 3 TT; 117 W.B. Miss Todd.

Home Econ. 14. Home Management House.—Conferences and laboratory work in the practice apartment and laundry. The students reside in the practice apartment four weeks during the semester. This course is required of all students expecting to meet the Smith-Hughes requirements. *Prerequisite:* Home Econ. 5, 10; consent of the instructor. (3). Conference, 4 Th, 117 W.B.; laboratory to be arranged with instructor, 317-319 W.B. Assistant Professor Nickell.

Home Econ. 19. Costume Design.—*Prerequisite:* Art 13a, 13b; Home Econ. 29.

3	Lect.	11	F	210 W.B.	Barnes
	C Lab.	10–12	MW	309 W.B.	
	E Lab.	1–3	MW	309 W.B.	

Home Econ. 29. Clothing.—*Prerequisite:* Art 13a or 13b; Home Econ. 7.

4	Lect.	9	F	210 W.B.	Whitlock
	K Quiz	9	Th	121 W.B.	Whitlock
	M Quiz	11	Th	121 W.B.	Whitlock
	C Lab.	10–12	MW	203-5 W.B.	Whitlock
	L Lab.	10–12	TT	327 W.B.	Beam
	N Lab.	1–3	TT	327 W.B.	Beam

Home Econ. 30. Clothing.—*Prerequisite or concurrent:* Home Econ. 19.

3	Lect.	2	F	121 W.B.	Whitlock
	E Lab.	1–3	MW	203-5 W.B.	
	N Lab.	1–3	TT	203-5 W.B.	

Home Econ. 34. Teachers' Course in Clothing.—*Prerequisite or concurrent:* Home Econ. 19. (1). Lab., 3-5 W; 203-5 W.B. Miss King.

Home Econ. 38. Elementary Nutrition.—*Prerequisite:* Senior standing. (Open only to students not majoring in home economics.) (2). E Lect., (for women), 2 MW, 121 W.B.; K Lect., (for men), 9 TT, 231 W.B. Assistant Professor Barto.

Home Econ. 42. History of Costume.—(1). Lect., 3 Tu; 210 W.B. Miss Barnes.

Home Econ. 46. Quantity Cookery.—*Prerequisite:* Home Econ. 59 (or 6). (3). Quiz, 4 W, 117 W.B.; Lab., 8-11 two mornings a week, to be arranged with instructor; students advised not to have eleven o'clock classes as they are required to serve at noon at least two days a week. Assistant Professor SMITH, Miss BENNETT.

Home Econ. 47. Institution Management.—*Prerequisite:* Econ. 1 or 2. *Prerequisite or concurrent:* Home Econ. 46. (3). Lect. and disc., 2 MWF; 210 W.B. Assistant Professor SMITH.

Home Econ. 58. Foods.—Composition and behavior of foods; principles of food preparation. *Prerequisite:* Chemistry 1 and 5.

Credits	Section	Hours	Days	Room	Instructor
5	Lect.	9	MW	210 W.B.	WOODRUFF
	B Quiz	9	F	117 W.B.	PICKENS
	D Quiz	11	F	121 W.B.	WOODRUFF
	C Lab.	10–12	MWF	235 W.B.	PICKENS
	E Lab.	1–3	MWF	235 W.B.	PICKENS
	N Lab.	1–3	TT	235 W.B.	MUNGER
		10–12	S		

Courses for Advanced Undergraduates and Graduates

Home Econ. 20. Infant Nutrition.—*Prerequisite:* Home Econ. 5, senior standing. (2). Lect. and disc., 1 MW; 117 W.B. Assistant Professor OUTHOUSE.

Home Econ. 28. Organization and Management of the Home.—*Prerequisite:* Home Econ. 10. (2). Disc., 8 TT; 117 W.B. Assistant Professor NICKELL.

Home Econ. 39a. Readings in Food and Nutrition.—*Prerequisite:* Home Econ. 5, senior standing. *Prerequisite or concurrent:* Chem. 50a, or Home Econ. 20, 33, 41, or 55. (1). Seminar, 4-5:30 Th; 203-5 W.B. Associate Professor WOODRUFF, Assistant Professors OUTHOUSE and BARTO.

Home Econ. 43a. Problems in Textiles and Clothing.—*Prerequisite:* Econ. 1 or 2; Home Econ. 30 or 51. Individual problems in some cases involve prerequisites of chemistry and physics. (3). Lect., 3 Tu; 117 W.B. Lab. to be arranged. Assistant Professors JACOBSEN and WEAVER, Miss BARNES, Miss WHITLOCK.

Home Econ. 55. Food and Nutrition.—*Prerequisite or concurrent:* Home Econ. 5; senior standing. (5). Lect., 1 TT, 117 W.B.; Lab., 2-5 Tu, 2-4 Th, and 8-11 S; 215 W.B. Assistant Professor OUTHOUSE, Mrs. MEYER.

Home Econ. 57a. Problems in Home Management.—*Prerequisite:* Home Econ. 10. (3). Arrange. Assistant Professor NICKELL.

Courses for Graduates

Home Econ. 101. Home Economics.—(1 unit). Professor WARDALL.

Home Econ. 102. Research in Nutrition.—(½ to 3 units).* Assistant Professor OUTHOUSE.

Home Econ. 103. Seminar in Nutrition.—(½ unit). Once a week. Assistant Professor OUTHOUSE.

Home Econ. 104. Research in Foods.—(½ to 3 units).* Associate Professor WOODRUFF.

Home Econ. 105. Seminar in Foods.—(½ unit). Associate Professor WOODRUFF.

HORTICULTURE

Note: Certain courses in this department require laboratory fees varying from $0.50 to $3.50.

Courses for Undergraduates

Hort. 1a. Elements of Horticulture.—(No credit allowed to juniors and seniors.)

2	E Quiz	1	MF	127 New Agr.	COLBY, KELLEY
	Lab.	1–3	W	H. F. Lab.	
	S Quiz	1	WF	111 New Agr.	
	Lab.	1–3	M	H. F. Lab.	
	J Quiz	8	TT	127 New Agr.	
	Lab.	8–10	S	H. F. Lab.	
	A Quiz	8	WF	127 New Agr.	
	Lab.	8–10	M	H. F. Lab.	
	T Quiz	3	TT	127 New Agr.	
	Lab.	10–12	S	H. F. Lab.	
	V Quiz	8	MW	111 New Agr.	
	Lab.	8–10	F	H. F. Lab.	

Hort. 5. Plant Propagation.—(3). 1-3 MWF; F.G. Professor DORNER.

Hort. 8a. Orcharding.—*Prerequisite:* Hort. 1a and 1b. An inspection trip is required; expenses not to exceed $15. (3). Lect., 10 Th; 111 New Agr. Lab., 10-12 TuS; 106 H. F. Lab. Mr. McMUNN.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Hort. 15b. Commercial Floricultural Crops.—*Prerequisite:* Hort. 15a. (3). 10-12 MWF; F.G. Associate Professor HALL.

Hort. 22a-g. Investigation with Thesis.—This course is continuous throughout the year; credit is not given for either semester separately. *Prerequisite:* 90 hours of university work including not less than 20 hours pertinent to the thesis problem, and the approval of the head of the department. (5). Arrange.

(a) **Pomology.**—Professors DORSEY, RUTH, COLBY, ANDERSON; Assistant Professor KELLEY.
(c) **Olericulture.**—Professor LLOYD.
(e) **Floriculture.**—Professor DORNER, Associate Professor WEINARD.
(g) **Plant Breeding.**—Professor DORSEY.

Hort. 32a. Floral Decoration.—(For floriculture students.) (3). 8-10 TTS; F.G. Professor DORNER.

Hort. 33. Systematic Pomology.—*Prerequisite:* 60 hours of university work. (2). 3-5 TT; H. F. Lab. Mr. MCMUNN.

Hort. 34. Vegetables under Glass.—*Prerequisite:* Hort. 3 or 15a. Inspection trip, costing about $20, required. (3). 1-3 MWF; 203 V.G. Mr. WEAVER.

Hort. 49. Systematic Vegetable Crops.—*Prerequisite:* Hort. 1b. (2). 3-5 TT; 203 V.G. Professor LLOYD, Mr. WEAVER.

Hort. 53. Viticulture.—*Prerequisite:* Hort. 1a and 1b. (2). 1-3 TT; H. F. Lab. Professor COLBY.

Hort. 54. Horticultural Manufactures.—*Prerequisite:* Agr. Eng. 1; registration in Bact. 5a. Inspection trip, costing about $20, required. (3). Lect., 1 TT, 2-5 TT; H. F. Lab. Associate Professor HUELSEN.

Courses for Advanced Undergraduates and Graduates

Hort. 12. Evolution of Horticultural Plants.—*Prerequisite:* Zoology 15 or Botany 20. (3). Arrange. 203 V.G. Professor DORSEY.

Hort. 43. Greenhouse Fertilizers.—*Prerequisite:* Botany 3; Agron. 28; Hort. 3 or 15a; senior standing. (3). 3 MWF; F.G. Associate Professor WEINARD.

Hort. 44. Current Pomological Literature.—*Prerequisite:* 90 hours of university work. (1). 4 W; 111 New Agr. Professor RUTH.

Marketing Horticultural Products.—(See Agricultural Economics 36.) *Prerequisite:* Econ. 1 or 2; 90 hours of university work. Inspection trip, costing about $20, required. (3). 3 MWF; 203 V.G. Professor LLOYD.

Hort. 47. Fruit Storage.—*Prerequisite:* Chem. 32; Bot. 3, or concurrent registration in Bot. 3. (3). 1-3 MWF; 102 H. F. Lab. Professor RUTH.

Courses for Graduates

Hort. 103. Olericulture.—(1 to 2 units).* Arrange. Professor LLOYD.

Marketing Fruits and Vegetables.—(See Agricultural Economics 135.) (1 to 2 units).* Arrange. Professor LLOYD.

Hort. 106. Olericulture Seminar.—(¼ unit). Arrange. Professor LLOYD.

Hort. 108. Pomology.—(1 to 4 units).* Arrange.

(a) **Pomological Problems.**—Professor BLAIR.
(b) **Pomology and Fruit Breeding.**—Professor DORSEY.
(c) **Pomological Physiology.**—Professor RUTH, Assistant Professor KELLEY.
(d) **Small Fruits.**—Professor COLBY.
(e) **Pomological Pathology.**—Professor ANDERSON.

Hort. 115. Floriculture.—(1 to 2 units).* Arrange.

(a) **Floricultural Problems.**—Professor DORNER.
(b) **Floricultural Physiology and Pathology.**—Associate Professor WEINARD.

Hort. 120. Pomology Seminar.—(¼ unit). Arrange. Professors DORSEY, RUTH, ANDERSON.

Hort. 125. Fruit Development.—(1 unit). Arrange. Professor DORSEY.

Hort. 130. Physiology of Fruit Production.—(1 unit). Arrange. Professor RUTH.

Hort. 135. Fruit Disease Research.—(1 unit). Arrange. Professor ANDERSON.

HYGIENE

Courses for Undergraduates

Hygiene 2. Essentials of Hygiene and Sanitation.—Required of all freshmen women. Students whose names begin with letters from A through L are to register the first semester.

Credits	Section	Hours	Days	Room	Instructor
2	A1	8	WF	106 L.H.	MILLBROOK
	B1	9	TT	106 L.H.	ETHEREDGE

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Hygiene 2. Essentials of Hygiene and Sanitation (Concluded)

Credits	Section	Hours	Days	Room	Instructor
2	B2	9	WF	106 L.H.	Etheredge
	C1	10	TT	106 L.H.	Wheeler
	C2	10	WF	106 L.H.	Wheeler
	F1	2	TT	106 L.H.	Millbrook

Hygiene 5. Elementary Hygiene and Sanitation.—Required of all undergraduate men during their first year of residence. Students in the colleges of Agriculture and Liberal Arts and Sciences should register in the first semester. All other students register in the second semester. Students whose schedules will not permit registration in this order will, with proper approval, be accepted in either semester.

2	A1	8	MS	128 New Agr.	Beard, Cain, Ross, Blackstone, Lewis, and Judah
	A2 Agr.	8	WF	128 New Agr.	
	B1	9	TT	128 New Agr.	
	B2 Agr.	9	WF	128 New Agr.	
	B3	9	MS	128 New Agr.	
	B4	9	TT	127 New Agr.	
	B5	9	WF	127 New Agr.	
	B6	9	MS	122 New Agr.	
	C1 Agr.	10	TT	128 New Agr.	
	C2	10	WF	128 New Agr.	
	C3	10	MS	128 New Agr.	
	C4	10	MS	127 New Agr.	
	D1 Agr.	11	TT	128 New Agr.	
	D2	11	WF	128 New Agr.	
	D3 Eng.	11	MS	406 P.L.	
	F1 Agr.	2	TT	128 New Agr.	
	G1	3	TT	128 New Agr.	
	G2 Eng.	3	WF	205 E.H.	

Hygiene 10. Advanced Hygiene.—Open to men and women. *Prerequisite:* Three semesters of university work and consent of instructor.

3	Lect.	2	M	127 New Agr.	Gebhart and others
	Quiz	2	WF	127 New Agr.	

INDUSTRIAL EDUCATION

(See Education, F.)

ITALIAN

(See Romance Languages and Literature, B.)

JOURNALISM

Note: Certain courses in this department require laboratory fees varying from $1 to $2. Credit in journalism will be given for Rhet. 6; Engl. 45; Pol. Sci. 22, 27, 28; Law 2, 5; Hist. 21.

Courses for Undergraduates

Journ. 1. Introduction to Journalism.—Open to pre-journalism freshmen only.

1	K	9	Th	112 U.H.	Barlow
	L	10	Th	211 U.H.	Barlow
	N	1	Th	211 U.H.	Barlow
	O	2	Th	211 U.H.	Barlow

Journ. 3. The Newspaper and the News.—A non-laboratory survey course for students outside of the School of Journalism. Not open to students with credit in Journalism 1-2, or to students registered in Journalism 5. *Prerequisite:* Sophomore standing.

2	L	10	TT	218 U.H.	Dickinson
	M	11	TT	218 U.H.	Dickinson

Journ. 4. Newspaper Reference Service.—*Prerequisite:* Sophomore standing. (2). 10 MW; 2 hours laboratory to be arranged; 113 U.H. Dr. Dickinson.

Journ. 5. Reporting.—*Prerequisite:* Sophomore standing. (Students register for lecture, discussion, and laboratory sections as follows: O1, O2, and O3; *or* O1, P2, and P3; *or* M1, L2, and L3; *or* M1, M2, and M3. Make out three class cards, one for the lecture, one for the discussion, and one for the laboratory period.)

3	O1 Lect.	2	Tu	315 U.H.	Davis
	O2 Disc.[1]	2	Th	113 U.H.	Davis
[1]Sections O2, O3, M2, and M3 are for students on the news staff of The Daily Illini.	O3 Lab.[1]	Three hours to be arranged			Leiter
	P2 Disc.	3	Th	113 U.H.	Davis
	P3 Lab.	Three hours to be arranged			Leiter
	M1 Lect.	11	Tu	303 Adm.(E)	Davis
	L2 Disc.	10	Th	113 U.H.	Davis
	L3 Lab.	Three hours to be arranged			Leiter
	M2 Disc.[1]	11	Th	112 U.H.	Davis
	M3 Lab.[1]	Three hours to be arranged			Leiter

Journ. 7. Sports Writing.—(For students in Athletic Coaching.) *Prerequisite:* Sophomore standing.

Credits	Section	Hours	Days	Room	Instructor
3	B	9	MWF	410 U.H.	DICKINSON
	E	1	MWF	315 U.H.	SCHOOLEY

Journ. 9a. History and Practice of Printing and Publishing.—*Prerequisite:* Sophomore standing.

2 or 3	Lect.	11	Th	303 Adm.(E)	ALLEN
	Lab. A1	8–10	M	126 U.H.	ALLEN
	Lab. J1	8–10	Tu	126 U.H.	ALLEN
	Lab. A2	8–10	W	126 U.H.	ALLEN
	Lab. J2	8–10	Th	126 U.H.	ALLEN
	Lab. A3	8–10	F	126 U.H.	ALLEN
	Lab. C1	10–12	M	126 U.H.	ALLEN
	Lab. C2	10–12	W	126 U.H.	ALLEN
	Lab. G1	3–5	M	126 U.H.	ALLEN
	Lab. P	3–5	Tu	126 U.H.	ALLEN

Courses for Advanced Undergraduates

Journ. 10. Newspaper Advertising.—(Same as B.O.&O. 10). (Offered first semester only.) *Prerequisite:* Journ. 5-6.

3	A	8	MWF	306 Com.	RUSSELL
	D	11	MWF	306 Com.	RUSSELL

Journ. 12. Publicity Methods.—*Prerequisite:* Junior standing. (2). 9 TT; 113 U.H. Associate Professor WRIGHT.

Journ. 13. Copyreading.—*Prerequisite:* Journ. 5 and 9a or equivalent, and junior standing.

3	Lect. G	3	M	315 U.H.	SIEBERT
[1]Section G1 is for students with desk experience. Consult adviser before registering.	Lab. N	1–3	TT	118 U.H.	SIEBERT
	Lab. E	1–3	WF	118 U.H.	SIEBERT
	Lab. P	3–5	TT	118 U.H.	SIEBERT
	Lab. G1[1]	3–5	WF	118 U.H.	SIEBERT

Journ. 17. History of Journalism.—*Prerequisite:* Junior standing. (3). 10 MWF; 410 U.H. Professor MURPHY.

Journ. 19. Editorials and the Editorial Page.—*Prerequisite:* Journ. 5-6 or equivalent, and junior standing. (2). 11 MW; 113 U.H. Professor MURPHY.

Journ. 21. Community and Country Journalism.—*Prerequisite:* Junior standing. (3). Lecture and discussion, 10 TT; 2 hours laboratory to be arranged; 126 U.H. Assistant Professor ALLEN.

Journ. 24. Agricultural Journalism.—(Open to students in journalism, agriculture, and home economics.) *Prerequisite:* Junior standing. (2). 1 TT; 113 U.H. Associate Professor LEITER.

Journ. 29. Advanced Reporting.—*Prerequisite:* Journ. 5-6 or equivalent, and junior standing. (3). 2 MWF; 113 U.H. (Section E, General news and correspondence.) Associate Professor BARLOW.

Journ. 31. Trade and Technical Journalism.—*Prerequisite:* Junior standing. (2). 9 TT; 412 U.H. Mr. DAVIS.

Journ. 33. Newspaper Advertising Copy and Layouts.—*Prerequisite:* Junior standing.

2	Lect.	1	Tu	112 U.H.	ALLEN
	Lab. N	1–3	Th	112 U.H.	ALLEN

Journ. 35. Contemporary Affairs.—*Prerequisite:* Junior standing and 6 hours of journalism. (2). 11 TT; 113 U.H. Assistant Professor SIEBERT.

Journ. 39. Special Problems.—(For seniors not writing theses in journalism.) (2). 3 W; 113 U.H. Associate Professor BARLOW.

Journ. 43. Newspaper Accounting.—*Prerequisite:* Junior standing. (3). 9 MWF; 113 U.H. (Offered first semester only). Mr. KRANNERT.

Journ. 60a. Thesis Course.—Open to seniors with consent of the Director. (2). Arrange. Professor MURPHY and staff.

LANDSCAPE ARCHITECTURE

Note: Certain courses in this department require laboratory fees varying from $0.50 to $2.00.

Courses for Undergraduates

L.A. 11. History of Landscape Architecture.—(3). 11 MWF; 214 New Agr. Assistant Professor PETERSON.

L.A. 31. Landscape Design.—*Prerequisite:* Arch. 72. (4). Lab., 9-12 TT, 200 New Agr.; 9-11 WF, 211 New Agr. Professor WHITE.

L.A. 33. Landscape Design.—*Prerequisite:* L.A. 32. (4). Lect., 2 W; 211 New Agr. Lab., 2-4 MF, 211 New Agr.; 1-5 TT, 200 New Agr. Professor WHITE.

L.A. 35. Advanced Landscape Design.—*Prerequisite:* L.A. 34. (5). Lect., 9 M; 211 New Agr. Lab., 10-12 M, 9-12 WF, 8-12 S; 203 New Agr. Professors WHITE and LOHMANN.

L.A. 37. Civic Design.—*Prerequisite:* Senior standing in the City Planning Option. (4). Lect., 9 M; 214 New Agr. Lab., 10-12 M, 9-12 WF; 203 New Agr. Professor LOHMANN.

L.A. 43. Landscape Construction.—*Prerequisite:* C.E. 18. (3). Lect., 10 M, 9 F; 214 New Agr. Lab., 11 M, 10-12 WF; 200 New Agr. Professor SCHAFFER.

L.A. 51. Trees and Shrubs.—*Prerequisite:* Botany 5. Open only to students in Landscape Architecture and Floriculture. (3). Lect., 3 W; 214 New Agr. Lab., landscape students, 10-12 TT, 211 New Agr.; floriculture students, 3-5 MF, 213 New Agr. Assistant Professor ROBINSON.

L.A. 53. Planting Design.—*Prerequisite:* L.A. 34, 52, and Hort. 31. (3). Lect., 1 M; 214 New Agr. Lab., 2 M, 1-3 WF; 203 New Agr. Assistant Professor ROBINSON.

L.A. 55. Care of Plant Materials.—*Prerequisite:* L.A. 52; 90 hours of university work. (2). 11 TT; 214 New Agr. Professor WHITE.

L.A. 71. City Planning.—*Prerequisite:* 60 hours of university work. (2). 10 TT, occasional other hours arrange; 214 New Agr. Professors BARTHOLOMEW and LOHMANN.

LATIN

(See Classics, B.)

LAW

Note: Students other than those registered in the College of Law are required to pay fees at the rate of $1 per semester hour for courses in law.

First Year Courses

Note: In addition to the program for which a first-year student registers he is asked to hold open the eleven o'clock hour on Tuesday during the first semester for quizzes to be scheduled during the course of the semester in room 300 Law Building.

Law 1a. Contracts.—Corbin: *Cases on Contracts.*

Credits	Section	Hours	Days	Room	Instructor
3	A	2	MWF	103 Law	GOBLE
	B	3	MWF	103 Law	GOBLE

Law 2a. Torts.—Bohlen: *Cases on Torts* (3d ed.).

4	A	9	MTWT	103 Law	WEISIGER
	B	10	MTWT	103 Law	WEISIGER

Law 3. Personal Property and Introduction to Law.—Bigelow: *Cases on Personal Property* (2d ed.).

3	A	8	TTF	106 Law	MCDOUGAL
	B	9	TTF	106 Law	MCDOUGAL

Law 4. Actions.—McCaskill: *Cases on Actions and Suits.*

2	A	2	TT	300 Law	MCCASKILL
	B	3	TT	300 Law	MCCASKILL

Law 5. Criminal Law.—Harno: *Cases on Criminal Law.* (3). 11 MWF; 300 Law. Professor HARNO.

Second Year Courses

Note: In addition to the program for which a second-year student registers he is asked to hold open the one o'clock hour on Wednesday and Thursday during the first semester for quizzes which may be scheduled during the course of the first semester in room 300 Law Building.

Law 6a. International Law.—Law of Peace. (3). 2 MWF; 300 L.H. Professor GARNER.

Law 7. Persons.—McCurdy: *Cases on Domestic Relations.* (2). 8 TT; 103 Law. Professor HOLT.

Law 9. Sales.—Williston and McCurdy: *Cases on Sales.*

3	A	2	MTW	303 Law	BRITTON
	B	3	MTW	303 Law	BRITTON

Law 14. Carriers and Warehousemen.—Green: *Cases on Carriers* (2d ed.). (2). 10 MTu; 106 Law. Professor GREEN.

Law 22a. Constitutional Law.—Government and the Individual. Hall: *Cases on Constitutional Law.* (3). 10 WTF; 106 Law. Professor GREEN.

Law 24. Municipal Corporations.—Macy: *Cases on Municipal Corporations* (2d ed.). (2). 2 WF; 306 Law. Professor HOLT.

Law 28. Insurance.—Personal Insurance.—Goble: *Cases on Insurance.* (2). 4 TT; 103 Law. Professor GOBLE.

Law 29. Real Property II.—Rights in Land. Bigelow: *Cases on Rights in Land.*

3	A	8	MWF	303 Law	SUMMERS
	B	9	MWF	303 Law	SUMMERS

Law 30. Equity II.—Casebook to be announced.

Credits	Section	Hours	Days	Room	Instructor
2	A	8	TT	303 Law	SCHNEBLY
	B	9	TT	303 Law	SCHNEBLY

Law 49. Industrial Relations I. Labor Law.—Selected Readings and Cases. (2). 4 MW; 303 Law. Professor WEISIGER.

Law 60. Public Utilities.—Robinson: *Cases on Public Utilities.* (2). 2 TT; 106 Law. Professor GREEN.

Third Year Courses

Note: In addition to the program for which a third-year student registers he is asked to hold open the one o'clock hour on Wednesday and Thursday during the first semester for quizzes to be scheduled during the course of the semester.

Law 18. Wills and Administration.—Costigan: *Cases on Wills, Descent and Administration* (2d ed.). (3). 11 WTF; 103 Law. Professor SUMMERS.

Law 19. Business Organizations II.—Richards: *Cases on Private Corporations* (2d ed.). (3). 9 MTW; 300 Law. Professor JOHNSON.

Law 21a. Credit Transactions I.—Accommodation Contracts. Sturges: *Cases on Credit Transactions.* (2). 11 MTu; 103 Law. Assistant Professor McDOUGAL.

Law 25. Bankruptcy.—Britton: *Cases on Bankruptcy.* (2). 10 MTu; 306 Law. Professor BRITTON.

Law 27. Real Property III.—Future Interests. Powell: *Cases on Future Interests.* (3). 8 MWF; 103 Law. Professor SCHNEBLY.

Law 31. Conflict of Laws.—Lorenzen: *Cases on Conflict of Laws.* (2d ed.). (3). 3 MTT; 106 Law. Professor HOLT.

Law 35. Procedure III.—Trial Practice. Hinton: *Cases on Trial Practice.* (3). 2 MWF; 300 Law. Professor McCASKILL.

Law 39a. Thesis Course.—This course is open to students who are candidates for the J.D. degree, during the academic year next preceding their graduation. (2). Credit deferred until completion of 39b. Members of the staff.

LIBRARY SCIENCE

Course for Freshmen and Sophomores

Lib. Sci. 12. General Reference.

2	A	9	Tu	106 Lib.	BLACK
	B	10	W	106 Lib.	SIGNOR
	C	2	W	118 Lib.	HARDING
	D	2	Th	106 Lib.	FRANCIS
	E	1	Th	118 Lib.	HOUCHENS

Courses for First-Year Library School Students

Lib. Sci. 2a. Reference.

3	A	8	MWF	118 Lib.	PHELPS
	B	8	MWF	314 Lib.	SINGLETON
	C	9	MWF	118 Lib.	SINGLETON
	D	11	MWF	118 Lib.	SINGLETON

Lib. Sci. 3a. Selection of Books.

2	A	11	TT	314 Lib.	BOYD
	B	9	TT	227 Lib.	BOYD
	C	10	WF	227 Lib.	BOYD
	D	9	WF	106 Lib.	BOYD

Lib. Sci. 31a. Cataloging.

2	A	2–5	MTh	314 Lib.	BOND
	B	2–5	TF	314 Lib.	KRIEG
	C	2–5	MTh	314 Lib.	BOND
	D	2–5	TF	118 Lib.	FRANCIS

Lib. Sci. 34. Administration.

3	A	9	MWF	227 Lib.	GRAMESLY
	B	8	TTS	314 Lib.	GRAMESLY
	C	1	MWF	118 Lib.	GRAMESLY

Lib. Sci. 35. Order and Accessions.

3	A	10	MWF	118 Lib.	PHELPS
	B	9	MWF	314 Lib.	HOSTETTER
	C	11	MWF	314 Lib.	HOSTETTER
	D	10	MWF	314 Lib.	HOSTETTER

Lib. Sci. 36. Classification.

Credits	Section	Hours	Days	Room	Instructor
2	A	10	TT	118 Lib.	Bond
	B	10	TT	314 Lib.	Francis
	C	11	TT	118 Lib.	Bond
	D	9	TT	314 Lib.	Francis

Courses for Advanced Library School Students and Graduates

Lib. Sci. 13a. Government Publications.—*Prerequisite:* Lib. 2a and 2b. (2). 11 WF; 227 Lib. Assistant Professor Boyd.

Lib. Sci. 24a. Selection of Books.—*Prerequisite:* Lib. 3a and 38. (2). 10 TT; 328 Lib. Miss Hostetter.

Lib. Sci. 45. Library Buildings and Equipment.—(2). 2 TT; 328 Lib. Miss Gramesly.

Courses for Graduates

Lib. Sci. 101. Thesis.—(1 to 2 units).* Professor Windsor and others.

Lib. Sci. 102. Seminar in Library Economy.—(1 unit). 3-5 M; 328 Lib. Professor Windsor and Assistant Professor Boyd.

Lib. Sci. 103. Advanced Reference.—*Prerequisite:* Lib. 2a and 2b. (½ unit). 9 TT; 328 Lib.

MATHEMATICS

Major: 20 hours, exclusive of Math. 1a, 1b, 2, 3, 4, 5, 6, 6a, 8a, and 8b (and all courses taken during the freshman year); inclusive of Math. 7 and 9, and two semesters of 70, 71, 72.

For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: first semester, Math. 2 (or 3) and 4; second semester, Math. 6. Sophomore year: first semester, Math. 7 (Section T); second semester, Math. 9 (Section T) and 19.

Minors: 20 hours exclusive of courses taken during the freshman year selected from one or two of the following subjects: astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), philosophy, theoretical and applied mechanics, surveying. If two subjects are chosen, at least eight hours must be offered in each.

Note: Credit for seniors who take Math. 2, 3, 4, 5, 6, or 6a will be reduced one hour.

Courses for Undergraduates

Math. 2. College Algebra.—*Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit.

3[1]	A1[2]	8	MWF	154 Math.	Ketchum
	A2[2]	8	MWF	302 U.H.	Martin
[1]Seniors will receive only 2 hours credit.	R1	8	MWF	156 Math.	Lang
	R2[3]	8	MWF	158 Math.	
	B1[2]	9	MWF	202 U.H.	Wilson
[2]Sections A1, A2, B1, B2, C, D1, D2, E1, E2, F1, F2, G1, G2, and H are for freshman engineers.	B2[2]	9	MWF	102 Entom.	Bird
	S1	9	MWF	155 Math.	Emch
	S2	9	TTS	155 Math.	Hazlett
	S3	9	MWF	156 Math.	Locke
	S4	9	MWF	154 Math.	Cooley
	C[2]	10	TTS	318 U.H.	Cooley
[3]Sections R2, U3, W3, and W4 are for architects and architectural engineers.	T1	10	MWF	318 U.H.	Bird
	T2	10	MWF	214 U.H.	Brown
	D1[2]	11	MWF	206 U.H.	Pepper
	D2[2]	11	MWF	159 Math.	Armstrong
	U1	11	MWF	208 U.H.	Peters
	U2	11	MWF	110 L.H.	Moore
	U3[3]	11	MWF	158 Math.	
	E1[2]	1	MWF	202 U.H.	Bristow
	E2[2]	1	MWF	208 U.H.	Schilling
	W1	1	MWF	105 Entom.	Jacokes
	W2	1	MWF	155 Math.	Rogers
	W3[3]	1	MWF	206 U.H.	Rumsey
	W4[3]	1	MWF	102 Entom.	Burdette
	F1[2]	2	MWF	102 Entom.	Burdette
	F2[2]	2	MWF	156 Math.	Hopkins
	X1	2	MWF	158 Math.	Huff
	X2	2	MWF	202 U.H.	Chanler
	G1[2]	3	MWF	206 U.H.	Wolever
	G2[2]	3	MWF	202 U.H.	Walden
	Y1	3	MWF	156 Math.	Schilling
	Y2	3	MWF	159 Math.	Dennis
	Y3	3	MWF	105 Entom.	Jacokes
	H[2]	4	MWF	155 Math.	Huff
	Z1	4	MWF	206 U.H.	Chanler

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Math. 3. Algebra.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit.

Credits	Section	Hours	Days	Room	Instructor
5[1]	R1	8	MTWTF	110 L.H.	Shaw
	R2	8	MTWTF	102 Entom.	Bird
[1]Students having 1½ entrance units in algebra will receive only 3 hours credit for this course. Seniors will receive only 4 hours credit.	S1	9	MTWTF	110 L.H.	Shaw
	S2	9	MTWTF	159 Math.	Armstrong
	S3	9	MTWTF	208 U.H.	Peters
	T1	10	MTWTF	206 U.H.	Pepper
	T2	10	MTWTF	208 U.H.	Miles
	T3	10	MTWTF	158 Math.	Locke
	D[2]	11	MTWTF	102 Entom.	Bristow
	U1	11	MTWTF	105 Entom.	Walden
[2]Section D is for freshman engineers.	W1	1	MTWTF	159 Math.	Dennis
	W2	1	MTWTF	103 Entom.	Brown
	X1	2	MTWTF	105 Entom.	Jacokes
	X2	2	MTWTF	206 U.H.	Rumsey
	Y1	3	MTWTF	158 Math.	Hoersch
	Y2	3	MTWTF	102 Entom.	Burdette
	Y3	3	MTWTF	103 Entom.	Huff
	Y4	3	MTWTF	154 Math.	Martin

Math. 4. Plane Trigonometry.—*Prerequisite:* Entrance algebra, 1½ units, or registration in Math. 3; plane geometry, 1 unit.

2[1]	A1[2]	8	TT	154 Math.	Ketchum
	A2[2]	8	TT	155 Math.	Martin
[1]Seniors will receive only 1 hour credit.	R1	8	TT	156 Math.	Lang
	R2[3]	8	TT	158 Math.	
	R3[4]	8	TT	208 U.H.	Miles
[2]Sections A1, A2, B1, B2, C, D, E, F1, F2, G1, G2, and H are for freshman engineers.	B1[2]	9	TT	202 U.H.	Wilson
	B2[2]	9	TT	102 Entom.	Bird
	S1	9	TT	154 Math.	Brahana
	S2	9	TT	302 U.H.	Lang
	S3	9	TT	318 U.H.	Moore
[3]Sections R2, U4, W3, and W4 are for architects and architectural engineers.	S4	9	TT	103 Entom.	Bower
	S5[4]	9	TT	156 Math.	Locke
	C[2]	10	MF	154 Math.	Cooley
	T1	10	TT	103 Entom.	Lytle
	T2	10	TT	102 Entom.	Bristow
[4]Sections R3, S5, T3, U3, X3, and Y3 are for pre-medical students.	T3[4]	10	TT	110 L.H.	Moore
	D[2]	11	TT	206 U.H.	Pepper
	U1	11	TT	156 Math.	Peters
	U2	11	TT	208 U.H.	Miles
	U3[4]	11	TT	159 Math.	Locke
	U4[3]	11	TT	154 Math.	Brown
	E[2]	1	TT	208 U.H.	Schilling
	W1	1	TT	105 Entom.	Jacokes
	W2	1	TT	155 Math.	Rogers
	W3[3]	1	TT	206 U.H.	Rumsey
	W4[3]	1	TT	202 U.H.	Bristow
	F1[2]	2	TT	155 Math.	Bourgin
	F2[2]	2	TT	156 Math.	Hopkins
	X1	2	TT	154 Math.	Huff
	X2	2	TT	202 U.H.	Chanler
	X3[4]	2	TT	158 Math.	Hoersch
	G1[2]	3	TT	206 U.H.	Wolever
	G2[2]	3	TT	318 U.H.	Walden
	Y1	3	TT	159 Math.	Levy
	Y2	3	TT	202 U.H.	Rumsey
	Y3[4]	3	TT	156 Math.	Rogers
	H[2]	4 9	Tu S	159 Math.	Burdette
	Z	4 9	Tu S	154 Math.	Martin

Math. 5. Advanced Trigonometry.—Intended for students having entrance credit in trigonometry. The course will include such topics as trigonometric equations, De Moivre's theorem, complex numbers with applications to more complicated problems in plane trigonometry, and a brief introduction to spherical trigonometry. *Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit; solid geometry, ½ unit; entrance trigonometry, ½ unit (or Math. 4).

2[1]	A	8	TT	105 Entom.	Brown
	D	11	TT	110 L.H.	Armstrong
[1]Seniors will receive only 1 hour credit.	E	1	TT	110 L.H.	Steimley
	F	2	TT	102 Entom.	Walden

Math. 6. Analytic Geometry.—*Prerequisite:* Math. 2 (or 3) and Math. 4.

5[1]	A[2]	8	MTWTF	202 U.H.	Moore
	B[2]	9	MTWTF	158 Math.	
[1]Seniors will receive only 4 hours credit.	T1	10	MTWTF	105 Entom.	Bower
	T2	10	MTWTF	302 U.H.	Lang
	D[2]	11	MTWTF	202 U.H.	Cooley
[2]Sections A, B, D, and E are for freshman engineers.	U1	11	MTWTF	302 U.H.	Wilson
	U2	11	MTWTF	155 Math.	Rogers
	E[2]	1	MTWTF	156 Math.	Hopkins
	X	2	MTWTF	159 Math.	Dennis
	Y	3	MTWTF	208 U.H.	Chanler

Math. 7. Differential and Integral Calculus.—*Prerequisite:* Math. 6.

Credits	Section	Hours	Days	Room	Instructor
5	A1	8	MTWTF	159 Math.	ARMSTRONG
	A2	8	MTWTF	206 U.H.	WILSON
	A3	8	MTWTF	103 Entom.	BOWER
	B1	9	MTWTF	105 Entom.	BAILEY
	B2	9	MTWTF	206 U.H.	PEPPER
	C1	10	MTWTF	159 Math.	KETCHUM
	C2	10	MTWTF	202 U.H.	PETERS
	T[1]	10	MTWTF	156 Math.	BRAHANA
	D	11	MTWTF	103 Entom.	HOPKINS
	E1	1	MTWTF	154 Math.	LEVY
	E2	1	MTWTF	158 Math.	HOERSCH
	F	2	MTWTF	110 L.H.	STEIMLEY
	G	3	MTWTF	155 Math.	BOURGIN

[1]Section T is for students with special interest in mathematics.

Math. 8a. Differential Calculus.—*Prerequisite:* Math. 6a or 6.

3	A1	8	MWF	155 Math.	CRATHORNE
	A2	8	MWF	208 U.H.	MILES
	C1	10	MWF	155 Math.	EMCH
	C2	10	MWF	102 Entom.	BRISTOW
	C3	10	MWF	110 L.H.	MOORE

Math. 9. Integral Calculus.—*Prerequisite:* Math. 7.

3	B	9	TTS	214 U.H.	MILES
	C	10	TTS	155 Math.	HAZLETT
	D	11	TTS	158 Math.	BOWER
	F	2	MWF	155 Math.	BOURGIN
	G	3	MWF	110 L.H.	STEIMLEY
	H	4	MWF	158 Math.	HOERSCH

Courses for Advanced Undergraduates and Graduates

Math. 16. Differential Equations and Advanced Calculus.—*Prerequisite:* Math. 7 and 9 (or 8).

3	A	8	MWF	105 Entom.	BAILEY
	E	1	MWF	110 L.H.	STEIMLEY

Math. 22. Statistics.—*Prerequisite:* Math. 2 or 3 and 6, junior standing. (3). 11 MWF; 156 Math. Associate Professor CRATHORNE.

Math. 35. Teachers' Course.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 10 MWF; 103 Entom. Associate Professor LYTLE.

Math. 36. Advanced Aspects of Euclidean Geometry.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 9 MWF; 103 Entom. Associate Professor LYTLE.

Math. 53a. Integral and Operational Equations in Mathematical Physics.—*Prerequisite:* Math. 9a. (3). 1 MWF; 254 Math. Dr. BOURGIN.

Math. 70a. Introduction to Higher Algebra.—*Prerequisite:* Math. 7 and 9. (3). 11 TTS; 254 Math. Associate Professor HAZLETT.

Math. 71a. Introduction to Higher Analysis.—*Prerequisite:* Math. 7 and 9. (3). 11 MWF; 254 Math. Dr. KETCHUM.

Math. 72a. Introduction to Higher Geometry.—*Prerequisite:* Math. 7 and 9. (3). 10 TTS; 154 Math. Professor COBLE.

Math. 90a. Undergraduate Thesis.—*Prerequisite:* 24 hours of college mathematics. (2). Arrange.

Courses for Graduates

Math. 100. Seminar and Thesis.—(1 to 2 units).* Arrange.

Math. 101. Functions of Real Variables.—(1 unit). 11 MWF; 154 Math. Professor CARMICHAEL.

Math. 129. Theory of Statistics.—(1 unit). 10 MWF; 366 Math. Associate Professor CRATHORNE.

Math. 130. Selected Topics in Higher Algebraic Geometry.—(1 unit). 8 MWF; 254 Math. Professor EMCH.

Math. 131. Algebraic Geometry.—(1 unit). 9 TTS; 254 Math. Professor COBLE.

Math. 170. Algebra.—(1 unit). 10 MWF; 254 Math. Professor SHAW.

Math. 171. Analysis.—(1 unit). 9 MWF; 254 Math. Assistant Professor BRAHANA.

Math. 172. Geometry.—(1 unit). 2 MWF; 254 Math. Assistant Professor LEVY.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

MECHANICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $4.50.

Courses for Undergraduates

M.E. 1. Steam and Air Machinery.—*Prerequisite:* Math. 9, Physics 1 and 3.

Credits	Section	Hours	Days	Room	Instructor
3	E	9	MWF	208 M.E.L.	
	F	1	MWF	208 M.E.L.	
	GU	8	MWF	208 M.E.L.	
	H	10	MWF	216 M.E.L.	

M.E. 3. Steam Engineering.—*Prerequisite:* M.E. 10, registration in M.E. 61.

3	MN	10	TTS	216 M.E.L.	
	JKLV	11	TTS	216 M.E.L.	

M.E. 7. Internal Combustion Engines.—*Prerequisite:* M.E. 6.

3	PQ	11	MWF	208 M.E.L.	

M.E. 10. Thermodynamics.—*Prerequisite:* Math. 9, Physics 1 and 3.

3	LY	8	MWF	217 M.E.L.	
	KN	2	MWF	217 M.E.L.	

M.E. 13. Thermodynamics.—*Prerequisite:* Math. 9, Physics 1 and 3.

3	PS	10	MF	202 T.B.	
		3–5	W	218 Cer.	
	QRW	11	TT	202 T.B.	
		3–5	W	218 Cer.	

M.E. 17. Refrigeration Engineering.—*Prerequisite:* M.E. 16.

3	PQ	11	MW	202 T.B.	
		8–10	S	112 T.B.	

M.E. 21. Mechanical Equipment of Buildings (Laboratory).—*Prerequisite:* Registration in M.E. 23.

1	C	8–11	W	M.E.L.	

M.E. 23. Mechanical Equipment of Buildings.—*Prerequisite:* Senior standing.

4	C	11	MWFS	M.E.L.	

M.E. 25. Heating and Ventilation for Architects.—*Prerequisite:* Senior standing.

2	A	11	TT	M.E.L.	

M.E. 31. Mechanics of Machinery.—*Prerequisite:* Registration in T.A.M. 2.

5	PQ	8	MWF	216 T.B.	
		8–11	TT	201, 216 T.B.	
	RS	1	MWF	216 T.B.	
		1–4	TT	201, 216 T.B.	

M.E. 33. Aeronautical Engineering.—*Prerequisite:* Senior standing.

3	PQ	11	MWF	216 M.E.L.	

M.E. 41. Mechanical Engineering Design.—*Prerequisite:* M.E. 40.

4	P	8	TT	112, 114 T.B.	
		8–11	MWF	112, 114 T.B.	
	Q	1	TT	112, 114 T.B.	
		1–4	MWF	112, 114 T.B.	

M.E. 61. Power Measurement.—*Prerequisite:* M.E. 1 or 2 or 3.

2	LMCh1	1–4	MF	M.E.L.	
	KVCh2	1–4	W	M.E.L.	
		8–11	S	M.E.L.	
	N	8–11	MF	M.E.L.	

M.E. 65. Heat and Power Laboratory.—*Prerequisite:* M.E. 64.

3	P	1–5	TT	M.E.L.	
	Q	8–12	TT	M.E.L.	

M.E. 85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing.

3	J2KP	8–12	TT	Pat. Lab.	
	LQ	8–12	MF	Pat. Lab.	
	MR	1–5	TT	Pat. Lab.	
	J1NS	1–5	MF	Pat. Lab.	

M.E. 87. Machine Laboratory.—*Prerequisite:* M.E. 85 and junior standing.

3	JKS	8–12	TT	Mach. Lab.	
	LR	8–12	MF	Mach. Lab.	
	MPV	1–5	TT	Mach. Lab.	
	NQW	1–5	MF	Mach. Lab.	

M.E. 89. Heat Treatment of Metals.—*Prerequisite:* Senior standing in Mechanical or Railway Mechanical Engineering.

3	P	2–4	MWF	Mach. Lab.	
	QW	8–10	MWF	Mach. Lab.	

M.E. 98. Thesis.—*Prerequisite:* Senior standing. (3). Arrange.

M.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

Entrance on graduate work in Mechanical Engineering presupposes the full undergraduate course in that subject.

M.E. 107. Thermodynamics.—Application of thermodynamics to the solution of physical and engineering problems. (1 unit). Twice a week. Arrange. Associate Professor GOFF.

M.E. 108. The Flow of Fluids and Heat Transfer.—The application of dimensional analysis and other rational formulas. Special problems. (1 unit). Twice a week. Arrange. Professor MACINTIRE.

M.E. 109. Machine Design.—Rational design; the application of mechanics of materials. Individual problems. (1 unit). Twice a week. Arrange. Professor LEUTWILER.

M.E. 112. Laboratory Investigation.—Combustion of fuel, boiler economy; steam engines and turbines; gas engines and producers; explosive mixtures; mechanical refrigeration; heating and ventilation. Original work. (1½ units). Three times a week. Arrange. Professors WILLARD, POLSON, KRATZ, HAM, and MACINTIRE.

MECHANICS

(See Theoretical and Applied Mechanics.)

MILITARY BANDS

Note: The following courses are open only to those who have passed the examination for admittance to one of the bands. All new students who play band instruments and who desire to try for places in the bands should make application at the Band Office, in the Band Building, at the earliest possible time. Those who are accepted for membership will be given a slip indicating that they have been accepted. Days and sections will be assigned according to proficiency.

Service in the bands takes the place of the regular military drill.

Mil. Bands 1. Freshman Band.—(1). Twice a week, by assignment. Director HARDING.

Mil. Bands 3. Sophomore Band.—(1). Twice a week, by assignment. Director HARDING.

Mil. Bands 5. Junior Band.—Twice a week, by assignment. Director HARDING.

Mil. Bands 7. Senior Band.—Twice a week, by assignment. Director HARDING.

MILITARY SCIENCE

All military courses consist of two parts designated by the same number: a practical course lettered with "a" and a theoretical course lettered with "b". Students who have had training in a senior R. O. T. C. unit are permitted to register for work one year advanced for each year they have had in the senior unit. All students who register for junior and senior courses are required to sign a contract with the Government to take five hours of military per week during two years in the University and to attend one summer camp of six weeks.

INFANTRY

Mil. Sci. 1a. Freshman Infantry.

Credits	Section	Hours	Days	Room	Instructor
½	1st Bn.	8–10	M	Arm.	BENDER
		10–12	W	Arm.	
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 1b. Freshman Infantry.

½	1	10	M	150 Arm.	STEVENS
	2	11	M	150 Arm.	BENDER
	3	9	Tu	150 Arm.	
	4	1	Tu	150 Arm.	
	5	2	Tu	150 Arm.	
	6	9	W	150 Arm.	
	7	9	Th	150 Arm.	
	8	10	Th	150 Arm.	
	9	11	Th	150 Arm.	
	10	9	F	150 Arm.	
	11	10	F	150 Arm.	
	12	9	S	150 Arm.	

Mil. Sci. 3a. Sophomore Infantry.

½	Hdqrs. Co.	1–3	M	Arm.	STEVENS
	Co. D	10–12	W	Arm.	LUMMIS
	Howitzer Co.	1–3	Th	Arm.	
	Co. H	1–3	Th	Arm.	
	Service Co.	10–12	S	Arm.	
	Co. M	10–12	S	Arm.	

Mil. Sci. 3b. Sophomore Infantry.

Credits	Section	Hours	Days	Room	Instructor
½	50	10	M	151 Arm.	LUMMIS
	51	11	M	151 Arm.	
	52	3	M	151 Arm.	
	53	10	Tu	151 Arm.	
	54	11	Tu	151 Arm.	
	55	9	W	151 Arm.	
	56	11	Th	151 Arm.	
	57	3	Th	151 Arm.	
	58	9	F	151 Arm.	
	59	9	S	151 Arm.	

Mil. Sci. 5a. Junior Infantry.—*Prerequisite:* First and second year basic credits.

½	Group I	10–12	W	Arm.	MILAN
		4	F	Arm.	
	Group II	1–3	Th	Arm.	
		4	F	Arm.	

Mil. Sci. 5b. Junior Infantry.—*Prerequisite:* First and second year basic credits.

1	80	10–12	M	148 Arm.	MILAN
	81	1–3	Tu	148 Arm.	
	82	1–3	W	148 Arm.	
	83	10–12	Th	148 Arm.	
	84	10–12	F	148 Arm.	

Mil. Sci. 7a. Senior Infantry.—(Cadet Officers only.)

½	Co.'s A-M	(See 1a and 3a for hours.)			STEVENS
		4	F	Arm.	TABACHNIK

Mil. Sci. 7b. Senior Infantry.—(Cadet Officers only.)

1	90	9	TT	151 Arm.	STEVENS
	91	2	TT	151 Arm.	TABACHNIK
	92	2	WF	151 Arm.	

FIELD ARTILLERY

Mil. Sci. 11a. Freshman Field Artillery.

½	1st Bn.	3–5	M	Arm.	BUSCH
	2nd Bn.	1–3	Tu	Arm.	CLAY
	3rd Bn.	3–5	W	Arm.	
	4th Bn.	3–5	Th	Arm.	
	5th Bn.	1–3	F	Arm.	

Mil. Sci. 11b. Freshman Field Artillery.

½	100	9	M	155 Arm.	BUSCH
	101	10	M	155 Arm.	CLAY
	102	11	M	155 Arm.	
	103	2	M	155 Arm.	
	104	9	Tu	155 Arm.	
	105	10	Tu	155 Arm.	
	106	11	Tu	155 Arm.	
	107	9	W	155 Arm.	
	108	10	W	155 Arm.	
	109	11	W	155 Arm.	
	110	9	Th	155 Arm.	
	111	10	Th	155 Arm.	
	112	11	Th	155 Arm.	
	113	2	Th	155 Arm.	
	114	9	F	155 Arm.	
	115	10	F	155 Arm.	
	116	11	F	155 Arm.	

Mil. Sci. 13a. Sophomore Field Artillery.

½	1st Bn.	3–5	M	Arm.	DAUGHERTY
	2nd Bn.	1–3	Tu	Arm.	WEILAND
	3rd Bn.	3–5	W	Arm.	
	4th Bn.	3–5	Th	Arm.	
	5th Bn.	1–3	F	Arm.	

Mil. Sci. 13b. Sophomore Field Artillery.

½	130	9	M	154 Arm.	DAUGHERTY
	131	10	M	154 Arm.	WEILAND
	132	11	M	154 Arm.	
	133	9	Tu	154 Arm.	
	134	10	Tu	154 Arm.	
	135	11	Tu	154 Arm.	
	136	9	Th	154 Arm.	
	137	10	Th	154 Arm.	
	138	11	Th	154 Arm.	
	139	9	F	154 Arm.	
	140	10	F	154 Arm.	

Mil. Sci. 15a. Junior Field Artillery.—*Prerequisite:* Mil. Sci. 14a.

Credits	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	M	Arm.	DALFERES
	2nd Bn.	1–3	Tu	Arm.	
	3rd Bn.	3–5	W	Arm.	
	4th Bn.	3–5	Th	Arm.	
	5th Bn.	1–3	F	Arm.	

Mil. Sci. 15b. Junior Field Artillery.—*Prerequisite:* Mil. Sci. 14b.

1	160	9	M	152 Arm.	DALFERES
		9	W	152 Arm.	
		4	F	152 Arm.	
	161	11	M	152 Arm.	
		11	W	152 Arm.	
		4	F	152 Arm.	
	162	9	Tu	152 Arm.	
		9	Th	152 Arm.	
		4	F	152 Arm.	
	163	10	Tu	152 Arm.	
		10	Th	152 Arm.	
		4	F	152 Arm.	

Mil. Sci. 17a. Senior Field Artillery.—*Prerequisite:* Mil. Sci. 16a.

½	1st Bn.	3–5	M	Arm.	MCCLEAVE
	2nd Bn.	1–3	Tu	Arm.	
	3rd Bn.	3–5	W	Arm.	
	4th Bn.	3–5	Th	Arm.	
	5th Bn.	1–3	F	Arm.	

Mil. Sci. 17b. Senior Field Artillery.—*Prerequisite:* Mil. Sci. 16b.

1	190	9	M	153 Arm.	MCCLEAVE
		9	W	153 Arm.	
		4	F	153 Arm.	
	191	10	M	153 Arm.	
		10	W	153 Arm.	
		4	F	153 Arm.	
	192	9	Tu	153 Arm.	
		9	Th	153 Arm.	
		4	F	153 Arm.	
	193	11	Tu	153 Arm.	
		11	Th	153 Arm.	
		4	F	153 Arm.	

CAVALRY

Mil. Sci. 21a. Freshman Cavalry.

½	1A	10–12	M	Arm.	PATTERSON
	1B	8–10	T	Arm.	
	1C	8–10	W	Arm.	
	1D	8–10	Th	Arm.	
	1E	10–12	F	Arm.	

Mil. Sci. 21b. Freshman Cavalry.

½	201	9	M	146 Arm.	BRYAN
	202	4	M	146 Arm.	
	203	10	Tu	146 Arm.	
	204	11	Tu	146 Arm.	
	205	2	Tu	146 Arm.	
	206	10	W	146 Arm.	
	207	11	W	146 Arm.	
	208	1	Th	146 Arm.	
	209	2	Th	146 Arm.	
	210	8	F	146 Arm.	
	211	3	F	146 Arm.	
	212	10	S	146 Arm.	

Mil. Sci. 23a. Sophomore Cavalry.

½	2A	8–10	M	Arm.	PATTERSON
	2B	10–12	Tu	Arm.	ROGERS
	2C	10–12	Th	Arm.	BRYAN
	2D	8–10	S	Arm.	

Mil. Sci. 23b. Sophomore Cavalry.

½	221	10	M	146 Arm.	ROGERS
	222	11	M	146 Arm.	
	223	8	Tu	146 Arm.	
	224	1	Tu	146 Arm.	
	225	8	W	146 Arm.	
	226	9	W	146 Arm.	
	227	9	Th	146 Arm.	
	228	3	Th	146 Arm.	
	229	1	F	146 Arm.	
	230	2	F	146 Arm.	
	231	9	S	146 Arm.	

Mil. Sci. 25a. Junior Cavalry.—*Prerequisite:* Mil. Sci. 24a.

Credits	Section	Hours	Days	Room	Instructor
½	3A	8–10	F	Arm.	FEATHERSTONE
	3B	8–10	S	Arm.	

Mil. Sci. 25b. Junior Cavalry.—*Prerequisite:* Mil. Sci. 24b.

1	241	1–3	M	147 Arm.	FEATHERSTONE
		4	F	147 Arm.	
	242	3–5	Tu	147 Arm.	
		4	F	147 Arm.	
	243	8–10	Th	147 Arm.	
		4	F	147 Arm.	
	244	3–5	Th	147 Arm.	
		4	F	147 Arm.	

Mil. Sci. 27a. Senior Cavalry.—*Prerequisite:* Mil. Sci. 26a.

½	1A-1E incl.	(See 21a and 23a for hours.)	CONARD
	2A-2D incl.		ROGERS
			PATTERSON

Mil. Sci. 27b. Senior Cavalry.—*Prerequisite:* Mil. Sci. 26b.

1	251	3–5	M	147 Arm.	CONARD
		4	F	146 Arm.	
	252	10–12	W	147 Arm.	
		4	F	146 Arm.	
	253	1–3	Th	147 Arm.	
		4	F	146 Arm.	
	254	10–12	F	147 Arm.	
		4	F	146 Arm.	

ENGINEERS

Mil. Sci. 31a. Freshman Engineers.

½	1st Bn.	3–5	W	Arm.	LEMEN
	2nd Bn.	3–5	Th	Arm.	MATTHEWS
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 31b. Freshman Engineers.

½	300	11	Tu	143 Arm.	MATTHEWS
	301	2	Tu	143 Arm.	
	302	3	Tu	143 Arm.	
	303	11	Th	143 Arm.	
	304	9	F	143 Arm.	
	305	10	F	143 Arm.	

Mil. Sci. 33a. Sophomore Engineers.

½	1st-3rd Bn. incl.	(See 31a for hours.) Arm.	LEMEN
			MATTHEWS

Mil. Sci. 33b. Sophomore Engineers.

½	320	11	Tu	145 Arm.	LEMEN
	321	3	Tu	145 Arm.	
	322	4	Tu	145 Arm.	
	323	2	W	145 Arm.	
	324	11	Th	145 Arm.	

Mil. Sci. 35a. Junior Engineers.—*Prerequisite:* Mil. Sci. 34a.

½	1st-3rd Bn. incl.	(See 31a for hours.) Arm.	LEMEN
			MATTHEWS

Mil. Sci. 35b. Junior Engineers.—*Prerequisite:* Mil. Sci. 34b.

1	340	2–4	F	143 Arm.	MATTHEWS
		4	F	143 Arm.	
	341	8–10	S	143 Arm.	
		4	F	143 Arm.	

Mil. Sci. 37a. Senior Engineers.—*Prerequisite:* Mil. Sci. 36a.

½	1st-3rd Bn. incl.	(See 31a for hours.) Arm.	LEMEN
			MATTHEWS

Mil. Sci. 37b. Senior Engineers.—*Prerequisite:* Mil. Sci. 36b.

1	350	9–11	F	145 Arm.	LEMEN
		4	F	145 Arm.	
	351	8–10	S	145 Arm.	
		4	F	145 Arm.	

SIGNAL CORPS

Mil. Sci. 41a. Freshman Signal Corps.

½	A	3–5	Tu	Arm.	ENGERUD
	B	3–5	W	Arm.	
	C	3–5	Th	Arm.	
	D	2–4	F	Arm.	

Mil. Sci. 41b. Freshman Signal Corps.

Credits	Section	Hours	Days	Room	Instructor
½	400	10	Tu	222 Arm.	ENGERUD
	401	8	W	222 Arm.	
	402	1	W	222 Arm.	
	403	1	Th	222 Arm.	
	404	10	F	222 Arm.	

Mil. Sci. 43a. Sophomore Signal Corps.

½	A-D incl.	(See 41a for hours.)			ENGERUD

Mil. Sci. 43b. Sophomore Signal Corps.

½	410	9	Tu	222 Arm.	ENGERUD
	411	11	Tu	222 Arm.	
	412	1	Tu	222 Arm.	
	413	9	F	222 Arm.	
	414	11	F	222 Arm.	

Mil. Sci. 45a. Junior Signal Corps.—*Prerequisite:* Mil. Sci. 44a.

½	A-D incl.	(See 41a for hours.)			ENGERUD

Mil. Sci. 45b. Junior Signal Corps.—*Prerequisite:* Mil. Sci. 44b.

1	420	3–5	M	222 Arm.	ENGERUD
		4	F	222 Arm.	
	421	10–12	W	222 Arm.	
		4	F	222 Arm.	

Mil. Sci. 47a. Senior Signal Corps.—*Prerequisite:* Mil. Sci. 46a.

½	A-D incl.	(See 41a for hours.)			ENGERUD

Mil. Sci. 47b. Senior Signal Corps.—*Prerequisite:* Mil. Sci. 46b.

1	430	Radio Engineering registration in E.E. 51.			BROWN
	431	3–5	M	144 Arm.	
		4	F	144 Arm.	
	432	10–12	W	145 Arm.	
		4	F	144 Arm.	

COAST ARTILLERY (ANTI-AIRCRAFT)

Mil. Sci. 51a. Freshman Coast Artillery (AA).—

½	A	3–5	Tu	Arm.	CARY
	B	1–3	Th	Arm.	
	C	8–10	S	Arm.	

Mil. Sci. 51b. Freshman Coast Artillery (AA).—

½	501	9	M	144 Arm.	CARY
	502	1	M	144 Arm.	
	503	2	Tu	144 Arm.	
	504	9	W	144 Arm.	
	505	11	Th	144 Arm.	
	506	4	Th	144 Arm.	
	507	11	F	144 Arm.	
	508	1	F	144 Arm.	
	509	3	F	144 Arm.	

Mil. Sci. 53a. Sophomore Coast Artillery (AA).—

½	E	3–5	Tu	Arm.	MCBRIDE
	F	1–3	Th	Arm.	
	G	8–10	S	Arm.	

Mil. Sci. 53b. Sophomore Coast Artillery (AA).—

½	521	2	M	144 Arm.	MCBRIDE
	522	9	Tu	144 Arm.	
	523	10	Tu	144 Arm.	
	524	10	W	144 Arm.	
	525	3	Th	144 Arm.	
	526	10	F	144 Arm.	
	527	2	F	144 Arm.	
	528	10	S	144 Arm.	

Mil. Sci. 55a. Junior Coast Artillery (AA).—*Prerequisite:* First and second year basic credits.

½	Group I	1–3	Tu	152 Arm.	CHAPMAN
		4	F	155 Arm.	
	Group II	2–4	F	152 Arm.	
		4	F	155 Arm.	

Mil. Sci. 55b. Junior Coast Artillery (AA).—*Prerequisite:* First and second year basic credits.

1	531	1–3	M	152 Arm.	CHAPMAN
	532	4	TT	152 Arm.	
	533	10–12	S	152 Arm.	

Mil. Sci. 57a. Senior Coast Artillery (AA).—*Prerequisite:* Junior credits.

Credits	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	Tu	Arm.	CHAPMAN
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 57b. Senior Coast Artillery (AA).—*Prerequisite:* Junior credits.

1	541	3–5	M	152 Arm.	CHAPMAN
	542	11	TT	152 Arm.	

MINING ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $7.50.

Courses for Undergraduates

Mining 1. Elements of Mining.—(For students in Mining Engineering only.) *Prerequisite:* Physics 1b-3b. (3). 11 MW, 10-12 F; 206 T.B. Mr. NICHOLSON.

Mining 2. Mining Principles.—(For students in courses other than mining.) *Prerequisite:* Chemistry and Physics; junior standing. (3). 9 MWF; 206 T.B. Mr. NICHOLSON.

Mining 13. Utilization of Fuels.—*Prerequisite:* Chem. 22; junior standing in College of Engineering. (3). 11 MF, 1-4 Tu; 206 T.B. and Min. Lab. Professor CALLEN.

Mining 61. Elementary Mine Surveying.—*Prerequisite:* G.E.D. 1 or 4, Math. 4. (3). 1-4 TT, 1 F; 207 T.B. Mr. NICHOLSON.

Mining 69. Fire Assaying.—*Prerequisite:* Chem. 22, Geol. 20. (2). 1-5 M, 9 Tu; Min. Lab. Assistant Professor MITCHELL.

Mining 97. Thesis.—Hours arranged when thesis is permitted, in accordance with the regulations of the College of Engineering.

Mining 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Advanced Undergraduates and Graduates

Mining 6. Mechanical Engineering of Mines.—*Prerequisite:* Mining 4 and 10; M.E. 62; T.A.M. 2. (3). 10 MWF; 206 T.B. Professor CALLEN.

Mining 8. Mine Administration.—*Prerequisite:* Mining 4. (3). 10 TTS; 206 T.B. Mr. NICHOLSON.

Mining 9. Preparation of Coal and Ores.—*Prerequisite:* Chem. 22, Physics 1b-3b, Geol. 20 or equivalent. (3). 11 TT, 1-4 W; 206 T.B. and Min. Lab. Assistant Professor MITCHELL.

Mining 41. Mining and Metallurgical Design.—*Prerequisite:* C.E. 88a, senior standing in Mining Engineering. (3). 9, 1-4 Th, 1-4 F; 207 T.B. Assistant Professor MITCHELL.

Courses for Graduates

Mining 101. Advanced Mining Practice.—(1 unit). Arrange. Professor CALLEN.

Mining 102. Advanced Preparation of Coal and Ores.—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 104.[1] **Mining Reports.**—(1 unit). Arrange. Professor CALLEN.

Mining 105.[1] **Welfare Work and Education among Mine Employees.**—(1 unit). Arrange. Professor CALLEN.

Mining 107. Advanced Non-Ferrous Metallurgical Projects.—(1 unit). Arrange. Assistant Professor MITCHELL.

MUSIC

Courses for Undergraduates

Music 1. History of Music.—*Prerequisite:* One year of university work. (2). 11 MWF; Lect. Room, S.M.H. Professor SCHWARTZ.

Music 3. Theory of Music (Harmony).—*Prerequisite:* Music 8 or the consent of the Director.

3	A	8	MWF	106 S.M.H.	KESSLER
[1]Section G is for students from other colleges only.	E	1	MWF	103 S.M.H.	KESSLER
	G[1]	3	MWF	103 S.M.H.	KESSLER

Music 5. Theory of Music (Advanced Harmony).—*Prerequisite:* Music 4. (3). 11 MWF; 103 S.M.H. Associate Professor MILES.

Music 7. Strict Counterpoint.—*Prerequisite:* Music 6, or the consent of the Director.

3	C	10	MWF	103 S.M.H.	KESSLER
[1]Section G is for Juniors only.	F	2	MWF	103 S.M.H.	KESSLER
	G[1]	3	MWF	106 S.M.H.	MILES

[1]Of courses 104 and 105, only one will be given, at the election of students.

Music 9. Analysis, Musical Form.—*Prerequisite:* Music 6 and 8.

Credits	Section	Hours	Days	Room	Instructor
2	T	9	MTh	103 S.M.H.	SCHWARTZ
	K	9	TT	103 S.M.H.	SCHWARTZ

Music 11a. Composition.—*Prerequisite:* Music 9-10. (2). Arrange. Associate Professor MILES.

Music 12a. Advanced Composition.—*Prerequisite:* Music 11a-11b. (4). Arrange. Associate Professor MILES.

Music 13. Music Appreciation.—The appreciation of good music from the standpoint of the listener. Copiously illustrated with phonograph and reproducing piano. Primarily for students from the other colleges of the University. Attendance at Star Course concerts required.

2	L	10	TT	Lecture Room, on 3rd floor, S.M.H.	STIVEN
[1]Section P is for P.S.M. students.	P[1]	3	TT	106 S.M.H.	KITCHELL

Music 15. Instrumentation.—*Prerequisite:* Junior standing. (1 or 2).* 2 TT; Band Building. Professor HARDING.

Music 17. Advanced Orchestration.—*Prerequisite:* Music 10, 15, and 16. (4). Arrange. Professor HARDING.

Music 21. Ear Training and Sight Singing.

1	B	9	MW	106 S.M.H.	PERCIVAL
	W	11	MTh	106 S.M.H.	PERCIVAL
	J	8	TT	106 S.M.H.	PERCIVAL

Music 23. Ear Training and Sight Singing.—*Prerequisite:* Music 22.

1	K	9	TT	106 S.M.H.	PERCIVAL
	C	10	MW	106 S.M.H.	PERCIVAL
	L	10	TT	106 S.M.H.	PERCIVAL

Music 25a. Public School Methods (Grade School).—*Prerequisite:* Junior standing. (3). 2 MWTF; 106 S.M.H. Mr. HOLMES.

Music 26a. Public School Methods (High School Vocal and Theoretical).—*Prerequisite:* Music 25a and b. (3). 1 MTWT; 106 S.M.H. Miss KITCHELL.

Music 27. Thesis.—Arrange.

Music 30a. Accompanying and Ensemble.—*Prerequisite:* Junior standing. (½ to 1).* Arrange.

Music 31a. Accompanying and Ensemble.—*Prerequisite:* Music 30a-b. (½ to 1).* Arrange.

Music 32. Advanced History of Music.—*Prerequisite:* Music 1 and 2.

1	B	9	W	103 S.M.H.	SCHWARTZ
	T	9	F	103 S.M.H.	SCHWARTZ

Music 35. Recital Course in Applied Music.—(For seniors in Music 45b, 65b, 75b, 85b, or 95b.) (4). Arrange.

Music 36. Recital Course in Applied Music.—(For Seniors in Music 55b.) (3). Arrange.

Music 37. Recital Course in Composition.—(For Seniors in Theory Major.) (4). Arrange.

Music 38a. Band Conducting.—*Prerequisite:* Music 16. (2). 2 M, 1 TT; Band Building. Professor HARDING.

APPLIED MUSIC COURSES

Note: Students other than those registered in the School of Music or in the Public School curriculum in the College of Education are required to pay fees of $25 for each course in applied music.

Students in the School of Music will receive 4 to 5 hours credit for their major subject in Applied Music. They will ordinarily receive 2½ hours credit for their minor subject. Students from other colleges will ordinarily receive 2 hours credit if in accordance with the regulations of their college.

Courses in Applied Music which require one half-hour lesson per week of recitation and one hour daily of preparation receive 2 hours credit.

Courses in Applied Music which require two 20-minute lessons per week of recitation and *one* hour daily of preparation receive two and one-half hours credit.

Courses in Applied Music which require two half-hour lessons per week of recitation and *two* hours daily of preparation receive 4 hours credit.

Courses in Music 44a-b, 45a-b, 64a-b, 65a-b, 74a-b, 75a-b, 84a-b, 85a-b, require two half-hour lessons per week of recitation and *three* hours daily of preparation.

Hours to be arranged.

PIANO

Professor VAN DEN BERG, Assistant Professors WATT, SCHOONMAKER, Mrs. SULLIVAN, Miss USRY, Mr. HILL

Music 42a-42b. Piano, First Year.—(2 to 4).*

Music 43a-43b. Piano, Second Year.—(2 to 4).*

Music 44a-44b. Piano, Third Year.—(2 to 5).*

Music 45a-45b. Piano, Fourth Year.—(2 to 5).*

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

VOICE

Mr. Johnson, Mr. Hamp, Miss Sutherlin, Mr. Johnston

Music 52a-52b. Voice, First Year.—(2 to 4).*
Music 53a-53b. Voice, Second Year.—(2 to 4).*
Music 54a-54b. Voice, Third Year.—(2 to 4).*
Music 55a-55b. Voice, Fourth Year.—(2 to 4).*

VIOLIN

Assistant Professor Roosa, Mr. Cohen

Music 62a-62b. Violin, First Year.—(2 to 4).*
Music 63a-63b. Violin, Second Year.—(2 to 4).*
Music 64a-64b. Violin, Third Year.—(2 to 5).*
Music 65a-65b. Violin, Fourth Year.—(2 to 5).*

VIOLONCELLO

Mrs. Sullivan

Music 72a-72b. Violoncello, First Year.—(2 to 4).*
Music 73a-73b. Violoncello, Second Year.—(2 to 4).*
Music 74a-74b. Violoncello, Third Year.—(2 to 5).*
Music 75a-75b. Violoncello, Fourth Year.—(2 to 5).*

ORGAN

Associate Professor Miles, Mr. Demming

Students desiring to take organ will be obliged to pass without conditions the entrance examination in piano. Under no circumstances will they be accepted if their piano work falls below the standard represented by this examination.

Music 82a-82b. Organ, First Year.—(2 to 4).*
Music 83a-83b. Organ, Second Year.—(2 to 4).*
Music 84a-84b. Organ, Third Year.—(2 to 5).*
Music 85a-85b. Organ, Fourth Year.—(2 to 5).*

BAND AND ORCHESTRAL INSTRUMENTS

Professor Harding, Mr. Dvorak

All the following courses are required for major work in this group. Parts a and b in each course are concerned with professional instruments, and parts c and d with supplementary instruments.

Music 92a-92d. Wind Instruments, First Year.—(2 to 4).*
Music 93a-93d. Wind Instruments, Second Year.—(2 to 4).*
Music 94a-94d. Wind Instruments, Third Year.—(2 to 4).*
Music 95a-95d. Wind Instruments, Fourth Year.—(2 to 4).*

PHILOSOPHY

Major: 20 hours from any courses offered by the department, including Phil. 2, 3, 4, and 7. Six hours in psychology may be counted toward a major in philosophy.

Minors: 20 hours in (a) psychology (at least 6 additional hours if psychology is counted toward a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) astronomy, botany, chemistry, mathematics, physics, zoology, geology. At least 8 hours must be offered in each subject, if two are chosen.

Course for Undergraduates

Phil. 1. Logic.—*Prerequisite:* One year of university work.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	117 L.H.	Kubitz
	B	9	MWF	117 L.H.	DeLargy
	C	10	MWF	117 L.H.	DeLargy
	D	11	MWF	117 L.H.	Nicholson
	E	10	MWF	334 L.H.	Kubitz

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Phil. 1. Logic (Concluded)

Credits	Section	Hours	Days	Room	Instructor
3	F	11	MWF	211 L.H.	KUBITZ
	G	1	MWF	117 L.H.	DELARGY
	H	2	MWF	117 L.H.	GOTSHALK
	I	10	TTS	117 L.H.	MORROW
	J	11	TTS	117 L.H.	MCCLURE

Courses for Advanced Undergraduates and Graduates

Phil. 3. History of Ancient and Medieval Philosophy.—*Prerequisite:* Junior stauding.

4	Lect.	10	TT	300 Math.	MCCLURE
	A Disc.	2	W	206 L.H.	DELARGY
	B Disc.	11	Th	114 L.H.	KUBITZ
	C Disc.	1	Th	120 L.H.	NICHOLSON
	D Disc.	2	Th	133 L.H.	NICHOLSON
	E Disc.	2	F	136 L.H.	MORROW
	F Disc.	3	F	136 L.H.	NICHOLSON

Phil. 7. Ethics.—*Prerequisite:* Three hours in philosophy and junior standing.

3	Lect.	9	TT	109 L.H.	MORROW
	A Disc.	2	Th	204-A L.H.	MORROW
	B Disc.	3	Th	109 L.H.	MORROW

Phil. 8. Philosophy of the Recent Past.—*Prerequisite:* Philosophy 4. (3). 10 MWF; 104 L.H. Assistant Professor NICHOLSON.

Phil. 10. Philosophy of Science.—*Prerequisite:* Three hours of philosophy and junior standing. (3). 11 MWF; 139 L.H. Assistant Professor GOTSHALK.

Phil. 11a. Philosophy of Religion (systematic).—*Prerequisite:* Three hours in philosophy. (3). 11 MWF; 105 L.H. Professor TAWNEY.

Phil. 12. Philosophy of Art.—*Prerequisite:* Three hours in philosophy. (3). 9 MWF; 238 L.H. Assistant Professor GOTSHALK.

Phil. 20. Honors Course.—*Prerequisite:* Senior standing. (2). Arrange.

Courses for Graduates

Phil. 103. Ethics.—(1 unit). Arrange; 108 Adm.(E). Professor MORROW.

Phil. 105. Seventeenth Century Continental Thought.—(1 unit). Arrange. Professor TAWNEY.

Phil. 119. Seminar in Ancient Philosophy.—(1 unit). Arrange. Professor MCCLURE.

PHYSICAL EDUCATION FOR MEN

(Including Courses formerly Athletic Coaching)

Freshmen must register in courses numbered 11, 12, 13, 14, 15, 16, 17, 18, and 19.
Sophomores must register in courses numbered 21, 22, 23, 24, 25, 26, 27, and 28.
Juniors and seniors MAY register in courses numbered 33, 34, 35, 36, and 37.
Students previously enrolled in Individual Gymnastics must continue to take this course until notified otherwise by the University Health Service.
All students excepting those taking Individual Gymnastics must elect a different course each semester.
For information, late registration, and changing sections, call at Room 104, New Gymnasium.

Major: See Curriculum in Physical Education for Men, page 67 in *Directions for Registration.*

Courses for Freshmen

P.E. 11. Individual Gymnastics.—(Freshmen who do not pass the health examination are excused from Military and must register in this course.)

1½	B	9	MTWTF	New Gym.	HANKNER
	C	10	MTWTF	New Gym.	MCCRISTAL
	D	11	MTWTF	New Gym.	STAFFORD
	E	1	MTWTF	New Gym.	HANKNER
	F	2	MTWTF	New Gym.	HANKNER
	G	3	MTWTF	New Gym.	MCCRISTAL
	H	4	MTWTF	New Gym.	HANKNER
	L	10	MTWTF	Gym. Annex	DERR
	M	11	MTWTF	Gym. Annex	DERR
	O	2	MTWTF	Gym. Annex	BROWN
	P	3	MTWTF	Gym. Annex	DERR
	Q	4	MTWTF	Gym. Annex	DERR

P.E. 12. Individual Gymnastics.—*Prerequisite:* P.E. 11.

1½	B	9	MTWTF	New Gym.	HANKNER
	C	10	MTWTF	New Gym.	MCCRISTAL
	D	11	MTWTF	New Gym.	STAFFORD
	E	1	MTWTF	New Gym.	HANKNER
	F	2	MTWTF	New Gym.	HANKNER
	G	3	MTWTF	New Gym.	MCCRISTAL
	H	4	MTWTF	New Gym.	HANKNER

P. E. 12 Individual Gymnastics (Concluded)

Credits	Section	Hours	Days	Room	Instructor
1½	L	10	MTWTF	Gym. Annex	Derr
	M	11	MTWTF	Gym. Annex	Derr
	O	2	MTWTF	Gym. Annex	Brown
	P	3	MTWTF	Gym. Annex	Derr
	Q	4	MTWTF	Gym. Annex	Derr

P.E. 13. Beginning Swimming.—(This course is open to non-swimmers only. Freshmen who cannot swim twenty-five yards are advised to register in this course.)

½	F	2	MW	Old Pool	Craig
	G	3	MW	Old Pool	Burt
	K	9	TT	Old Pool	Craig
	L	10	TT	Old Pool	Craig
	M	11	TT	Old Pool	Craig
	N	1	TT	Old Pool	Craig
	O	2	TT	Old Pool	Craig
	P	3	TT	Old Pool	Burt
	Q	4	TT	Old Pool	Burt

P.E. 14. Individual Athletics.

½	B	9	MW	Old Gym.	Burt
	G	3	MW	Old Gym.	Law
	K	9	TT	Old Gym.	Derr
	P	3	TT	Old Gym.	Kenney

P.E. 15. Tumbling Stunts.

½	B	9	MW	Old Gym.	Derr
	C	10	MW	Old Gym.	Burt
	D	11	MW	Old Gym.	Burt
	F	2	TT	Old Gym.	Burt
	J	8	TT	Old Gym.	Burt
	K	9	TT	Old Gym.	Burt
	L	10	TT	Old Gym.	Burt
	M	11	TT	Old Gym.	Burt
	O	2	TT	Old Gym.	Derr

P.E. 16. Soccer Football.

½	B	9	MW	Soccer Field	McCristal
	C	10	MW	Soccer Field	McCristal
	D	11	MW	Soccer Field	McCristal
	E	1	MW	Soccer Field	Treece
	F	2	MW	Soccer Field	Treece
	H	4	MW	Soccer Field	Paterson
	L	10	TT	Soccer Field	Wilson
	M	11	TT	Soccer Field	Wilson
	N	1	TT	Soccer Field	Treece
	O	2	TT	Soccer Field	Treece
	Q	4	TT	Soccer Field	Paterson

P.E. 17. Tap Dancing.

½	E	1	MW	New Gym.	Brown
	H	4	MW	New Gym.	McCristal
	K	9	TT	New Gym.	McCristal
	L	10	TT	New Gym.	McCristal
	M	11	TT	New Gym.	McCristal
	N	1	TT	New Gym.	Brown
	P	3	TT	New Gym.	Hankner
	Q	4	TT	New Gym.	McCristal

P.E. 18. Intermediate Swimming.—(This course is open only to (a) freshmen who have not taken P.E. 13 and (b) freshmen who cannot swim 100 yards).

½	C	10	MW	Old Pool	Treece
	D	11	MW	Old Pool	Treece

P.E. 19. Skating and Playground Ball.

½	B	9	MW	Skating Rink	Craig
	C	10	MW	Skating Rink	Craig
	D	11	MW	Skating Rink	Craig
	K	9	TT	Skating Rink	Paterson
	L	10	TT	Skating Rink	Brown
	M	11	TT	Skating Rink	Brown

Courses for Sophomores

P.E. 21. Individual Gymnastics.

1½	B	9	MTWTF	New Gym.	Hankner
	C	10	MTWTF	New Gym.	McCristal
	D	11	MTWTF	New Gym.	Stafford
	E	1	MTWTF	New Gym.	Hankner
	F	2	MTWTF	New Gym.	Hankner
	G	3	MTWTF	New Gym.	McCristal
	H	4	MTWTF	New Gym.	Hankner
	L	10	MTWTF	Gym. Annex	Derr
	M	11	MTWTF	Gym. Annex	Derr
	O	2	MTWTF	Wrestling Rm.	Brown
	P	3	MTWTF	Gym. Annex	Derr
	Q	4	MTWTF	Gym. Annex	Derr

P.E. 22. Individual Gymnastics.

Credits	Section	Hours	Days	Room	Instructor
1½	B	9	MTWTF	New Gym.	Hankner
	C	10	MTWTF	New Gym.	McCristal
	D	11	MTWTF	New Gym.	Stafford
	E	1	MTWTF	New Gym.	Hankner
	F	2	MTWTF	New Gym.	Hankner
	G	3	MTWTF	New Gym.	McCristal
	H	4	MTWTF	New Gym.	Hankner
	L	10	MTWTF	Gym. Annex	Derr
	M	11	MTWTF	Gym. Annex	Derr
	O	2	MTWTF	Wrestling Rm.	Brown
	P	3	MTWTF	Gym. Annex	Derr
	Q	4	MTWTF	Gym. Annex	Derr

P.E. 23. Advanced Swimming.

½	B	9	MW	New Pool	Treece
	C	10	MW	New Pool	Paterson
	D	11	MW	New Pool	Paterson
	E	1	MW	New Pool	Paterson
	F	2	MW	New Pool	Paterson
	K	9	TT	New Pool	Treece
	L	10	TT	New Pool	Paterson
	M	11	TT	New Pool	Paterson
	N	1	TT	New Pool	Paterson
	O	2	TT	New Pool	Paterson

P.E. 24. Boxing.

½	B	9	MW	Gym. Annex	Law
	F	2	MW	Gym. Annex	Law
	K	9	TT	Gym. Annex	Law
	L	10	TT	Gym. Annex	Kenney
	M	11	TT	Gym. Annex	Kenney
	O	2	TT	Gym. Annex	Law

P.E. 25. Wrestling.

½	C	10	MW	Wrestling Rm.	Kenney
	D	11	MW	Wrestling Rm.	Kenney
	E	1	MW	Wrestling Rm.	Kenney
	F	2	MW	Wrestling Rm.	Kenney
	G	3	MW	Wrestling Rm.	Kenney
	L	10	TT	Wrestling Rm.	Law
	M	11	TT	Wrestling Rm.	Law
	N	1	TT	Wrestling Rm.	Kenney
	O	2	TT	Wrestling Rm.	Kenney
	P	3	TT	Wrestling Rm.	Law
	Q	4	TT	Wrestling Rm.	Law

P.E. 26. Fencing.

½	G	3	MW	Gym. Annex	Craig
	H	4	MW	Gym. Annex	Craig
	P	3	TT	Gym. Annex	Craig
	Q	4	TT	Gym. Annex	Craig

P.E. 27. Apparatus Stunts.

½	H	4	MW	Old Gym.	Burt
	Q	4	TT	Old Gym.	Burt

P.E. 28. Games, Contests, and Relays.

½	C	10	MW	Old Gym.	Law
	D	11	MW	Old Gym.	Law
	L	10	TT	Old Gym.	Treece
	M	11	TT	Old Gym.	Treece

Courses for Juniors and Seniors

P.E. 33. Tennis.

½	D	11	MW	Varsity Courts	Gelwick
	E	1	MW	Varsity Courts	Gelwick
	M	11	TT	Varsity Courts	Gelwick
	N	1	TT	Varsity Courts	Gelwick
	O	2	TT	Varsity Courts	Gelwick

P.E. 34. Circus Stunts.

½	H	4	MW	Old Gym.	Jackson
	Q	4	TT	Old Gym.	Jackson

P.E. 35. Advanced Circus Stunts.

½	H	4	MW	Old Gym.	Jackson
	Q	4	TT	Old Gym.	Jackson

P.E. 36. Life Saving and Diving.

½	G	3	MW	New Pool	Paterson
	P	3	TT	New Pool	Paterson

P.E. 37. Handball.

Credits	Section	Hours	Days	Room	Instructor
½	G	3	MW	New Gym.	TREECE
	L	10	TT	New Gym.	
	P	3	TT	New Gym.	TREECE

P.E. 38. Golf and Volley Ball.

½	F	2	MW	New Gym.	BROWN
	O	2	TT	New Gym.	BROWN

P.E. 39. Squash Rackets.—(½). 10 TT; New Gym. Associate Professor STAFFORD.

PROFESSIONAL COURSES FOR MEN
(Formerly Athletic Coaching)

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

First Year

P.E. 2. Calisthenics, Dancing, Tumbling, and Marching.—(Formerly A.C. 2). (4). 8-10 MTWTF; New Gym. Mr. PRICE.

P.E. 30. Football.—(Formerly A.C. 30). (First half of the semester).

2	C	2–4	MTWTF	Armory Field	Department Staff
	D	2–4	MTWTF	Armory Field	

P.E. 80. Basketball.—(Formerly A.C. 40). (Second half of the semester).

2	C	2–4	MTWTF	New Gym.	Department Staff
	D	2–4	MTWTF	New Gym.	

Second Year

P.E. 7. Boxing and Wrestling.—(Formerly A.C. 7). *Prerequisite:* Sophomore standing.

2	A	8	MTWTF	Wrestling Rm.	KENNEY and
	B	8	MTWTF	Wrestling Rm.	assistants

P.E. 31. Football.—(Formerly A.C. 31). (First half of the semester). *Prerequisite:* A.C. 30.

2	A	8–10	MTWTF	Armory Field	Department Staff
	B	8–10	MTWTF	Armory Field	

P.E. 58. Baseball.—(Formerly A.C. 50). *Prerequisite:* Sophomore standing.

4	A	10–12	MTWTF	Illinois Field	LUNDGREN and
	B	1–3	MTWTF	Illinois Field	JORDAN

Third Year

P.E. 5. Recreational Activities.—(Formerly A.C. 15). (Second half of the semester). *Prerequisite:* Junior standing. (2). 10-12 MTWTF; New Gym. Professor STALEY.

P.E. 20. Track and Field Athletics.—(Formerly A.C. 20). *Prerequisite:* Junior standing.

4	A	10–12	MTWTF	Field and Armory	WERNER
	B	1–3	MTWTF	Field and Armory	WERNER

P.E. 81. Basketball.—(Formerly A.C. 41). (First half of the semester). *Prerequisite:* P.E. 80 (formerly A.C. 40), and junior standing. (2). 10-12 MTWTF; 204 New Gym. Mr. RUBY and Mr. SABO.

P.E. 70. Health Education and Corrective Gymnastics.—(Formerly A.C. 70). *Prerequisite:* Anat. 1 and 2, Physiol. 1 and 2. (4). 9 MTWTF; 209 New Gym. Associate Professor STAFFORD.

Fourth Year

P.E. 4. Apparatus and Tumbling Stunts.—(Formerly A.C. 4). *Prerequisite:* P.E. 2 (formerly A.C. 2), and senior standing. (4). 1-3 MTWTF; Old Gym. Mr. PRICE.

P.E. 6. Training and First Aid.—(Formerly A.C. 16). *Prerequisite:* Senior standing or consent of instructor.

2	K	9	TT	119-22 New Gym.	BROWN
	L	10	TT	119-22 New Gym.	BULLOCK

P.E. 8. Organization and Administration.—(Formerly A.C. 17). *Prerequisite:* Senior standing. (3). 10 MWF; 204 New Gym. Director HUFF and Assistant Professor OLANDER.

P.E. 63. Swimming.—(Formerly A.C. 60). *Prerequisite:* Senior standing or consent of instructor. (2). 8 MTWTF; Pool, Old Gym. Mr. MANLEY.

PHYSICAL EDUCATION FOR WOMEN

Freshmen and Sophomores:—Of the four required semesters in physical education, the department requires: one semester of gymnastics (P.E. 42); one semester of swimming (P.E. 45, 46, 54); one semester of dancing (P.E. 47, 49, 51); and one semester of an elective.

Juniors and Seniors may receive credit for four courses in addition to the above requirement.

Major: See Curriculum in Physical Education for Women, page 68 in *Directions for Registration*.

Courses for Undergraduates

P.E. 40a. Swimming, Soccer, and Gymnastics.—For freshmen intending to specialize in physical education. (1). 3 MTWTF[1]; Pool, W.B. Miss Smith, Miss Huelster, Miss Kitzinger.

P.E. 41a. Hockey, Folk Dancing, and Gymnastics.—For sophomores specializing in physical education. (1). 2 MTWTF[1]; W. Gym. Miss Robertson, Miss Johnson, Miss Kitzinger.

P.E. 42. Sports and Gymnastics.—

Credits	Section	Hours	Days	Room	Instructor
1	C	10	MWF	North Room; W.Gym.	Kitzinger
	D	11	MWF	North Room; W.Gym.	Huelster
	F	2	MWF	North Room; W.Gym.	Meares
	V	11 4	TT M	North Room; W.Gym.	Lawson

P.E. 43. Seasonal Sports.—

1					
Field Sports and Skating.....	C	10	MWF	129 W.Gym.	Robertson
Field Sports and Elementary Skating...	D	11	MWF	129 W.Gym.	Meares
Golf and Volleyball....	G[2]	3	MW	South Room; W.Gym.	Lawson

P.E. 44. Tumbling and Apparatus.—

1		3	MWF	North Room; W.Gym.	Kitzinger

P.E. 45. Elementary Swimming.—

1	D	11	MWF	Pool; W.B.	Smith
	F	2	MWF	Pool; W.B.	
	K	9	TTS	Pool; W.B.	

P.E. 46. Intermediate Swimming.—

1	H	4	MWF	Pool; W.B.	Smith
	L	10	TTS	Pool; W.B.	
(Sub-Intermediate)....	Z[2]	4	TT	Pool; W.B.	

P.E. 47. Elementary Clogging.—

1	B	9	MWF	W.B.	Meares
	F	2	MWF	W.B.	Huelster
	G	3	MWF	W.B.	Huelster

P.E. 48. Intermediate Clog and Tap Dancing.—

1		11	MWF	W.B.	Kitzinger

P.E. 49. Elementary Folk Dancing.[2]—

1	S	9	TT	South Room; W.Gym.	Johnson
	Y	3	TT	South Room; W.Gym.	Johnson

P.E. 50. Intermediate Folk Dancing.[2]—

1		2	TT	North Room; W.Gym.	Robertson

P.E. 51. Elementary Rhythms.—

1	B	9	MWF	South Room; W.Gym.	Johnson
	D	11	MWF	South Room; W.Gym.	Johnson

P.E. 52. Intermediate Rhythms.[2]—

1		10	TT	South Room; W.Gym.	Johnson

P.E. 54. Advanced Swimming and Diving.[2]—

1	Y	3	TT	Pool; W.B.	Smith

P.E. 56. Individual Gymnastics.—(Registration on recommendation of Health Service.)

1	B	9	MWF	Corr. Room; W.Gym.	Schnauber
	C	10	MWF	Corr. Room; W.Gym.	Schnauber
	D	11	MWF	Corr. Room; W.Gym.	Schnauber
	F	2	MWF	Corr. Room; W.Gym.	Schnauber
	G	3	MWF	Corr. Room; W.Gym.	Schnauber
	S	9 1	TT M	Corr. Room; W.Gym.	Schnauber

[1]The Tuesday and Thursday meetings of P.E. 40a and 41a will last 45 minutes; students should keep free the hour following each meeting.

[2]This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

P.E. 57. Modified Sports and Dancing.—(Registration on recommendation of Health Service or Department of Physical Education for Women.)

Credits	Section	Hours	Days	Room	Instructor
1		10	MWF	South Room; W.Gym.	MEARES

P.E. 60. Handball and Tenikoit.[1]—

1		11	TT	South Room; W.Gym.	HUELSTER

P.E. 66. Elective Athletic Activities.—(Participation in W.A.A. sports; registration on recommendation of department.) (1). Two forty-five minute periods to be arranged.

Professional Courses for Women Specializing in Physical Education

P.E. 90a. History of Physical Education.—(Formerly P.E. 10a). *Prerequisite:* Senior standing. (1). 11 TT; 129 W.Gym. Professor FREER.

P.E. 95a. Methods.—(Formerly P.E. 15a). *Prerequisite:* Junior standing or consent of instructor. (3). 1 MWF; 128 W.Gym. Miss ROBERTSON.

P.E. 96a. Kinesiology.—(Formerly P.E. 16a). *Prerequisite:* Junior standing. (3). 8 MWF; 129 W.Gym. Miss KITZINGER.

P.E. 97a. Educational Practice.—*Prerequisite:* P.E. 95a, 95b, 96 (formerly P.E. 15a, 15b, 16); senior standing. (3). 1 MWF; 129 W.Gym. Assistant Professor LAWSON.

PHYSICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $4.50.

Major: 20 hours from courses offered in the department. At least 5 hours must be offered from the group of courses for advanced undergraduates and graduates.

Minors: 20 hours in one or two of the following subjects, with not less than 8 hours in each department if two subjects are chosen: mathematics (courses in calculus and beyond), astronomy, chemistry (except Chem. 1, 2, 3, 4, 5, or 6) or education.

For undergraduate students taking advanced work or a major in physics, the following courses are suggested:

Freshman year: Trigonometry and analytic geometry.
Sophomore year: Physics 1a-1b, 3a-3b, and calculus.
Junior year: Physics 14, 16, 36, 44.
Senior year: Physics 23, 30, 45, 46, 71, 72, 78.

Physics 7a-7b and 8a-8b are recommended to students not specializing in physics, mathematics, chemistry, or engineering.

Introductory Courses for Undergraduates

Physics 1a. General Physics.—*Prerequisite:* Credit in Math. 2 and 4; registration in Math. 6 and Physics 3a.

3	Lect. A	11	MW	100 P.L.	KRUGER, ALMY, and others
	Lect. B	2	MW	100 P.L.	
	Quiz A	8	TT	305, 406 P.L.	
	Quiz B	9	TT	305, 406 P.L.	
	Quiz C	10	TT	305, 406 P.L.	
	Quiz D	11	TT	305, 406 P.L.	
	Quiz E	1	TT	305 P.L.	
	Quiz F	2	TT	305, 403 P.L., 109 E.H.	
	Quiz H	9	WF	305, 403, 406 P.L.	
	Quiz I	10	WF	406 P.L.	
	Quiz K	1	WF	305, 403 P.L.	

Physics 3a. General Physics Laboratory.—*Prerequisite:* Physics 1a or registration therein.

2	A	9–12	M	305 P.L.	KRUGER and others
	B	2–5	M	306, 302 P.L.	
	C	9–12	Tu	403, 408 P.L.	
	D	2–5	Tu	406, 208, 306 P.L.	
	E	9–12	W	104, 306 P.L.	
	F	2–5	W	302, 305, 306 P.L.	
	G	9–12	Th	403, 408 P.L.	
	H	2–5	Th	204, 208, 406 P.L.	
	I	9–12	F	306 P.L.	
	J	2–5	F	306 P.L.	
	K	9–12	S	302, 305 P.L.	

Physics 1b. General Physics.—*Prerequisite:* Math. 2, 4, and 6; credit in Physics 1a or 3a; registration in Physics 3b.

3	Lect.	9	MW	119 P.L.	SANDERS and others
	Quiz	9	TT	208, 302 P.L.	

Physics 3b. General Physics Laboratory.—*Prerequisite:* Physics 1b or registration therein.

2	A	1–4	W	306, 406 P.L.	SANDERS and others
	B	2–5	Th	306 P.L.	

[1]This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

Physics 7a. General Physics.—*Prerequisite:* Math. 4; registration in Physics 8a.

Credits	Section	Hours	Days	Room	Instructor
3	Lect. A	9	TT	100 P.L.	WATSON and others
	Lect. B	11	TT	100 P.L.	
	Quiz A	8	WF	204, 208 P.L.	
	Quiz B	9	WF	208, 302 P.L.	
	Quiz C	10	WF	108, 208, 302 P.L.	
	Quiz D	11	WF	108, 208, 302 P.L.	
	Quiz E	2	TT	111 E.H.	

Physics 8a. General Physics Laboratory.—*Prerequisite:* Physics 7a or registration therein.

2	A	9–12	M	208, 302 P.L.	PATON and others
	B	1–4	M	208, 302 P.L.	
	C	8–11	Tu	208 P.L.	
	D	2–5	Tu	204, 302 P.L.	
	F	1–4	W	208, 302 P.L.	
	H	2–5	Th	302 P.L.	
	J	2–5	F	208, 302 P.L.	
	K	9–12	S	204, 208 P.L.	

Intermediate Course for Undergraduates

Physics 17. Light.—*Prerequisite:* Physics 1a-1b, 3a-3b; or Physics 7a-7b; 8a-8b. (3). 9 TT, 204 P.L.; 2-5 Th, 313 P.L. Assistant Professor KRUGER.

Courses for Advanced Undergraduates and Graduates

Physics 14a. Theoretical Mechanics.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 8a-8b, or 7 and 9. (3). 8 TTS; 204 P.L. Mr. MOTT-SMITH.

Physics 16. Heat.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 8a-8b, or 7 and 9. (3). 10 TTS; 204 P.L. Associate Professor PATON.

Physics 23. Sound.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b. (3). 11 MWF; 204 P.L. Professor WATSON.

Physics 30. Introduction to Theoretical Electricity.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 8a-8b, or 7 and 9. (3). 9 MWF; 204 P.L. Associate Professor WILLIAMS.

Physics 36. Heat Laboratory.—*Prerequisite:* Registration in Physics 16. (1). 2-5 Tu; 213 P.L. Associate Professor PATON.

Physics 44a. Electrical and Magnetic Measurements.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 8a-8b, or 7 and 9.

3	K	1–4	TT	112 P.L.	KNIPP, WILLIAMS, and others
	L	8–11	TT	112 P.L.	
	M	8–11	MF	112 P.L.	
	N	1–4	MF	112 P.L.	
	Y	1–4 8–11	W S	112 P.L.	

Physics 71a. Light.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 8a-8b, or 7 and 9. (2). 11 TT; 204 P.L. Dr. ALMY.

Physics 72a. Light Laboratory.—*Prerequisite:* Registration in Physics 71a. (2). 2-5 MW; 313 P.L. Dr. ALMY.

Courses for Graduates

Physics 104a. Electrical and Magnetic Measurements.—(1 unit). Arrange. 112 P.L. Professor KNIPP and Associate Professor WILLIAMS.

Physics 122a. Dynamics.—(1 unit). 8 MWFS; 302 P.L. Professor KUNZ.

Physics 125a. Hydrodynamics.—Especially modern problems in flow and turbulence. (½ unit). 8 TT; 302 P.L. Professor KUNZ.

Physics 127a. Recent Problems in Physics.—Relativity. (1 unit). 10 TTS; 202 P.L. Mr. MOTT-SMITH.

Physics 128a. Problems and Methods in Theoretical Physics.—(1 unit). 9 TTS; 306 P.L. Assistant Professor BARTLETT.

Physics 131a. Investigation of Special Problems.—(½ to 1 unit).* Arrange. Professor KNIPP.

Physics 170a. Light.—(1 to 2 units).* 11 TT, 204 P.L.; 2-5 MW, 313 P.L. Dr. ALMY.

Physics 184. Line Spectra and Atomic Structure.—(1 unit). 10 MWF; 119 P.L. Professor LOOMIS.

Physics 190. Research.—(1 to 3 units).* Arrange. Professors in the department.

Physics 198. Seminar.—(1 to 2 units).* Arrange. Professors in the department.

Physics 199. Physics Colloquium.—(No credit). 7:15 p.m. Th; 119 P.L. Professor LOOMIS.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

PHYSIOLOGY

Note: Certain courses in this department require a laboratory fee of $3.50.

Major: 20 hours from courses offered in the department exclusive of Physiol. 1.

Minors: 20 hours in not more than two of the following: botany, bacteriology, chemistry, entomology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Note: Credit for Seniors who take Physiology 1, 2, or 4 will be reduced one hour.

Courses for Undergraduates

Physiol. 1. Elements of Physiology.—A survey of the field of mammalian physiology.

Credits	Section	Hours	Days	Room	Instructor
2[1]	Lect.	10	TT	228 N.H.	BURGE, ORTH, and others
	A Quiz	9	M	425 N.H.	
[1]Seniors will receive only 1 hour credit.	B Quiz	8	Tu	425 N.H.	
	C Quiz	1	Tu	425 N.H.	
	D Quiz	11	W	425 N.H.	
	E Quiz	8	Th	425 N.H.	
	F Quiz	9	S	425 N.H.	
	G Quiz	10	S	425 N.H.	

Physiol. 2. Physiology of Physical Exercise.—*Prerequisite:* Physiol. 1 and sophomore standing.

4[1]	Lect.	10	MW	425 N.H.	ELHARDT
	A Lab.	8–11	Tu	415 N.H.	
[1]Seniors will receive only 3 hours credit.	B Lab.	1–4	Tu	413 N.H.	
	C Lab.	8–11	Th	415 N.H.	
	D Lab.	1–4	Th	413 N.H.	
	E Lab.	8–11	S	415 N.H.	
	F Quiz	11	Th	425 N.H.	
	G Quiz	9	F	425 N.H.	
	H Quiz	10	F	425 N.H.	

Physiol. 4. General Physiology.—Circulation, respiration, glands of internal secretion, digestion, metabolism, excretion, special senses, nervous system, muscle, vitamins, and osseous system. (Not open to students who have had Physiol. 1.)

5[1]	Lect.	8	TT	228 N.H.	BURGE, WILLIAMS, KNEER, and others
	A Quiz	10	M	423 N.H.	
[1]Seniors will receive only 4 hours credit.	B Quiz	11	M	425 N.H.	
	C Quiz	8	W	425 N.H.	
	D Quiz	9	W	425 N.H.	
	A Lab.	8–10	MF	413 N.H.	
	B Lab.	10–12	WF	413 N.H.	
	C Lab.	11–1	TT	413 N.H.	
	D Lab.	1–3	MW	413 N.H.	
	E Lab.	3–5	MW	413 N.H.	
	F Lab.	1–3	F	413 N.H.	
		3–5	F	413 N.H.	

Physiol. 6. Advanced Physiology.—Physiology of the nervous system. Glands of internal secretion, respiration, muscle, circulation, and digestion. *Prerequisite:* Physiol. 1 or 4.

5	Lect.	9	TT	241 N.H.	WICKWIRE
	A Quiz	1	Th	241 N.H.	
	A Lab.	10–12	TT	413 N.H.	
	B Lab.	8–10	S	413 N.H.	
		10–12	S	413 N.H.	

Courses for Advanced Undergraduates

Physiol. 8. Thesis.—*Prerequisite:* Senior standing and 15 hours of physiology. (3 to 5).* Time to be arranged before registration.

Physiol. 9. Physiology of the Special Senses.—*Prerequisite:* Senior standing; Physiol. 1 or 4 and 6.

3	Lect.	9	W	402 N.H.	WICKWIRE
	A Quiz	9	F	402 N.H.	BURGE
	A Lab.	10–12	F	413 N.H.	

Courses for Graduates

Physiol. 101. Journal Club.—Review of literature. (¼ unit). Arrange. Members of staff.

Physiol. 102. Research.—(1 to 2 units).* Arrange. Associate Professor BURGE.

Physiol. 103. Experimental Physiology.—Special phases of the physiology of respiration, circulation, digestion, metabolism, excretion, secretion, glands of internal secretion, nervous system. (½ to 1 unit).*

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

POLITICAL SCIENCE

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 44 or 62).

Minors: 20 hours selected from one or two of the following subjects: history, economics, law, sociology, philosophy, and education. At least eight hours must be offered in each subject, if two are chosen.

Courses 1 and 3 give a general survey of national, state, and local government in the United States. Undergraduates beginning the study of political science are advised to take first, course 1, 3, or 16, and those planning for advanced work should take course 1 and either 3 or 16 in their sophomore year. Course 3 is offered the second semester.

Courses for Undergraduates

Pol. Sci. 1. American National Government.—*Prerequisite:* 30 hours of university work.

Credits	Section	Hours	Days	Room	Instructor
3	A1 Disc.	8	MWF	300 L.H.	Lenoir
	A2 Disc.	8	MWF	204 L.H.	Hyneman
	B1 Disc.	9	MWF	211 L.H.	Berdahl
	B2 Disc.	9	MWF	300 L.H.	Carleton
	B3 Disc.	9	MWF	308 L.H.	Mathews
	C1 Disc.	10	MWF	300 L.H.	Lenoir
	C2 Disc.	10	MWF	302 L.H.	Carleton
	D1 Disc.	11	MWF	326 L.H.	Lenoir
	D2 Disc.	11	MWF	340 L.H.	Hyneman
	E1 Disc.	1	MWF	204 L.H.	Sikes
	E2 Disc.	1	MWF	238 L.H.	Carleton
	F Disc.	2	MWF	238 L.H.	Berry
	G Disc.	3	MWF	204 L.H.	Sikes
	K Disc.	9	TTS	204 L.H.	Powell

Pol. Sci. 16. Government of Illinois.—*Prerequisite:* 30 hours of university work. (2). Intended for students who do not take Pol. Sci. 3. (Students taking Pol. Sci. 3 will receive only one hour credit for Pol. Sci. 16.) 3 TT; 306 L.H. Professor Mathews.

Courses for Advanced Undergraduates and Graduates

Note: Junior standing is required for admission to the following courses.

Pol. Sci. 4. Municipal Government.—*Prerequisite:* Junior standing.

3	Lect.	9	TT	L.H. Theatre	Kneier
	A Quiz	11	Th	304 L.H.	Kneier
	B Quiz	2	Th	304 L.H.	Kneier
	C Quiz	3	Th	304 L.H.	Kneier
	D Quiz	9	F	302 L.H.	Kneier
	E Quiz	11	F	308 L.H.	Kneier
	F Quiz	1	F	300 L.H.	Kneier

Pol. Sci. 5. American Constitutional System.—*Prerequisite:* Pol. Sci. 1; junior standing. (3). 11 MWF; 233 L.H. Professor Mathews.

Pol. Sci. 6a. International Law.—*Prerequisite:* Open to seniors, graduate students, and second-year law students. (3). 2 MWF; 202 L.H. Professor Garner.

Pol. Sci. 9. Principles of Jurisprudence.—*Prerequisite:* Pol. Sci. 1, or its equivalent; junior standing. (3). 9 MWF; 204 L.H. Professor Fairlie.

Pol. Sci. 13. State Administration in the United States.—*Prerequisite:* Pol. Sci. 3; junior standing. (3). 10 MWF; 204 L.H. Assistant Professor Hyneman.

Pol. Sci. 14b. Political Parties: Organization and Methods.—*Prerequisite:* Junior standing. (3). 11 MWF; 300 L.H. Professor Berdahl.

Pol. Sci. 21. British Government.—*Prerequisite:* Graduate or senior standing, or junior standing with 6 hours of political science. (2). 2 TT; 308 L.H. Professor Fairlie.

Pol. Sci. 21a. Problems in British Government.—(Supplemental to Political Science 21.) Special reports and conferences. *Prerequisite:* Registration in Pol. Sci. 21. (1). Arrange. Professor Fairlie.

Pol. Sci. 36a. Thesis and Honors Course.—*Prerequisite:* Senior standing. (2 to 4).* Arrange. Members of the department.

Courses for Graduates

Pol. Sci. 101. History of Political Theories.—(1 unit). 3 MWF; 308 L.H. Professor Garner.

Pol. Sci. 103. Seminar in Political Science and Public Law.—Once a week. Arrange. Members of the department.

Pol. Sci. 104. Municipal Administration.—(1 unit). Twice a week. Arrange. Professor Fairlie.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Pol. Sci. 105a. Constitutional Law: Research in Selected Topics.—(1 unit). Arrange. Professor MATHEWS.

Pol. Sci. 106a. Special Topics in International Law.—(1 unit). Twice a week. Arrange. Professor GARNER.

Pol. Sci. 114. Studies in Political Parties.—(1 unit). Twice a week. Arrange. Professor BERDAHL.

PSYCHOLOGY

(See also Education.)

Note: Certain courses in this department require a laboratory fee of $1.

Major: 20 hours chosen from courses announced by the department, excepting Psych. 1. At least 8 hours must be offered in the advanced group.

Minors: 20 hours chosen from not more than two of the following subjects: education, mathematics, philosophy, sociology, physiology, and zoology. At least 8 hours must be offered in each, if two are chosen.

Courses for Undergraduates

Psych. 1. Introduction to Psychology.—*Prerequisite:* One year of university work.

Credits	Section	Hours	Days	Room	Instructor
4	Lect. A	9	MW	218 U.H.	CULLER
	Quiz A1	8	TT	403 U.H.	
	Quiz A2	8	TT	407 U.H.	
	Quiz A3	9	TT	403 U.H.	
	Quiz A4	9	TuS	407 U.H.	
	Quiz A5	11	TT	403 U.H.	
	Quiz A6	11	TuS	406 U.H.	
	Quiz A7	2	TT	403 U.H.	
	Quiz A8	2	TT	406 U.H.	
	Quiz A9	3	MW	407 U.H.	
	Lect. B	11	MW	218 U.H.	CULLER
	Quiz B1	8	TT	412 U.H.	
	Quiz B2	9	TT	411 U.H.	
	Quiz B3	10	TT	406 U.H.	
	Quiz B4	10	TuS	407 U.H.	
	Quiz B5	11	TT	412 U.H.	
	Quiz B6	11	TT	206 Adm.(E)	
	Quiz B7	11	TuS	311 U.H.	
	Quiz B8	2	TT	407 U.H.	
	Quiz B9	3	TT	403 U.H.	
	Lect. C	9	TT	218 U.H.	SULLIVAN
	Quiz C1	8	MW	412 U.H.	
	Quiz C2	9	MW	403 U.H.	
	Quiz C3	9	MW	413 U.H.	
	Quiz C4	10	MW	411 U.H.	
	Quiz C5	11	MW	403 U.H.	
	Quiz C6	2	MW	403 U.H.	
	Quiz C7	2	MW	413 U.H.	
	Quiz C8	3	MW	411 U.H.	
	Quiz C9	3	MW	412 U.H.	

Psych. 2. General Psychology.—*Prerequisite:* Psych. 1.

4	Lect.	10	MW	218 U.H.	HIGGINSON and assistants
	Quiz A	8	TT	311 U.H.	
	Quiz B	10	TT	412 U.H.	
	Quiz C	11	TT	211 U.H.	
	Quiz D	2	TT	412 U.H.	
	Quiz E	3	TT	412 U.H.	

Psych. 3. Laboratory Practice.—*Prerequisite:* Psych. 1.

2	Lab. A	2–4	MW	417 U.H.	RUCH
	Lab. B	8–10	TT	417 U.H.	HIGGINSON
	Lab. C	10–12	TT	417 U.H.	HIGGINSON
	Lab. D	2–4	TT	417 U.H.	RUCH

Courses for Advanced Undergraduates and Graduates

Psych. 11. Learning and Comprehension.—*Prerequisite:* Psych. 2 or 3. (2). 11 TT; 318 U.H. Associate Professor CULLER.

Psych. 16. Genetic Psychology.—*Prerequisite:* Psych. 2 or 3. (2). 9 TT; 413 U.H. Dr. RUCH.

Psych. 23. Abnormal Psychology.—*Prerequisite:* Psych. 2 or 3.

3	Lect.	11	MW	410 U.H.	SEARS
	Quiz A	10	F	312 U.H.	
	Quiz B	11	F	312 U.H.	

Psych. 26. Recent Experimental Problems (Memory, Imagination, and Thought).—*Prerequisite:* Psych. 3 or 4. (2). 2 TT; 404 U.H. Dr. SULLIVAN.

Psych. 27a. Thesis Course and Honors Course.—*Prerequisite:* Psych. 1, 2, 3, and consent of department. (2). Arrange. 419 U.H. Professor WOODROW.

Psych. 34. Individual Differences.—*Prerequisite:* Psych. 2 or 3, and senior standing. (3). 9 MWF; 404 U.H. Professor WOODROW.

Courses for Graduates

Psych. 102. Translation of Psychological Treatises.—(½ unit). Arrange. 419 U.H. Professor WOODROW.

Psych. 103. Research.—(½ to 2 units).* Arrange. 507 U.H. Professor WOODROW, Associate Professors YOUNG and CULLER, Assistant Professor HIGGINSON.

Psych. 105. Seminar.—(1 unit). Arrange. 419 U.H. Professor WOODROW.

Psych. 108. Quantitative Methods.—(1 unit). 4-6 Tu; 419 U.H. Associate Professor CULLER.

PUBLIC SPEAKING

(See Speech, under English.)

PUBLIC UTILITIES AND TRANSPORTATION

(See also Railway Engineering.)

A. PUBLIC UTILITIES

Course for Advanced Undergraduates and Graduates

Pub. Util. 81. Principles of Public Utilities.—*Prerequisite:* Econ. 1 or 2, and 3.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	10	F	215 Com.	GRAY
	C Quiz	10	MW	223 Com.	GRAY
	M Quiz	11	TT	223 Com.	GRAY

See also **B.O.&O. 75. Management of Public Utilities.**—Assistant Professor GRAY.

Courses for Graduates

Pub. Util. 118. Seminar for First-Year Graduate Students.—4-6 Th (alternate weeks); 420 Com. Assistant Professor GRAY.

Pub. Util. 180. Management of Public Utilities.—(1 unit). 4-6 W; 212 Com. Assistant Professor GRAY.

B. TRANSPORTATION

Courses for Undergraduates

Trans. 1. Economics of Transportation.—*Prerequisite:* Econ. 1 and junior standing.

3	A Quiz	8	MWF	223 Com.	COVER
	B Quiz	9	MWF	223 Com.	COVER
	C Quiz	10	MWF	101 Com.	LOCKLIN
	D Quiz	11	MWF	101 Com.	LOCKLIN
	E Quiz	1	MWF	312 Com.	FITZGERALD
	F Quiz	2	MWF	312 Com.	FITZGERALD
	J Quiz	8	TTS	223 Com.	COVER
	K Quiz	9	TTS	223 Com.	COVER

Courses for Advanced Undergraduates and Graduates

Trans. 10. Railroad Rates.—*Prerequisite:* Trans. 1. (3). 9 TTS; 100 Com. Assistant Professor LOCKLIN.

Trans. 22. Ocean Shipping.—*Prerequisite:* Trans. 1. (3). 9 MWF; 322 Com. Professor LITMAN.

Course for Graduates

Trans. 100. Economics of Transportation.—(1 unit). Arrange. Assistant Professor LOCKLIN.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

RAILWAY ENGINEERING

(See also Public Utilities and Transportation.)

Note: Certain courses in this department require a laboratory fee of $3.

Courses for Undergraduates

R.E. 2. Locomotive Design.—*Prerequisite:* M.E. 16, 64; R.E. 4. (3). Sec. W, 1-4 MWF; 104 T.B.

R.E. 5. Railway Laboratory.—*Prerequisite:* M.E. 16, 64; R.E. 4. (3). Sec. W, 1-4 TT, 11 Tu; 104 T.B.

R.E. 9. Seminar.—*Prerequisite:* Open to seniors in railway courses only. (1). Sec. W, 9 Tu; 117 T.B.

R.E. 25. Railway Development.—*Prerequisite:* Sophomore standing. (2). Sec. UVW, 9 TT; 105 T.B.

R.E. 32. Railway Construction.—*Prerequisite:* Registration in C.E. 61a. (3). Sec. U, 9 MF, 1-4 W; 117 T.B.

R.E. 59. Electric Railway Principles.—*Prerequisite:* Registration in E.E. 25 and 75. (2). Sec. V, 10 MW; 117 T.B.

R.E. 97. Thesis.—(1 or 2).* Arrange. *Prerequisite:* Senior standing in railway engineering.

R.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Advanced Undergraduates and Graduates

R.E. 3. Locomotives.—*Prerequisite:* Junior standing in the College of Engineering. (2). Sec. W, 10 TT; 104 T.B.

R.E. 31. Railway Yards and Terminals.—*Prerequisite:* C.E. 3, or senior standing in R.E. (3). Sec. U, 10 TT, 9-12 S; 117 T.B.

R.E. 35. Railway Signaling.—*Prerequisite:* Senior standing in Engineering. (2). Sec. UV, 10 WF; 105 T.B.

R.E. 62. Electric Railway Laboratory.—*Prerequisite:* R.E. 60. (2). Sec. V, 1-4 TT; 117 T.B.

R.E. 64. Electric Railway Practice.—*Prerequisite:* E.E. 26 and 76; R.E. 60. (3). Sec. V, 11 MWF; 105 T.B.

Courses for Graduates

R.E. 102. Locomotive Design.—(1 unit). Arrange. Professor YOUNG.

R.E. 106. Locomotive Operation.—(1 unit). Arrange. Professor SCHMIDT.

R.E. 110. Railway Location.—(1 unit). Arrange. Professor KING.

RHETORIC

(See English, B.)

ROMANCE LANGUAGES AND LITERATURE

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, and 6b, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), German, Greek, history, Italian, Latin, philosophy, Spanish, provided that at least 8 hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, and 2a, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), French, German, Greek, history, Italian, Latin, philosophy, provided that at least 8 hours be taken in any subject chosen.

A. FRENCH

Courses for Undergraduates

French 1a. Elementary Course.—For students who have no credit in French.

Credits	Section	Hours	Days	Room	Instructor
4[1]	A1	8	TWTF	214 U.H.	BUSSARD
[1]Seniors will receive	A2	8	TWTF	235 L.H.	ROCHE
only 3 hours credit.	A3	8	TWTF	122 New Agr.	ROWE

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

French 1a. Elementary Course (concluded).

Credits	Section	Hours	Days	Room	Instructor
4[1]	B1	9	TWTF	312 U.H.	ALLEN
	B2	9	TWTF	123 New Agr.	HERDMAN
[1]Seniors will receive only 3 hours credit.	B3	9	TWTF	122 New Agr.	ROWE
	C1	10	TWTF	227 L.H.	ALLEN
	C2	10	TWTF	122 New Agr.	CARTER
	C3	10	TWTF	315 U.H.	DISMUKES
	D1	11	TWTF	303-A L.H.	GOGGIN
	D2	11	TWTF	122 New Agr.	CARTER
	E1	1	MTWT	311 U.H.	ALEXANDER
	E2	1	MTWT	203 L.H.	SMITH
	F	2	MTWT	219 L.H.	ALEXANDER
	G	3	MTWT	203 U.H.	ALEXANDER
	H	4	MTWT	203 U.H.	ALEXANDER

French 1b. Elementary Course.—*Prerequisite:* French 1a or S1a, or one year of high school French.

4[1]	A	8	TWTF	142 L.H.	RALPH
	B	9	TWTF	212 U.H.	DISMUKES
[1]Seniors will receive only 3 hours credit.	C	10	TWTF	123 New Agr.	REW
	D	11	TWTF	123 New Agr.	REW
	F	2	MTWT	214 U.H.	PIETRANGELI
	G	3	MTWT	139 L.H.	SMITH

French 2a. Modern French.—*Prerequisite:* French 1b, or two years of high school French.

4	A1[1]	8	TWTF	136 L.H.	HILTON
	A2	8	TWTF	123 New Agr.	HERDMAN
[1]Sections A1, B1, C1, D1, and E1 are primarily for students who expect to go beyond French 2b. More attention is paid to the speaking and hearing of French.	B1[1]	9	TWTF	224 L.H.	BUSSARD
	B2	9	TWTF	323 New Agr.	RALPH
	C1[1]	10	TWTF	224 L.H.	BUSSARD
	C2	10	TWTF	133 L.H.	LEGRAND
	D1[1]	11	TWTF	232 L.H.	ALLEN
	D2	11	TWTF	203 U.H.	AMIEL
	E1[1]	1	MTWT	212 U.H.	PIETRANGELI
	E2	1	MTWT	235 L.H.	GOGGIN
	F	2	MTWT	204 L.H.	HERDMAN
	G	3	MTWT	310 U.H.	ALLEN
	H	4	MTWT	139 L.H.	SMITH

French 2b. Modern French.—*Prerequisite:* French 2a, or three years of high school French.

4	B	9	TWTF	311 L.H.	LEGRAND
	C	10	TWTF	116 New Agr.	AMIEL
	D	11	TWTF	204 U.H.	BUSSARD
	F	2	MTWT	139 L.H.	SMITH
	G	3	MTWT	227 L.H.	HERDMAN

French 3a. Introduction to French Literature.—*Prerequisite:* French 2b or the equivalent.

3	A	8	MWF	211 L.H.	WILL
	B1	9	MWF	303-A L.H.	JACOB
	B2	9	MWF	105 L.H.	WILL
	C	10	MWF	113 L.H.	OLIVER
	D	11	MWF	128 L.H.	GULLETTE
(In French)	E	1	MWF	128 L.H.	ROCHE
	F	2	MWF	303-A L.H.	JACOB

French 6a. Second-Year Composition and Conversation.—*Prerequisite:* French 1b or the equivalent.

2	K	9	TT	232 L.H.	HILTON
	N	1	TT	407 U.H.	HILTON
	O	2	TT	208 U.H.	HILTON

French 7a. Intermediate Composition and Conversation.—*Prerequisite:* French 2a-2b, or French 6a-6b. (*Note:* Prospective teachers of French are strongly advised to take French 7a and 7b.)

2	J	8	TT	104 L.H.	LEGRAND
	B	9	MW	318 U.H.	AMIEL
	K	9	TT	104 L.H.	ROCHE
	L	10	TT	211 L.H.	ROCHE
	M	11	TT	113 L.H.	LEGRAND
	N	1	TT	105 L.H.	AMIEL
	F	2	MW	300 L.H.	LEGRAND

French 8a. Advanced Composition and Conversation.—*Prerequisite:* French 7a-7b.

2	K	9	TT	300 L.H.	AMIEL
	O	2	TT	105 L.H.	ROCHE

French 25. Methods of Teaching French.—Discussions and laboratory work in phonetics. *Prerequisite:* 20 hours credit in French, or 16 hours credit in French plus 20 in Spanish. Not open to students other than seniors except by permission of the instructor. (3). 2 MWF; 310 U.H. Assistant Professor GULLETTE. *Note:* French 25 will be given only first semester in 1932-33. Spanish 25 will be given in the second semester.

French 28a. Senior Thesis.—For candidates for honors in French. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in French have the following prerequisites: French 3a-3b and junior standing; or senior standing and permission of the instructor.

French 10a. Survey of French Literature.—

Credits	Section	Hours	Days	Room	Instructor
3	B	9	MWF	232 L.H.	CARNAHAN
	C	10	MWF	128 L.H.	WILL

French 17a. French Drama of the Nineteenth Century.—(2). 1 TT; 109 L.H. Associate Professor HAMILTON.

French 24a. French Drama of the Seventeenth and Eighteenth Centuries.—(3). 9 MWF; 227 L.H. Professor OLIVER.

French 29a. Modern French Poetry.—(2). 10 TT; 204-A L.H. Assistant Professor JACOB.

French 32a. French Novel of the Nineteenth Century.—(3). 8 MWF; 113 L.H. Assistant Professor JACOB.

French 33a. La Littérature Contemporaine.—(In French). (2). 11 TT; 109 L.H. Professor MICHAUD.

Courses for Graduates

French 102. Villon, Rabelais, Montaigne, La Pléiade.—(1 unit). 4 MW; 425-A Lib. Assistant Professor WILL.

French 104. Eighteenth Century Prose Writers.—(1 unit). 10 TT; 205 L.H. Professor OLIVER.

French 127. French Romanticism.—(1 unit). 3 TT; 425-A Lib. Professor CARNAHAN.

French 129. Research Problems in French Romanticism.—(½ to 1 unit).* Arrange. 425-A Lib. Professor CARNAHAN.

French 132. French Lyric Poetry.—(1 unit). 3 MW; 113 L.H. Professor MICHAUD.

French 144. Le Réalisme et le Naturalisme français.—(In French). (1 unit). 3-5 F; 120 L.H. Professor MICHAUD.

French 175. Old French Phonology and Morphology.—(1 unit). 4 TT; 425-A Lib. Professor OLIVER.

French 195. Seminar.—Research work in preparation for theses in French. (1 to 2 units).* Members of the department.

B. ITALIAN

Courses for Undergraduates

Italian 1a. Elementary Course.—For students who have no credit in Italian.

4[1]	C	10	TWTF	235 L.H.	PIETRANGELI
[1]Seniors will receive only 3 hours credit.	F	2	MTWT	224 L.H.	VAN HORNE

Italian 2a. Intermediate Italian.—*Prerequisite:* Italian 1b. (3). 11 MWF; 219 L.H. Miss PIETRANGELI.

Course for Advanced Undergraduates and Graduates

Italian 3a. Dante: The Divine Comedy.—*Prerequisite:* Italian 1b; junior standing. (2). 3 TT; 219 L.H. Professor VAN HORNE.

Courses for Graduates

Italian 143. Italian Literature in the Renaissance.—(1 unit). 1 TT; 216 L.H. Professor VAN HORNE.

Italian 195. Seminar.—Research work in preparation for theses in Italian. (1 to 2 units).* Professor VAN HORNE.

C. SPANISH

Courses for Undergraduates

Spanish 1a. Elementary Course.—For students who have no credit in Spanish.

4[1]	A1	8	TWTF	302 L.H.	RAMSEY
	A2	8	TWTF	133 L.H.	YOUNG
[1]Seniors will receive only 3 hours credit.	A3	8	TWTF	232 L.H.	UTLEY
	B1	9	TWTF	340 L.H.	YOUNG
	B2	9	TWTF	203-A L.H.	UTLEY
	B3	9	TWTF	136 L.H.	LODGE
	C1	10	TWTF	240 L.H.	YOUNG
	C2	10	TWTF	105 L.H.	KIDDER

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Spanish 1a. Elementary Course (Concluded).

Credits	Section	Hours	Days	Room	Instructor
4[1]	C3	10	TWTF	114 L.H.	Ellies
	D1	11	TWTF	302 L.H.	Young
	D2	11	TWTF	434 N.H.	Adam
	E1	1	MTWT	302 U.H.	Kozma
	E2	1	MTWT	139 L.H.	Lodge
	F1	2	MTWT	227 L.H.	Kozma
	F2	2	MTWT	136 L.H.	Lodge
	G	3	MTWT	136 L.H.	Kidder
	H	4	MTWT	102 Entom.	Hilton

[1]Seniors will receive only 3 hours credit.

Spanish 1b. Elementary Course.—*Prerequisite:* Spanish 1a or S1a, or one year of high school Spanish.

4[1]	A	8	TWTF	139 L.H.	Adam
	B	9	TWTF	321 L.H.	Dallera
	C	10	TWTF	136 L.H.	Avilés
	D	11	TWTF	214 U.H.	Dallera
	F	2	MTWT	128 L.H.	Utley
	G	3	MTWT	133 L.H.	Utley

[1]Seniors will receive only 3 hours credit.

Spanish 2a. Modern Spanish.—*Prerequisite:* Spanish 1b, or two years of high school Spanish.

4	A	8	TWTF	240 L.H.	Lodge
	B1	9	TWTF	139 L.H.	Adam
	B2	9	TWTF	235 L.H.	Kidder
	C	10	TWTF	203-A L.H.	Adam
	D	11	TWTF	227 L.H.	Ellies
	E	1	MTWT	227 L.H.	Burner
	F	2	MTWT	233 L.H.	Burner

Spanish 2b. Modern Spanish.—*Prerequisite:* Spanish 2a, or three years of high school Spanish.

4	C	10	TWTF	139 L.H.	Ramsey
	F	2	MTWT	203-A L.H.	Kidder

Spanish 3a. Introduction to Spanish Literature.—*Prerequisite:* Spanish 2b, or the equivalent.

3	B	9	MWF	133 L.H.	Burner
	D	11	MWF	133 L.H.	Balseiro
	E	1	MWF	203-A L.H.	Van Horne

Spanish 5a. Commercial Spanish.—*Prerequisite:* Spanish 2b or the equivalent.

2	K	9	TT	133 L.H.	Avilés
	D	11	MW	308 L.H.	Avilés
	N	1	TT	113 L.H.	Avilés

Spanish 7a. Intermediate Composition and Conversation.—*Prerequisite:* Spanish 2b or the equivalent. (*Note:* Prospective teachers of Spanish are strongly advised to take Spanish 7a and 7b.)

2	A	8	WF	227 L.H.	Ellies
	M	11	TT	120 L.H.	Avilés
	O	2	TT	123 L.H.	Ellies

Spanish 8a. Advanced Composition and Conversation.—*Prerequisite:* Spanish 7b. (2). 8 TT; 123 L.H. Miss Ellies.

Spanish 28a. Senior Thesis.—For candidates for honors in Spanish. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in Spanish have the following prerequisites: Spanish 3a-3b and junior standing; or senior standing and permission of the instructor.

Spanish 10a. Survey of Spanish Literature.—(3). 11 MWF; 136 L.H. Associate Professor Hamilton.

Spanish 11a. Cervantes: Don Quijote.—(2). 11 TT; 205 L.H. Professor Van Horne.

Spanish 17a. El Teatro Español Moderno.—(2). 10 TT; 303-A L.H. Associate Professor Balseiro.

Courses for Graduates

Spanish 130. Spanish Literature in the Sixteenth Century.—(1 unit). 4 TT; 214 L.H. Associate Professor Hamilton.

Spanish 135. La Novela Española Moderna.—(In Spanish). (1 unit). Arrange. 429 Lib. Associate Professor Balseiro.

Spanish 185. Old Spanish Readings.—(1 unit). 2 TT; 214 L.H. Associate Professor Hamilton.

Spanish 195. Seminar.—Research work in preparation for theses in Spanish. (1 to 2 units).* Members of the department.

SCANDINAVIAN LANGUAGES

(See English, D.)

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

SOCIOLOGY

Major: 20 hours from any courses in the department.

Minors: 20 hours from one or two of the following subjects: history, philosophy, psychology, economics, political science. At least 8 hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Sociol. 1. Principles of Sociology.—*Prerequisite:* Junior standing, or sophomore standing with either the principles of economics or the principles of psychology or 5 hours of history.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	306 L.H.	Houghton
	B	8	MWF	304 L.H.	Timmons
	C	9	MWF	306 L.H.	Houghton
	D	9	TTS	326 L.H.	Hiller
	E	10	MWF	304 L.H.	Tylor
	F	11	MWF	304 Adm.(E)	Timmons
	G	1	MWF	303 L.H.	Albig
	H	2	MWF	306 L.H.	Houghton

Sociol. 2. Social Factors in Personality.—*Prerequisite:* Sociol. 1.

3	A	8	MWF	202 L.H.	Ahrens
	B	9	MWF	202 L.H.	Ahrens

Courses for Advanced Undergraduates and Graduates

Sociol. 3. Social Evolution.—*Prerequisite:* Sociol. 1 and junior standing. (3). 11 MWF; 202 L.H. Mr. Ahrens.

Sociol. 4. Social Control.—*Prerequisite:* Sociol. 1 and junior standing.

2	A	10	TT	334 L.H.	Albig
	B	11	TT	334 L.H.	Albig

Sociol. 6. Urban Sociology.—*Prerequisite:* Sociol. 1 and junior standing. (3). 9 MWF; 334 L.H. Assistant Professor Tylor.

Sociol. 8. Charities.—*Prerequisite:* Sociol. 1 and one semester either of economics or of history.

3	A	10	MWF	340 L.H.	Timmons
	B	1	MWF	340 L.H.	Timmons

Sociol. 9. Criminology.—*Prerequisite:* Sociol. 1 and senior standing.

3	A	9	MWF	128 L.H.	Taft
	B	3	MWF	334 L.H.	Taft

Sociol. 10. Population Problems.—*Prerequisite:* Sociol. 1 or senior standing. (3). 8 MWF; 326 L.H. Associate Professor Hiller.

Sociol. 14. Group Opinion.—*Prerequisite:* Sociol. 1 and senior standing. (3). 2 MWF; 326 L.H. Assistant Professor Albig.

Sociol. 17. Methods of Sociological Research.—*Prerequisite:* 8 hours credit in sociology; Sociol. 17 is required of all graduate majors in sociology. (3). 10 TT and two hours of supervised research weekly at time to be arranged; 326 L.H. Associate Professor Hiller.

Sociol. 29. Human Migrations.—*Prerequisite:* Sociol. 1 and junior standing. (3). 2 MWF; 334 L.H. Professor Taft.

Sociol. 30. Races of Mankind.—*Prerequisite:* Sociol. 1 and junior standing. (3). 10 MWF; 306 L.H. Assistant Professor Kelly.

Sociol. 40. Ethnology of the American Indians.—*Prerequisite:* Sociol. 3 or 42. (3). 1 MWF; 306 L.H. Assistant Professor Kelly.

Sociol. 45. Prehistoric Archaeology.—*Prerequisite:* Junior standing. (3). 11 MWF; 306 L.H. Assistant Professor Kelly.

Sociol. 90a. Honors Course.—For senior majors in sociology. Consent of instructor required (2). Arrange. Members of the department.

Courses for Graduates

Sociol. 107. Rural Communities.—(1 unit). Twice a week. Arrange. 201 L.H. Assistant Professor Tylor.

Sociol. 109. Research in Criminology.—(1 unit). Twice a week. Arrange 201 L.H. Professor Taft.

Sociol. 150. Seminar.—Preparation of theses. (½ to 2 units).* Arrange. Members of department.

SPANISH

(See Romance Languages and Literature, C.)

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

SWEDISH

(See English, D.)

THEORETICAL AND APPLIED MECHANICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $2.50.

T.A.M. 1. Analytical Mechanics (Statics).—*Prerequisite:* Math. 7; registration in Math. 9.

Credits	Section	Hours	Days	Room	Instructor
2	A	9	TT	316 M.T.L.	
	B	9	TT	202 E.H.	
	C	9	WF	316 M.T.L.	
	D	4	TT	305 M.T.L.	
	E	4	TT	202 E.H.	

T.A.M. 2. Analytical Mechanics (Dynamics).—*Prerequisite:* T.A.M. 1.

3	X	8	MWF	316 M.T.L.	
	S	8	MWF	202 E.H.	
	M	8	TTS	310 M.T.L.	
	R	8	TTS	202 E.H.	
	L	9	TTS	310 M.T.L.	
	U	9	TTS	313 M.T.L.	
	E	10	MWF	202 E.H.	
	G	10	MWF	310 M.T.L.	
	Y	10	MWF	313 M.T.L.	
	H	11	MWF	313 M.T.L.	
	K	11	MWF	316 M.T.L.	
	N	11	MWF	202 E.H.	
	P	11	MWF	203 T.B.	
	Q	11	MWF	204 T.B.	
	F	2	MWF	202 E.H.	
	J	3	MWF	305 M.T.L.	

T.A.M. 3. Resistance of Materials.—*Prerequisite:* T.A.M. 1.

3	H	8	MWF	310 M.T.L.	
	J	8	MWF	313 M.T.L.	
	C	9	MWF	310 M.T.L.	
	Q	9	MWF	313 M.T.L.	
	S	9	MWF	202 E.H.	
	F	10	MWF	316 M.T.L.	
	G	11	MWF	305 M.T.L.	
	X	11	MWF	310 M.T.L.	
	Ch1	11	MWF	215 T.B.	
	Ch2	11	MWF	306 P.L.	
	E	1	MWF	305 M.T.L.	
	P	1	MWF	310 M.T.L.	
	D	2	MWF	305 M.T.L.	
	R	2	MWF	313 M.T.L.	

T.A.M. 4. Hydraulics.—*Prerequisite:* T.A.M. 1 and registration in T.A.M. 2.

2	Y	8	TT	305 M.T.L.	
	M	9	TT	305 M.T.L.	
	L	10	TT	305 M.T.L.	
	K	2	TT	305 M.T.L.	
	N	2	TT	310 M.T.L.	

T.A.M. 17. Statics.—*Prerequisite:* Math. 6a.

3	A	8–10	M	305 M.T.L.	
		8	WF	305 M.T.L.	
	B	9–11	F	305 M.T.L.	
		10	MW	305 M.T.L.	

T.A.M. 63. Resistance of Materials Laboratory.—*Prerequisite:* Registration in T.A.M. 3.

1	G	1–3	M	223 M.T.L.	
	P	3–5	M	223 M.T.L.	
	X	8–10	Tu	223 M.T.L.	
	Ch1	10–12	Tu	223 M.T.L.	
	Y	1–3	Tu	223 M.T.L.	
	Q	3–5	Tu	223 M.T.L.	
	R	8–10	W	223 M.T.L.	
	S	10–12	W	223 M.T.L.	
	J	1–3	W	223 M.T.L.	
	F	3–5	W	223 M.T.L.	
	E	8–10	Th	223 M.T.L.	
	Ch2	10–12	Th	223 M.T.L.	
	C	10–12	F	223 M.T.L.	
	H	1–3	F	223 M.T.L.	
	D	3–5	F	223 M.T.L.	

T.A.M. 64. Hydraulics Laboratory.—*Prerequisite:* Registration in T.A.M. 4.

Credits	Section	Hours	Days	Room	Instructor
1	L	3–5	M	M.T.L.	
	Y	10–12	Tu	M.T.L.	
	K	3–5	Tu	M.T.L.	
	M	8–10	W	M.T.L.	
	N	3–5	Th	M.T.L.	

Courses for Advanced Undergraduates and Graduates

T.A.M. 41. Advanced Mechanics of Materials.—*Prerequisite:* T.A.M. 3 and 63. (3). Arrange. Professor SEELY.

Courses for Graduates

T.A.M. 101. The Development of Basic Ideas in Mechanics.—(1 unit). Twice a week. Arrange. Professor MOORE.

T.A.M. 103. Hydraulics.—(1 unit). Twice a week. Arrange. Professor ENGER.

T.A.M. 107. Laboratory Investigations in Strength of Materials.—(1 to 2 units).* Twice a week. Arrange. Professor MOORE.

T.A.M. 108. Laboratory Investigations in Hydraulics.—(1 to 2 units).* Twice a week. Arrange. Professor ENGER.

T.A.M. 109. Laboratory Investigations in Plain and Reinforced Concrete.—(1 to 2 units).* Twice a week. Arrange. Professor RICHART.

T.A.M. 110. Analytical Study of Experimental Work on Reinforced Concrete: Beams, Frames, and Footings.—(1 unit). Twice a week. Arrange. Professor RICHART.

T.A.M. 112. Structural Mechanics.—(1 unit). Three times a week. Arrange. Professor WESTERGAARD.

T.A.M. 114. Theory of Elasticity with Applications to Engineering Problems.—(1 unit). Three times a week. Arrange. Professor WESTERGAARD.

T.A.M. 116. Resistance of Materials.—(1 unit). Twice a week. Arrange. Professor SEELY.

TRANSPORTATION

(See Public Utilities and Transportation, B.)

ZOOLOGY

(Including Anatomy.)

Note: Certain courses in this department require laboratory fees varying from $1 to $5.

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: bacteriology, botany, chemistry, entomology, geology, physics, physiology, psychology. At least 8 hours must be offered in each subject, if two are chosen.

Note: Credit for seniors who take Zoology 1 or 2 will be reduced one hour.

Courses for Undergraduates

Zool. 1. General Zoology.

5[1]	Lect.	9	MWF	228 N.H.	THOMAS, KUDO, LUCE, PARK, and assistants
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	TTS	312 N.H.	
	B Lab. & Quiz	8–10	TTS	310 N.H.	
	C Lab. & Quiz	10–12	MWF	312 N.H.	
	D Lab. & Quiz	10–12	MWF	310 N.H.	
	E Lab. & Quiz	10–12	MWF	418 N.H.	
	F Lab. & Quiz	1–3	MWF	312 N.H.	
	G Lab. & Quiz	1–3	MWF	310 N.H.	
	H Lab. & Quiz	1–3	MWF	418 N.H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Zool. 1. General Zoology (Concluded).

Credits	Section	Hours	Days	Room	Instructor
5[1]	1 Lab. & Quiz	10–12	TTS	312 N.H.	
[1]Seniors will receive only 4 hours credit.	K Lab. & Quiz	10–12	TTS	418 N.H.	
	L Lab. & Quiz	1–4	TT	312 N.H.	
	M Lab. & Quiz	1–4	TT	310 N.H.	
	N Lab. & Quiz	1–4	TT	418 N.H.	

Zool. 2. Vertebrate Zoology and Comparative Anatomy.—*Prerequisite:* Zool. 1.

5[1]	Lect.	10	MW	228 N.H.	Adams, Cahn, and assistants
	A Lab.	8–10	MWF	330 N.H.	
[1]Seniors will receive only 4 hours credit.	B Lab.	8–10	TTS	330 N.H.	
	C[2] Lab.	1–3	MWF	330 N.H.	
[2]Section C will not be opened until the other sections are filled.	D Quiz	10	F	434 N.H.	
	E Quiz	10	F	423 N.H.	
	F Quiz	10	F	229 N.H.	

Zool. 3. Microscopical Technic and Vertebrate Embryology.—*Prerequisite:* Zool. 1 and 2.

5	Lect.	1	TT	228 N.H.	Shumway, Adamstone, and assistants
	A Lab.	8–10	MWF	323 N.H.	
[1]Lab. sections D and E and quiz section 4 will not be opened until others are filled.	B Lab.	10–12	MWF	323 N.H.	
	C Lab.	1–3	MWF	323 N.H.	
	D[1] Lab.	8–10	TTS	323 N.H.	
	E[1] Lab.	10–12	TTS	323 N.H.	
	1 Quiz	10	Tu	229 N.H.	
	2 Quiz	10	Th	229 N.H.	
	3 Quiz	2	Tu	229 N.H.	
	4[1] Quiz	2	Th	229 N.H.	

Zool. 7. Evolution.—With special reference to the biological processes in which man is involved. *Prerequisite:* 30 hours of university work, including one university semester of laboratory science or its equivalent in high-school courses.

3	Lect.	11	TT	228 N.H.	Zeleny and others
	A Quiz	2	M	423 N.H.	
	B Quiz	10	Tu	423 N.H.	
	C Quiz	10	M	229 N.H.	
	D Quiz	9	Tu	423 N.H.	
	E Quiz	8	F	229 N.H.	

Zool. 15. Genetics.—(For students in the College of Agriculture). *Prerequisite:* Two years of university work and Botany 1 or 5, and Zoology 1 or Entomology 1.

3	Lect.	11	MW	228 N.H.	Zeleny, Luce, and assistants
	A Disc.	9	Th	423 N.H.	
	B Disc.	11	F	241 N.H.	
	C Disc.	11	Th	423 N.H.	
	D Disc.	9	M	423 N.H.	

Courses for Advanced Undergraduates and Graduates

Zool. 8a. Thesis Investigation.—*Prerequisite:* Two years of zoology. (3 to 5).* Arrange. Members of the department.

Zool. 11. Animal Ecology and Geography.—*Prerequisite:* One year of zoology and senior standing.

3-5	Lect.	4	MWF	229 N.H.	Shelford
	Lab. or Field	8–12	S	202 Viv.	

Three hours credit requires the lectures and field all day September 24, October 1, October 22, and one selected day; 4 and 5 hours credit require additional field work, or the laboratory work, or both as arranged for the individual.

Zool. 17. Field Zoology.—*Prerequisite:* One year in zoology. (3). 2-5 TT; 420 N.H. Professor Van Cleave.

Zool. 19. Advanced Ornithology.—*Prerequisite:* Zool. 1, 2, and 16. (2 or 3).* Assistant Professor Cahn.

Zool. 20a. Current Investigation.—Required of all graduate students majoring in zoology; may be elected by seniors majoring in zoology with consent of instructor. (1). 3 F; 229 N.H. Members of the department.

Zool. 21a. Introduction to Zoological Research.—*Prerequisite:* One year in zoological courses and senior standing. (2 to 5).* Arrange. 314 N.H. Professor Ward.

Zool. 22. Morphology of Vertebrates.—*Prerequisite:* Zool. 3.

2-4*	Lect.	4	W	419 N.H.	Adams
	Lab.	1–5	TT	419 N.H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Zool. 31. Introduction to Parasitology.—*Prerequisite:* Zool. 1 and 2 and junior standing. (2). 3-5 TT; 330 N.H. Assistant Professor THOMAS.

Zool. 63. Comparative Vertebrate Embryology.—*Prerequisite:* One year of zoology and senior standing. (2 to 5).* Arrange. Professor SHUMWAY.

Courses for Graduates

Students entering on graduate study in the department of zoology should have had two years of undergraduate work in the subject. When chosen as a minor the courses listed for graduates and undergraduates must be preceded by at least one full year's undergraduate work in zoology. Work done at other institutions will be evaluated on conference with the head of the department.

Zool. 106. Topics in Vertebrate Embryology.—(1 unit). Arrange. Professor SHUMWAY.

Zool. 107. Parasitology.—(1 unit). 3 MW; 229 N.H. Professor WARD.

Zool. 111. Experimental and Field Ecology.—(½ to 2 units).* Arrange. Professor SHELFORD.

Zool. 115. Factors of Individual and Racial Development.—(1 unit). Twice a week. Arrange. Professor ZELENY.

Zool. 117. Advanced Field and Faunistic Zoology.—(1 unit). 8-12 TT; 420 N.H. Professor VAN CLEAVE.

Individual Research Courses

Zool. 121. Invertebrate Morphology and Parasitology.—(1 to 2 units).* Arrange. Professor WARD.

Zool. 122. Vertebrate Morphology.—(1 to 2 units).* Arrange. Assistant Professor ADAMS.

Zool. 123. Faunistic and Systematic Zoology.—(1 to 2 units).* Arrange. Professor VAN CLEAVE.

Zool. 124. Experimental Zoology and Genetics.—(1 to 2 units).* Arrange. Professor ZELENY.

Zool. 125. Animal Ecology and Behavior.—Time and credits to be arranged. Professor SHELFORD.

Zool. 126. Vertebrate Embryology.—(1 to 2 units).* Arrange. Professor SHUMWAY.

ANATOMY

Course for Undergraduates

Anat. 1. Anatomy.—(For students in Physical Education only.) *Note:* A laboratory fee of $5.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	11	Tu	112 Chem.A.	WRIGHT, CAHN, and assistants
	A1 Quiz	8	F	241 N.H.	
	Lab.	8–10	MW	405 N.H.	
	A2 Quiz	9	F	423 N.H.	
	Lab.	8–10	MW	408 N.H.	
	B1 Quiz	10	F	241 N.H.	
	Lab.	10–12	MW	405 N.H.	
	B2 Quiz	11	F	423 N.H.	
	Lab.	10–12	MW	408 N.H.	
	C1 Quiz	1	F	241 N.H.	
	Lab.	1–3	MW	405 N.H.	
	C2 Quiz	2	F	241 N.H.	
	Lab.	1–3	MW	408 N.H.	
	D1[1] Quiz	8	S	423 N.H.	
[1]Sections D1 and D2	Lab.	8–10	TT	405 N.H.	
will not be opened until	D2[1] Quiz	9	S	423 N.H.	
other sections are filled.	Lab.	8–10	TT	408 N.H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Ilbu Ia
1932/33
pt. 2
Cat. Dept.

TIME TABLE

SECOND SEMESTER
1932-1933

This Time Table is issued early, for the convenience of faculty members and students. Preserve your copy for use during the period of registration, as there will not be a supply of copies for general distribution at that time.

PUBLISHED BY THE UNIVERSITY OF ILLINOIS
URBANA

REGISTRATION CALENDAR

SECOND SEMESTER, 1932-33

1933

Feb. 3-4, Fri.-Sat. . . . . Registration for Graduate Students

Feb. 6-7, Mon.-Tues. . . . . Registration for Undergraduate Students

Feb. 8, Wed., 8 a.m. . . . . Instruction begun

Feb. 13, Mon., 8 a.m. . . . . Earliest date for special examinations

Feb. 13, Mon., 12 m. . . . . Latest date for change of study-lists without fee

Feb. 18, Sat., 12 m. . . . . Latest date for rebates in full

Apr. 8, Sat., 12 m. . . . . Latest date for rebates of one-half fees, and latest date for seniors to make substitutions in courses or to remove failures of the first semester

Apr. 13, Thurs., 12 m. . . . . Easter recess begun

Apr. 18, Tues., 1 p.m. . . . . Instruction resumed

May 18, Thurs. . . . . Latest date for special examinations

May 25, Thurs. . . . . Military Day

May 26, Fri. . . . . Semester examinations begun

June 5, Mon. . . . . Semester examinations ended

June 11, Sun. . . . . Baccalaureate address

June 12, Mon. . . . . Sixty-second Annual Commencement

SUMMER SESSION, 1933

June 19, Mon. . . . . Registration Day

June 20, Tues. . . . . Instruction begun

Aug. 11-12, Fri.-Sat. . . . . Final examinations

FIRST SEMESTER, 1933-34

Sept. 15-16, Fri.-Sat. . . . . Registration for Freshmen and Graduate Students

Sept. 18-19, Mon.-Tues. . . . Registration for Upperclassmen

Sept. 20, Wed. . . . . Instruction begun

TIME TABLE FOR COURSES OF INSTRUCTION

SECOND SEMESTER, 1932-1933

EXPLANATION

The arrangement of subjects in the following Time Table is alphabetical by names of departments. The connections of allied departments and divisions are indicated by cross references.

The courses offered by each department or division are listed, in numerical order, in groups with headings that indicate the students for whom they are designed. Groups of general, elementary, and introductory courses are listed as "Courses for Undergraduates." Intermediate and advanced groups are listed as "Courses for Advanced Undergraduates and Graduates." Courses with numbers beginning at 100 are listed as "Courses for Graduates" and are not open to undergraduates.

Following the title of each course of instruction will be found the requirements, if any, for admission to that particular course. The sequence indicated by these prerequisites must be followed. For instance, under Art 9b, Commercial Art, the prerequisites given are Art 2b and 5a. These two courses must be completed before Art 9b may be taken.

If a course not required for graduation is selected by fewer than five students it may be withdrawn for the semester.

Credit for undergraduate students is reckoned in *semester hours,* or simply *hours.* An *hour* is one class period a week for one semester or the equivalent in laboratory, shop, or drafting room. The number of hours for which each course counts is shown in parentheses in the description of the course, thus, (2), except where the credits, sections, etc., are tabulated.

Credit for first-year graduate students, candidates for the master's degree, is counted in *units.* A *unit* course is one which requires ten hours of time per week through one semester, irrespective of the distribution of that time in class work, laboratory work, and private study; four such courses or their equivalent constitute a full minimum program for one semester. The unit values of graduate courses (numbered 100 and upwards) are indicated in parentheses following the titles of such courses. Courses of the intermediate groups "for graduates and advanced undergraduates" generally are evaluated as follows for graduate credit: (a) courses open only to students having at least senior standing, 1 unit for a 4-hour or a 5-hour course, ½ unit for a 1-hour, 2-hour, or 3-hour course; (b) courses open to juniors, ½ unit for a 4-hour or 5-hour course, ¼ unit for a 1-hour, 2-hour, or 3-hour course.

University buildings are designated by the following abbreviations:

Administration Building (East)	Adm. (E)
Agricultural Building (Old)	Agr.
Agricultural Engineering Building	Agr. Eng.
Animal Pathology Laboratory	An. Path. L.
Architecture Building	Arch.
Armory	Arm.
Astronomical Observatory	Obs.
Ceramics Laboratory	Cer.
Chemistry Annex	Chem. A.
Chemistry Building	Chem.
Civil Engineering Surveying Building	C. E. S. B.
Commerce Building	Com.
Dairy Manufactures Building	D. Mfrs.
Electrical Engineering Laboratory	E. E. L.
Engineering Hall	E. H.
Entomology Building	Entom.
Floriculture Greenhouses	F. G.
Genetics Building	Gen. Bldg.
Gymnasium Annex	Gym. A.
Highway Laboratory	H. L.
Horticultural Field Laboratory	H. F. L.
Law Building	Law
Library	Lib.
Lincoln Hall	L. H.
Materials Testing Laboratory	M. T. L.
Mathematics Building	Math.
Mechanical Engineering Laboratory	M. E. L.
Men's New Gymnasium	New Gym.
Men's Old Gymnasium	Old Gym.
Mining Engineering Laboratory	Min. L.
Natural History Building	N. H.
New Agricultural Building	New Agr.
Physics Laboratory	P. L.
Smith Memorial Music Hall	S. M. H.
Stock Judging Pavilion	S. P.
Transportation Building	T. B.
University Hall	U. H.
University High School	U. H. S.
Vegetable Greenhouse	V. G.
Vivarium	Viv.
Woman's Building	W. B.
Woman's Gymnasium	W. Gym.

ACCOUNTANCY

(See Business Organization and Operation, B.)

AGRICULTURAL COLLEGE EXTENSION

Agr. Coll. Ext. 6. **Agricultural Extension.**—*Prerequisite:* Junior standing. (2). 10 TT; 111 New Agr. Professor MUMFORD and others.

AGRICULTURAL ECONOMICS

Courses for Undergraduates

Agr. Econ. 20. **Elementary Farm Management.**—(Formerly F.O.M. 1.) *Prerequisite:* Econ. 1 or 2; junior standing. Local field trips will be arranged; estimated cost, $5.

Credits	Section	Hours	Days	Room	Instructor
3	Lect. and Disc.	10	TT	316 New Agr.	WILCOX and others
	S Lab.	1–3	Th	331 New Agr.	
	T Lab.	1–3	F	331 New Agr.	

Agr. Econ. 40. **Investigation with Thesis.**—(Formerly F.O.M. 10, An. Husb. 9u, Agr. Econ. 29 and 39.) *Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange.

(b) **Agricultural Marketing.**—Members of the department.
(d) **Agricultural Prices and Statistics.**—Assistant Professor NORTON.
(f) **Farm Organization and Management.**—Professor CASE.
(h) **Land Economics.**—Associate Professor STEWART.

Courses for Advanced Undergraduates and Graduates

Agr. Econ. 14. **Cooperation in Agriculture.**—(Formerly Economics 14.) *Prerequisite:* Econ. 1 or 2; junior standing. (2). 9 TT; 111 New Agr. Dr. BARTLETT.

Agr. Econ. 15. **Financing Agriculture.**—(Formerly Economics 15.) *Prerequisite:* Econ. 1 or 2; junior standing. (3). 11 MWF; 111 New Agr. Assistant Professor NORTON.

Agr. Econ. 18. **Land Economics.**—(Formerly Economics 18.) *Prerequisite:* Econ. 1 or 2; junior standing. (3). 9 MWF; 111 New Agr. Associate Professor STEWART.

Agr. Econ. 23. **Farm Business Analysis.**—(Formerly F.O.M. 3.) *Prerequisite:* Agr. Econ. 20 and Accountancy 1a. Lectures and quiz. Local field trips will be arranged; estimated cost, $5. (3). 1 MWF; 316 New Agr. Assistant Professor JOHNSTON.

Agr. Econ. 25. **Farm Organization.**—(Formerly F.O.M. 5.) *Prerequisite:* Agr. Econ. 20. Local field trips will be arranged; estimated cost, $5. (3). 8 MWF; 331 New Agr. Professor CASE, Assistant Professor JOHNSTON.

(See also Animal Husbandry 29, Systems of Live Stock Farming.)

Agr. Econ. 34. **Marketing Dairy Product.**—(Formerly Dairy Husbandry 26.) *Prerequisite:* Junior standing. (2). Arrange; D. Mfrs. Dr. C. A. BROWN. (Inspection trip requirement waived for 1932-1933)

Agr. Econ. 37. **Marketing Live Stock.**—(Formerly Animal Husbandry 32.) *Prerequisite:* Senior standing; An. Husb. 3. *Prerequisite or concurrent:* An. Husb. 6. (2). 9 TT; 316 New Agr. Associate Professor ASHBY. (Inspection trip requirement waived for 1932-1933)

Courses for Graduates

Agr. Econ. 109. **Seminar. Thesis Course.**—(Formerly Econ. 118c and F.O.M. 110.) All graduate students majoring in Agricultural Economics must register in Agr. Econ. 109, but only those students writing theses acceptable for the degree of Master of Science will be given credit. (1 to 2 units).* Once a week. Arrange. Members of the department.

Agr. Econ. 110. **Theory of Agricultural Economics.**—(Formerly Econ. 130.) (1 unit). Time to be arranged. Associate Professor STEWART.

Agr. Econ. 111. **Agricultural Prices and Statistics.**—(Formerly Econ. 131.) (1 unit). Time to be arranged. Assistant Professor NORTON.

Agr. Econ. 112. **Agricultural Economics Research.**—(Formerly Econ. 132.) Only those who write acceptable reports of successful investigation will receive credit. (1 to 2 units).* Time to be arranged. Associate Professor STEWART.

Agr. Econ. 120. **Farm Management Principles and Investigational Methods.**—(Formerly F.O.M. 101.) (1 unit). Twice a week. Time to be arranged. Professor CASE.

Agr. Econ. 135. **Marketing Fruits and Vegetables.**—(Formerly Hort. 105.) (1 to 2 units).* Time to be arranged. Professor LLOYD.

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AGRICULTURAL ENGINEERING

(Formerly Farm Mechanics)

Note: Certain courses in this department require laboratory fees varying from $1.50 to $8.

Courses for Undergraduates

Agr. Eng. 1. Elementary Agricultural Engineering.—

Credits	Section	Hours	Days	Room	Instructor
3[1]	Lect.	8	WF	201 Agr. Eng.	YOUNG
	B Quiz	9	W		HAY
[1]Seniors will receive only 2 hours credit.	J Quiz	8	Tu		
	S Quiz	9	F		
	A Lab.	8–10	M		
	J Lab.	8–10	Th		
	N Lab.	1–3	Th		

Agr. Eng. 3. Gas Engines and Tractors.—*Prerequisite:* Agr. Eng. 1. (Inspection trip requirement waived for 1932-33).

3	Lect.	11	TT	201 Agr. Eng.	SHAWL
	K Quiz	9	Tu		
	O Quiz	2	Th		
	O Lab.	2–4	Tu		
	K Lab.	9–11	S		

Agr. Eng. 4. Farm Buildings.—*Prerequisite:* Agr. Eng. 1 or consent of instructor. (3). 1 MW; 202 Agr. Eng. Laboratory time to be arranged. Assistant Professor FOSTER.

Agr. Eng. 12. Farm Home Equipment.—*Prerequisite:* Agr. Eng. 1 or junior standing. (2). Lect. 1 Tu; Lab. 1-3 Th; 204 Agr. Eng. Professor LEHMANN.

Agr. Eng. 18b. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Time to be arranged. Professor LEHMANN, Assistant Professor SHAWL.

Agr. Eng. 21. Farm Shop Work.—*Prerequisite:* Agr. Eng. 1. (2). 3-5 MW; 201 Agr. Eng. Mr. YOUNG.

Courses for Advanced Undergraduates and Graduates

Agr. Eng. 17. Harvesting Machinery.—*Prerequisite:* Agr. Eng. 2. (3). Lect. 11 MW, Lab. 2-5 Tu; 201 Agr. Eng. Assistant Professor SHAWL, Mr. HAY.

Agr. Eng. 51. Special Power and Field Machinery.—*Prerequisite:* Agr. Eng. 17 or 28. Consult instructor before registering. (3). Time to be arranged. Professor LEHMANN, Assistant Professor SHAWL.

AGRONOMY

Note: Certain courses in this department require laboratory fees varying from $1 to $4.

Courses for Undergraduates

Agron. 8. Forage Crops.—*Prerequisite:* Agron. 25.

3	Lect.	11	MW	205 Agr.	PIEPER
	Quiz	11	F	205 Agr.	

Agron. 18. Investigation with Thesis.—*Prerequisite:* Senior standing; not less than 20 hours pertinent to thesis problem; and the approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange.

Soils.—Professors BAUER, DETURK, R. S. SMITH; Associate Professor SEARS.
Crops.—Professors BURLISON, WOODWORTH; Associate Professor DUNGAN.

Agron. 25. Farm Crops.—*Prerequisite:* Bot. 5.

3	Lect.	3	MW	205 Agr.	PIEPER
	A Lab.	1–3	Tu	600 Agr.	
	Quiz	3	F	205 Agr.	

Agron. 28. Soils.—*Prerequisite:* Chem. 5; Geol. 44. (Local field trip, cost not to exceed $1.)

5	A Lect.	8	MWF	205 Agr.	WIMER, CRANE
	A Quiz	8	TT	205 Agr.	
	B Quiz	10	TT	205 Agr.	
	A Lab.	1–4	Th	650 Agr.	
	C Lab.	8–11	S	650 Agr.	

Courses for Advanced Undergraduates and Graduates

Agron. 10. Genesis, Morphology, Classification and Geography of Soils.—*Prerequisite:* Agron. 28, junior standing. (3). Lect., 1 MWF; 205 Agr. Professor R. S. SMITH.

Agron. 13. Soil Productivity, its Variation, Modification and Maintenance.—*Prerequisite:* Agron. 28, senior standing. (3). 9 MWF; 302 Agr. Professor BAUER.

Agron. 22. Plant Genetics and Breeding.—*Prerequisite:* Zool. 15, junior standing. (3). Lect., 10 MWF; 302 Agr. Professor WOODWORTH, Mr. BONNETT.

Agron. 31. Biological Methods of Soil Investigations.—Characteristics of the soil micro-flora; conditions affecting its activity; bacteriological and biochemical technique involved in the study of organisms in the soil and under laboratory conditions. (Given 1932-33 and alternate years thereafter.) *Prerequisite:* Agron. 11, senior standing. (3). 8-10 MWF (Lab., Demonstration, Disc.); 323 Agr. Associate Professor SEARS.

Courses for Graduates

Agron. 104. Seminar in Agronomy.—(¼ unit). Once a week. Heads of divisions.

Agron. 114. Crop Production.—(1 unit). Once a week. Arrange. Professor BURLISON, Associate Professor DUNGAN.

Agron. 118. Research.—(½ to 4 units).* Arrange.
Soils.—Professors BAUER, DETURK, R. S. SMITH.
Crops.—Professors BURLISON, WOODWORTH; Associate Professor DUNGAN.

Agron. 119. Experiment Station Problems.—(See Animal Husbandry 103.) Professor MUMFORD.

ANIMAL HUSBANDRY

Note: Certain courses in this department require laboratory fees varying from $1 to $5.

Courses for Undergraduates

An. Husb. 1. Introduction to Animal Husbandry.—Required of students not having had livestock judging in high school. (No credit in this course allowed to juniors and seniors.) (2). 3-5 TT; S.P. Mr. CRAWFORD, Mr. GARRIGUS.

An. Husb. 6. Livestock Management.—*Prerequisite:* An. Husb. 21. (5). 10 MTWTF; S.P. Professor EDMONDS.

An. Husb. 9b-t. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem, and approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange.
(b) **Beef Cattle.**—Professor RUSK, Associate Professor SNAPP.
(d) **Horses.**—Professor EDMONDS.
(f) **Sheep.**—Assistant Professor KAMMLADE.
(h) **Swine.**—Professor CARROLL.
(k) **Poultry.**—Professor CARD.
(m) **Animal Nutrition.**—Professor MITCHELL.
(p) **Animal Genetics.**—Associate Professor ROBERTS.
(r) **Animal Pathology.**—Professor GRAHAM.
(t) **Meats.**—Associate Professor BULL.

An. Husb. 12. Special Problems.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Arrange. Members of the department.

An. Husb. 21. Principles of Feeding.—*Prerequisite:* Chem. 5; An. Husb. 1.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	2	W	553 Agr.	BULL and others
	A Quiz	2	MF	553 Agr.	
	B Quiz	11	TT	553 Agr.	

An. Husb. 35. Animal Hygiene, Sanitation, Contagious Diseases of Farm Animals.—*Prerequisite:* An. Husb. 34; Bact. 5a. (2). 3 TT; An. Path. L. Professor GRAHAM.

An. Husb. 37. Poultry Management.—*Prerequisite:* An. Husb. 21. (3 or 4).* 9 MWF; Lab. 3-5 Th; 316 New Agr. Students may register for this course either with or without the laboratory. Professor CARD, Dr. SLOAN.

Courses for Advanced Undergraduates and Graduates

An. Husb. 10. Meat.—*Prerequisite:* An. Husb. 21 and 36. The class will visit a Chicago packing house. The cost of the trip will be about $15. (3). 1-4 TT; 128 Agr. Associate Professor BULL.

An. Husb. 27. Sheep Husbandry.—*Prerequisite:* An. Husb. 3 and 6. (3). 11 MWF; 111 S.P. Assistant Professor KAMMLADE.

An. Husb. 28. History of Breeds of Live Stock.—*Prerequisite:* An. Husb. 3. It is recommended that this course precede An. Husb. 22. (3). 3 MWF; 316 New Agr. Heads of divisions.

An. Husb. 29. Systems of Live Stock Farming.—*Prerequisite:* Agr. Econ. 20; An. Husb. 6. The cost of farm inspection trips will be about $5. (2). 8 TT; 331 New Agr. Associate Professor WILCOX.

An. Husb. 31. Advanced Course in Animal Nutrition.—*Prerequisite:* Senior standing, including An. Husb. 7. (3). Time to be arranged. Professor MITCHELL.

An. Husb. 32. Marketing Live Stock.—See Agricultural Economics 37.

An. Husb. 33. Horse Production.—*Prerequisite:* An. Husb. 3 and 6. (3). 1 MWF; S.P. Professor EDMONDS.

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An. Husb. 39. Poultry Production.—*Prerequisite:* An. Husb. 37. (3). Time to be arranged; 316 New Agr. Professor CARD.

An. Husb. 41. Animal Genetics.—*Prerequisite:* Zool. 15. (3). 2 MWF; Gen. Bldg. Associate Professor ROBERTS.

Courses for Graduates

An. Husb. 103. Experiment Station Problems.—Once a week. (½ unit). Time to be arranged. Professor MUMFORD.

An. Husb. 112 a-f. Research.—(½ to 2 units).* Arrange. One to three times a week.

(a) **Economic Factors in Meat Production.**—Professor RUSK.
(b) **Systems of Live Stock Farming.**—Professor CASE.
(d) **Animal Nutrition.**—Professor MITCHELL.
(e) **Animal Genetics.**—Associate Professor ROBERTS.
(f) **Poultry Husbandry.**—Professor CARD.
These courses may be taken during the summer by special permission.

An. Husb. 117. Animal Genetics.—Two to five times a week. (1 unit). Associate Professor ROBERTS.

An. Husb. 118. Animal Nutrition Seminar.—Two hours a week. (½ unit). Professor MITCHELL.

An. Husb. 119. Laboratory Methods in Animal Nutrition.—Two to five times a week. (½ to 1 unit).* Professor MITCHELL.

An. Husb. 120. Laboratory Methods in the Diagnosis of Animal Diseases.—Two to five times a week. (½ to 1 unit).* Professor GRAHAM.

An. Husb. 121. Laboratory Methods in Animal Genetics.—(½ to 1 unit).* Two to five times a week. Time to be arranged. Associate Professor ROBERTS.

ARCHITECTURE

(Including Architectural Engineering)

Courses for Undergraduates

Arch. 12. History of Architecture.—*Prerequisite:* Arch. 11. Not open to students expecting a degree in Architecture. (3). 3 MWF; 120 Arch.

Arch. 14. History of Architecture.—*Prerequisite:* Arch. 13. (2). 11 MW; 120 Arch.

Arch. 16. History of Architecture.—*Prerequisite:* Arch. 15. (2). 11 TT; 120 Arch.

Arch. 18. History of Architecture.—*Prerequisite:* Arch. 16. (2). 8 WF; 120 Arch.

Arch. 22. Freehand Drawing.—*Prerequisite:* Arch. 21.

Credits	Section	Hours	Days	Room	Instructor
2	A	8–10	TT	410a Arch.	
	B	10–12	TT	410a Arch.	
	C	10–12	MF	410a Arch.	

Arch. 23. Freehand Drawing.—*Prerequisite:* Arch. 22.

2	A	8–11	Tu	410b Arch.	
		1–4	Th	410b Arch.	
	B	1–4	MF	410a Arch.	
	C	1–4	TT	410a Arch.	
	D	8–11	M	410b Arch.	
		9–12	F	410b Arch.	

Arch. 24. Freehand Drawing.—*Prerequisite:* Arch. 23.

2	A	8–11	Tu	410b Arch.	
		1–4	Th	410b Arch.	
	B	1–4	MF	410a Arch.	
	C	1–4	TT	410a Arch.	
	D	8–11	M	410b Arch.	
		9–12	F	410b Arch.	

Arch. 25. Freehand Drawing.—*Prerequisite:* Arch. 24.

2	A	1–4	TT	Hall of Casts	
	B	9–12	MW	Hall of Casts	

Arch. 26. Freehand Drawing.—*Prerequisite:* Arch. 25.

2	A	1–4	TT	Hall of Casts	
	B	9–12	MW	Hall of Casts	

Arch. 27. Freehand Drawing.—*Prerequisite:* Arch. 26. (2). 8-11 TT; 10 Arch.

Arch. 28. Freehand Drawing.—*Prerequisite:* Arch. 27. (2). 8-11 TT; 10 Arch.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Arch. 32a. Architectural Design.—*Prerequisite:* Arch. 31a.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	2	W	120 Arch.	
	A	1–4	TT	210 Arch.	
	B	8–11	MF	210 Arch.	
	C	1–4	MF	210 Arch.	

Arch. 33. Architectural Design.—*Prerequisite:* Arch. 32a.

3	A	1–4	MW	210 Arch.
		8–11	S	210 Arch.
	B	1–4	TT	210 Arch.
		8–11	S	210 Arch.
	C	1–4	WF	210 Arch.
		8–11	S	210 Arch.
	D	1–4	M	210 Arch.
		8–11	ThS	210 Arch.

Arch. 34. Architectural Design.—*Prerequisite:* Arch. 33.

3	A	1–4	MW	210 Arch.
		8–11	S	210 Arch.
	B	1–4	TT	210 Arch.
		8–11	S	210 Arch.
	C	1–4	WF	210 Arch.
		8–11	S	210 Arch.
	D	1–4	M	210 Arch.
		8–11	ThS	210 Arch.

Arch. 35. Architectural Design.—*Prerequisite:* Arch. 34.

5	A	9–12	M	200 Arch.
		1–4	MWF	200 Arch.
	B	1–4	TTF	200 Arch.
		9–12	F	200 Arch.

Arch. 36. Architectural Design.—*Prerequisite:* Arch. 35 and registration in Arch. 66.

5	A	9–12	M	200 Arch.
		1–4	MWF	200 Arch.
	B	1–4	TTF	200 Arch.
		9–12	F	200 Arch.

Arch. 37. Architectural Design.—*Prerequisite:* Arch. 36.

7	A	8–11	S	200 Arch.
		1–4	MTWTF	200 Arch.

Arch. 38. Architectural Design.—*Prerequisite:* Arch. 37.

7	A	8–11	S	200 Arch.
		1–4	MTWTF	200 Arch.

Arch. 44. Technology of Materials.—*Prerequisite:* Arch. 43.

3	A	1–4	Tu	310 Arch.
		8–11	Th	310 Arch.
	Lect.	11	F	302 Arch.
	B	8–11	TT	310 Arch.
	Lect.	11	F	302 Arch.
	C	1–4	MW	310 Arch.
	Lect.	11	W	302 Arch.
	D	8–11	MW	310 Arch.
	Lect.	11	W	302 Arch.

Arch. 46. Graphic Statics.—*Prerequisite:* Arch. 45.

3	A	9–12	WF	310 Arch.
	Lect.	9	Tu	302 Arch.
	B	1–4	MW	310 Arch.
	Lect.	9	Tu	302 Arch.
	C	1–4	TT	310 Arch.
	Lect.	11	M	302 Arch.
	D	8–11	TT	310 Arch.
	Lect.	11	M	302 Arch.

Arch. 55. Building Sanitation.—*Prerequisite:* Phys. 8a-8b; Arch. 44. (1). 10 TT; 302 Arch.

Arch. 60a. Reinforced Concrete.—*Prerequisite:* Senior standing in Architecture. (2). 11 TT; 302 Arch.

Arch. 66. Theory of Architecture.—*Prerequisite:* Arch. 65 and registration in Arch. 36. (1). 9 Th; 302 Arch.

Arch. 67. Theory of Form.—*Prerequisite:* Senior standing in Architecture. (2). 9-12 MW; 20 Arch.

Arch. 72a. Architectural Design.—*Prerequisite:* Arch. 71a. Not open to students expecting a degree in Architecture.

3	A	1–4	TT	210 Arch.
		2	W	120 Arch.

Arch. 74. Freehand Drawing.—*Prerequisite:* Arch. 73. Not open to students expecting a degree in Architecture. (2). 8-10 MF; 410a Arch.

Arch. 76. Masonry Construction Details.—*Prerequisite:* Arch. 75. Not open to students expecting a degree in Architecture.

Credits	Section	Hours	Days	Room	Instructor
3	A	1	TT	301 Arch.	
		2–5	TT	310 Arch.	

Courses for Graduates

Arch. 101. Architectural Construction—Theory and Design.—(½ to 2 units).* Professor PALMER.

Arch. 103. Architectural Construction—Special Problems.—(½ to 2 units).* Associate Professor MORGAN.

Arch. 104. Architectural Design.—(1 to 3 units).* Professor DEAM.

Arch. 105. Architectural Practice.—(¼ to ½ unit).* Professor PROVINE.

Arch. 106. Architectural History.—(½ to 2 units).* Dean NEWCOMB.

ARCHITECTURAL ENGINEERING

Courses for Undergraduates

A.E. 48. Architectural Engineering.—*Prerequisite:* A.E. 47 and registration in A.E. 58.

5	C	9–11	TT	300 Arch.
		1–4	MWF	300 Arch.

A.E. 58. Fireproof Construction.—*Prerequisite:* A.E. 57. (2). 1-4 TT; 300 Arch.

A.E. 67. Building Sanitation.—*Prerequisite:* Senior standing in Architectural Engineering. (2). 10 MW; 302 Arch.

A.E. 68. Estimates and Specifications.—*Prerequisite:* Senior standing in Architectural Engineering. (4). 11 MTWT; 301 Arch.

ART

Note: Certain courses in this department require laboratory fees varying from $3 to $5.

Courses for Undergraduates

Art 1a. Cast and Still Life Drawing.—(3). 9-12 MW; 403b Arch. Assistant Professor NEARPASS.

Art 1b. Cast Drawing.—*Prerequisite:* Art. 1a.

2	A	9–12	MW	403 Arch.	DONOVAN
	B	9–12	TT	Hall of Casts	DONOVAN

Art 2a. Design.—*Prerequisite:* Art 1a. (2). 2 MF; 302 Arch. Associate Professor LAKE.

Art 2b. Composition.—*Prerequisite:* Art 2a. (2). 2-4 M; 410 Arch. Assistant Professor NEARPASS.

Art 2d. Composition.—*Prerequisite:* Art 2c. (2). 9-12 F; 403b Arch. Assistant Professor NEARPASS.

Art 2f. Composition and Illustration.—*Prerequisite:* Art 2e. (2). 9-12 F; 403b Arch. Assistant Professor NEARPASS.

Art 2h. Composition (Mural).—*Prerequisite:* Art 2g. (3). 9-12 F; 403b Arch. Assistant Professor NEARPASS.

Art 3b. Anatomy and Sketch.—*Prerequisite:* Art 3a.

2	A	1–4	Tu	410 Arch.	NEARPASS
	B	9–12	Th	410 Arch.	NEARPASS

Art 4a. Modeling.—*Prerequisite:* Art 1a.

2	A	9–12	TT	20 Arch.	LAKE
	B	1–4	TT	20 Arch.	LAKE

Art 4b. Modeling.—*Prerequisite:* Art 4a. (2). 1-4 TT; 20 Arch. Associate Professor LAKE.

Art 4d. Modeling.—*Prerequisite:* Art 4c. (2). 1-4 TT; 20 Arch. Associate Professor LAKE.

Art 5b. Life Drawing.—*Prerequisite:* Art 1b. (3). 1-4 MWF; 403b Arch. Associate Professor BRADBURY.

Art 5d. Life Drawing.—*Prerequisite:* Art 5c. (3). 1-4 MWF; 403b Arch. Associate Professor BRADBURY.

Art 5f. Life Painting.—*Prerequisite:* Art 5e. (3). 1-4 MWF; 403b Arch. Associate Professor BRADBURY.

Art 6b. Portrait.—*Prerequisite:* Art 1b. (2). 9-12 TT; 403b Arch. Associate Professor BRADBURY.

Art 6d. Portrait.—*Prerequisite:* Art 6c. (2). 9-12 TT; 403b Arch. Associate Professor BRADBURY.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Art 6f. Portrait.—*Prerequisite:* Art 6e. (3). 9-12 TTS; 403b Arch. Associate Professor BRADBURY.

Art 7b. Still Life.—*Prerequisite:* Art 1b. (2). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

Art 8b. Sketch.—*Prerequisite:* Art 5a. (1). 1-4 Tu; 401a Arch. Associate Professor BRADBURY.

Art 8d. Sketch.—*Prerequisite:* Art 8c. (1). 1-4 Tu; 401a Arch. Associate Professor BRADBURY.

Art 9b. Commercial Art.—*Prerequisite:* Art 2b and 5a. (2). 9-12 S; 403 Arch. Assistant Professor DONOVAN.

Art 10b. Landscape.—*Prerequisite:* Art 7a. (2). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

Art 10d. Landscape.—*Prerequisite:* Art 10c. (3). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

Art 11b. Water Color.—*Prerequisite:* Art 1a. (2). 1-4 Th; 401a Arch. Assistant Professor NEARPASS.

Art 11d. Water Color.—*Prerequisite:* Art 11c. (2). 1-4 Th; 401a Arch. Assistant Professor NEARPASS.

Art 13a. Design.—(2). 3-5 TT; 342 L.H. Miss ANDERSON.

Art 13b. Design.—*Prerequisite:* Art 13a.

Credits	Section	Hours	Days	Room	Instructor
2	[1]A	1–3	MW	342 L.H.	ANDERSON
	[2]B	10–12	TT	342 L.H.	ANDERSON
	[1]C	1–3	TT	342 L.H.	ANDERSON

[1]Sections A and C are for Home Economics students.
[2]Section B is for Fine Arts students.

Art 14b. Interior Design.—*Prerequisite:* Art 2a and 11a. (2). 10-12 MW; 342 L.H. Miss ANDERSON.

Art 15b. Course for Teachers.—*Prerequisite:* Art 2a. (3). 9 MWF; 342 L.H. Miss ANDERSON.

Art 16b. History of Fine Arts.—*Prerequisite:* Art 16a. (2). 10 MW; 120 Arch. Associate Professor LAKE.

Art 16d. History of Modern Art.—*Prerequisite:* Art 16c. (2). 9 MW; 120 Arch. Assistant Professor NICHOLSON.

Art 16f. History of Modern Art.—*Prerequisite:* Junior standing. (3). 9 MWF; 120 Arch. Assistant Professor NICHOLSON.

Art 16h. History of Medieval Art.—*Prerequisite:* Junior standing. (3). 1 MWF; 120 Arch. Assistant Professor NICHOLSON.

Art 18. Original Project.—*Prerequisite:* For senior art students only. (2). Hours to be arranged.

ASTRONOMY

Course for Undergraduates

Astron. 2. Descriptive Astronomy.—Continuation of Astron. 1. The sun, stars, nebulae; the galactic system. *Prerequisite:* Astron. 1. (3). 11 MWF, 229 N.H.; one hour Wednesday evening, Observatory. Professor BAKER.

Courses for Graduates

Astron. 102. Seminar.—(1 unit). 1 MWF; Observatory. Professor BAKER.

Astron. 104. Celestial Mechanics.—(1 unit). 11 TTS; Observatory. Professor BAKER.

ATHLETIC COACHING

(See Physical Education for Men.)

BACTERIOLOGY

Note: Certain courses in this department require laboratory fees varying from $4 to $5.

Major: 20 hours chosen from the courses offered by this department. Dairy Husbandry 10 (advanced dairy bacteriology) may be offered in partial satisfaction of this requirement. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: chemistry and botany. At least eight hours must be offered in each subject if two are chosen.

Courses for Undergraduates

Bact. 5a. Introductory Bacteriology and Sanitary Science.—*Prerequisite:* Sophomore standing or consent of the instructor.

3	A Quiz	9	MWF	300 Chem.	WALLACE
	B Quiz	9	MWF	213 U.H.	WHEATON
	C Quiz	10	MWF	303 Chem.	WALLACE
	D Quiz	11	MWF	300 Chem.	CLARK
	E Quiz	2	MWF	300 Chem.	WHEATON
	F Quiz	3	MWF	300 Chem.	REHM
	G Quiz	10	TTS	241 N.H.	REHM

Bact. 5b. Introductory Bacteriology, Laboratory.—*Prerequisite:* Bact. 5a or concurrent registration in it.

Credits	Section	Hours	Days	Room	Instructor
2	Lab. A	8–10	MW	367 Chem.	Clark
	Lab. B	10–12	MW	367 Chem.	Wheaton
	Lab. C	1–3	MW	367 Chem.	Rehm
	Lab. D	10–12	TT	367 Chem.	Clark

Bact. 7b. Research and Special Problems for Undergraduates.—*Prerequisite:* 10 hours of bacteriology or consent of the instructor. (3 to 5).* Time to be arranged. Professor Tanner, Dr. Wallace.

Courses for Advanced Undergraduates and Graduates

Bact. 8. Food and Applied Bacteriology.—*Prerequisite:* Bact. 5a and 5b; junior standing; consent of the instructor.

5	Lect.	8	MW	229 N.H.	Tanner
	Lab.	8–10	TTS	367 Chem.	Clark

Bact. 10. Epidemiology.—*Prerequisite:* Bact. 5a (or 20); junior standing and the consent of the instructor. (2). Lect., 11 TT; 204 Chem. Dr. Wallace.

Bact. 20. General Bacteriology.—*Prerequisite:* Two years of college chemistry; senior standing; consent of the instructor. Students with credit in Bact. 5a and 5b will not be allowed credit for Bact. 20.

5	Lect.	8	MW	301 Chem.	Wallace
	Lab.	8–11	TT	360 Chem.	Wallace

Bact. 107. Research.—(½ to 4 units).* Time to be arranged. Professor Tanner.

Bact. 118b. Current Literature.—(Required of all graduate students who major in general bacteriology.) *Prerequisite:* Graduate standing and consent of instructor; 10 hours of bacteriology. (¼ unit). 8 Tu; 366 Chem. Professor Tanner.

BANDS

(See Military Bands.)

BANKING

(See Economics.)

BOTANY

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

Major: 20 hours of botany exclusive of courses 1 and 5, and inclusive of courses 2a or 2b, 3, and at least 5 hours in courses listed for advanced undergraduates and graduates.

Minors: 20 hours in one or two departments chosen in consultation with the head of the department from the following list: agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least eight hours must be offered in each department, if two are chosen.

Courses for Undergraduates

Bot. 1. General Botany.—

5[1]	Lect.	9	TT	228 N.H.	Hottes, Buchholz, Vestal, Fuller, and assistants
[1]Seniors will receive only 4 hours credit.	A Lab.	8–10	MWF	258 N.H.	
	B Lab.	10–12	MWF	258 N.H.	
	C Lab.	1–3	MWF	258 N.H.	
	1 Disc.	8	Tu	258 N.H.	
	2 Disc.	8	Th	258 N.H.	
	3 Disc.	10	Tu	258 N.H.	
	4 Disc.	10	Th	258 N.H.	
	5 Disc.	11	Tu	258 N.H.	
	6 Disc.	1	Tu	258 N.H.	
	7 Disc.	2	Tu	258 N.H.	

Bot. 2b. Morphology.—*Prerequisite:* Bot. 1 or 5. (3). 1-3 MWF; 204 Entom. Dr. Hague.

Bot. 5. Botany for Students in Agriculture.—

3[1]	Lect.	9	Th	202 Entom	Hottes, Stevens, Buchholz, Vestal, Fuller, and assistants
[1]Seniors will receive only 2 hours credit.	A Lab.	10–12	TT	259 N.H.	
	B Lab.	1–3	TT	259 N.H.	

Bot. 6. Introductory Systematic Botany.—The structure, identification, and phylogeny of flowering plants with special reference to the local flora. *Prerequisite:* Bot. 1 or 5. (3). Lect. 10 F, Lab. 10-12 MW; 350 N.H. Miss Burk.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Bot. 13. Plant Physiology.—*Prerequisite:* Bot. 1 or 5.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	10	W	229 N.H.	FULLER
	Lab.	10–12	MF	153 N.H.	

Bot. 14. Botany for Teachers.—*Prerequisite:* 15 hours of botany. (3). 11 TT and arrange additional hour; 216 N.H. Associate Professor VESTAL.

Bot. 15. Diseases of Plants.—*Prerequisite:* Bot. 7. (3). Lab. 10-12 MWF; 304 N.H. Professor STEVENS.

Courses for Advanced Undergraduates and Graduates

Bot. 34. Physiology.—*Prerequisite:* One year of botany inclusive of Bot. 3, and junior standing. (3 or 5).* 1-3 MWF; 155 N.H. Professor HOTTES and assistant.

Bot. 41. Bryophytes.—*Prerequisite:* One year of botany inclusive of Bot. 2a, and junior standing. (3 or 5).* 8-10 TTS; 204 Entom. Dr. HAGUE.

Bot. 44. Spermatophytes.—*Prerequisite:* One year of botany inclusive of Bot. 2b, and junior standing. (3 or 5).* 10-12 TTS; 201 Entom. Professor BUCHHOLZ.

Bot. 77. Taxonomy of Pathogenic Fungi.—*Prerequisite:* One year of botany inclusive of Bot. 7, and junior standing. (3 or 5).* Lect. 9 Tu; lab. arrange; 304 N.H. Professor STEVENS.

Bot. 80. Ecology: Analysis of the Environmental Complex.—*Prerequisite:* One year of botany inclusive of Bot. 8, and junior standing. (3 or 5).* 10-12 MWF; 216 N.H. Field study on two or three Saturdays. Associate Professor VESTAL.

Bot. 90b. Thesis Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Time to be arranged.

Bot. 91b. Honors Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Time to be arranged.

Courses for Graduates

Bot. 110. Botanical Discussion.—No credit. Required of all graduate students in botany and members of the instructional staff. 4 Tu; 258 N.H.

Bot. 112. Discussions in Plant Morphology.—(¼ unit). 4 F; 205 Entom. Professor BUCHHOLZ.

Bot. 113. Discussions in Physiology.—(¼ unit). 4 Th; 155 N.H. Professor HOTTES.

Bot. 117. Discussions in Pathology and Mycology.—(¼ unit). 4 W; 304 N.H. Professor STEVENS.

Bot. 118. Discussions in Ecology.—(¼ unit). 4 M; 204 N.H. Associate Professor VESTAL.

Research Courses

Bot. 120. Morphology.—(½ to 2 units).* (Botany 112 to be taken concurrently.) 1 hour on either MWF from 1 to 3, the rest arrange; 201 Entom. Professor BUCHHOLZ.

Bot. 130. Physiology.—(½ to 2 units).* (Botany 113 to be taken concurrently.) 1 hour on either MWF from 1 to 3, the rest arrange; Botany Annex. Professor HOTTES.

Bot. 170. Pathology or Mycology.—(½ to 2 units).* (Botany 117 to be taken concurrently.) Arrange. 304 N.H. Professor STEVENS.

Bot. 180. Plant Ecology or Geography.—(½ to 2 units).* (Botany 118 to be taken concurrently.) Conference 1 Tu; the rest arrange. Associate Professor VESTAL.

BUSINESS LAW

(See Business Organization and Operation, C.)

BUSINESS ORGANIZATION AND OPERATION

(Including Accountancy and Business Law.)

A. ACCOUNTANCY

Courses for Undergraduates

Accy. 1a. **Principles of Accounting.**—Beginner's course. (Students who present one unit of bookkeeping for entrance will not be allowed credit in Accy. 1a and should register in Accy. 1e.)

3[1]	C	10	MWF	223 Com.	McMAHAN
[1]Students who have	L	10	TTS	328 Com.	FRESE
failed in Accy. 1a may	D	11	MWF	223 Com.	McMAHAN
register in Accy. 1e	M	11	TTS	328 Com.	FRESE
and will receive 3	E	1	MWF	326 Com.	DeLONG
hours credit if their	F	2	MWF	326 Com.	DeLONG
final grade is "C" or above.					

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Accy. 1b. Accounting Procedure.—A continuation of Accy. 1a. (Credit is given for Accy. 1a without Accy. 1b.) *Prerequisite:* Accy. 1a.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	111 Com.	Hackett
	J	8	TTS	326 Com.	Anderson
	B	9	MWF	123 Com.	Newcomer
	K	9	TTS	326 Com.	Anderson
	C1	10	MWF	122 Com.	Hackett
	C2	10	MWF	123 Com.	Newcomer
	L	10	TTS	123 Com.	Newcomer
	D1	11	MWF	325 Com.	Lukas
	D2	11	MWF	122 Com.	Hackett
	E	1	MWF	328 Com.	Moyer
	F1	2	MWF	328 Com.	Moyer
	F2	2	MWF	325 Com.	Lukas
	G	3	MWF	325 Com.	Lukas

Accy. 1e. Principles of Accounting.—Similar to Accy. 1a. (Students who have one unit entrance credit in bookkeeping must take this course rather than Accy. 1a.) *Prerequisite:* One unit of entrance credit in bookkeeping.

2[1]	K	9	TT	115 Com.	Theiss
	L	10	TT	115 Com.	Theiss

[1]Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above.

Accy. 2a. Elementary Cost Accounting.—*Prerequisite:* Accy. 1b; registration or credit in Econ. 1.

3	M	11	TTS	325 Com.	Lukas
	F	2	MWF	223 Com.	Benedetto
	G	3	MWF	223 Com.	Benedetto

Accy. 2b. Intermediate Accounting.—*Prerequisite:* Accy. 2a.

3	A	8	MWF	223 Com.	Green
	J	8	TTS	122 Com.	Karrenbrock
	B1	9	MWF	223 Com.	Green
	B2	9	MWF	122 Com.	Karrenbrock
	K	9	TTS	123 Com.	Newcomer
	C	10	MWF	119 Com.	Baily
	L	10	TTS	122 Com.	Karrenbrock
	D	11	MWF	119 Com.	Baily
	E	1	MWF	113 Com.	Frese
	F	2	MWF	113 Com.	Frese

Courses for Advanced Undergraduates and Graduates

Accy. 3a. Advanced Accounting.—*Prerequisite:* Accy. 2a-2b; Econ. 3; an average of "C" or better in Accy. 1 and 2. (3). 8 MWF; 122 Com. Dr. Karrenbrock.

Accy. 3b. Auditing.—*Prerequisite:* Accy. 3a.

3	A	8	MWF	115 Com.	Theiss
	B	9	MWF	115 Com.	Filbey
	F	2	MWF	115 Com.	Littleton

Accy. 4a. Cost Accounting.—*Prerequisite:* Accy. 2a-2b.

2	L	10	TT	219 Com.	Schlatter
	M	11	TT	219 Com.	Schlatter

Accy. 4b. Accounting Systems.—*Prerequisite:* Accy. 2a-2b; Econ. 3. (Credit is given for either 4a or 4b separately.)

2	J	8	TT	119 Com.	Baily
	K	9	TT	119 Com.	Baily

Accy. 5b. C. P. A. Problems.—*Prerequisite:* Accy. 5a.

3	C	10	MWF	317 Com.	Scovill
	D	11	MWF	317 Com.	Scovill

Accy. 13. Governmental Accounting.—*Prerequisite:* Accy. 3a. (2). 2 TT; 122 Com. Dr. Hackett.

Accy. 20. Income Tax Procedure.—*Prerequisite:* Senior standing; registration or credit in Accy. 3b.

2	J	8	TT	317 Com.	Filbey
	K	9	TT	317 Com.	Filbey
	M	11	TT	317 Com.	Filbey

Accy. 30. Budgets and Accounting Control.—*Prerequisite:* Accy. 2b. (3). 9 MWF; 119 Com. Associate Professor Theiss.

Accy. 90b. Senior Thesis or Independent Study.—(A) Senior Thesis: primarily for candidates for graduation with high honors. *Prerequisite:* Senior standing in Accountancy. (2 or 4).* Arrange. (B) Independent study: see *Annual Register*, page 83, "University Honors." *Prerequisite:* Senior standing in Accountancy and a grade average in the upper ten per cent of the junior class on Honors Day. (3 to 5).* Arrange. Professor Littleton and others.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Courses for Graduates

Accy. 103. **Advanced Theory.**—(1 unit). 3-5 Tu; 420 Com. Professor LITTLETON.

Accy. 104. **Accounting Systems.**—(1 unit). 3-5 Th; 209 Com. Professor SCOVILL.

Accy. 113. **Governmental Accounting.**—(1 unit). Arrange. Professor MOREY.

Accy. 129. **Thesis.**—(1 unit). 4-6 W; 420 Com. Professor LITTLETON and members of the staff.

B. BUSINESS ORGANIZATION AND OPERATION

Courses for Undergraduates

B.O.&O. 1. **Industrial Organization and Management.**—*Prerequisite:* Econ. 1 or Econ. 2; 45 credit hours. Junior and senior engineering students admitted with consent of instructor.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	224 Com.	HUEGY
	B1	9	MWF	224 Com.	HUEGY
	K	9	TTS	224 Com.	HUEGY
	L	10	TTS	224 Com.	HUEGY
	C1	10	MWF	310 Com.	ANDERSON
	C2	10	MWF	219 Com.	MANDEVILLE
	D1	11	MWF	310 Com.	ANDERSON
	D2	11	MWF	224 Com.	HUEGY
	F	2	MWF	322 Com.	MANDEVILLE
	G	3	MWF	322 Com.	MANDEVILLE

B.O.&O. 2. **Marketing Organization and Operation.**—*Prerequisite:* Econ. 1; junior standing.

3	Lect. I	8	M	215 Com.	CONVERSE
	Lect. II	9	M	215 Com.	CONVERSE
	Quiz A1	8	WF	310 Com.	CONVERSE
	Quiz A2	8	WF	219 Com.	WHITLO
	Quiz B1	9	WF	219 Com.	WHITLO
	Quiz B2	9	WF	310 Com.	CONVERSE

B.O.&O. 11. **Survey Course in Business Organization.**—*Prerequisite:* Junior standing. Not open to commerce students. 11 MWF; 219 Com. Mr. MANDEVILLE.

Courses for Advanced Undergraduates and Graduates

B.O.&O. 3. **Retail and Chain Store Organization and Operation.**—*Prerequisite:* B.O.&O. 2. (3). 11 MWF; 328 Com. Mr. WHITLO.

B.O.&O. 4. **Management in Manufacturing.**—*Prerequisite:* B.O.&O. 1. (3). 8 MWF; 326 Com. Professor ANDERSON.

B.O.&O. 7. **Salesmanship.**—*Prerequisite:* B.O.&O. 2.

3	A	8	MW	126 Com.	JONES
	C	10	MW	126 Com.	JONES
	L	10	TT	326 Com.	JONES
	N	1	TT	326 Com.	JONES
	O	2	TT	326 Com.	JONES

B.O.&O. 8. **Advertising.**—*Prerequisite:* B.O.&O. 2.

3	Lect.	11	W	215 Com.	RUSSELL
	J	8	TT	310 Com.	HESLIP
	K	9	TT	306 Com.	RUSSELL
	D	11	MF	306 Com.	RUSSELL
	F	2	TT	223 Com.	HESLIP

B.O.&O. 9. **Trade and Commercial Organizations.**—*Prerequisite:* B.O.&O. 2, senior standing. (2). 11 TT; 224 Com. Dean THOMPSON, Mr. BRUCE.

B.O.&O. 17. **Problems in Sales Administration.**—*Prerequisite:* B.O.&O. 7.

2	L	10	TT	223 Com.	HESLIP
	M	11	TT	223 Com.	HESLIP

B.O.&O. 18. **Advertising Campaigns.**—*Prerequisite:* B.O.&O. 8.

3	A	8	MWF	317 Com.	RUSSELL, HESLIP
	B	9	MWF	317 Com.	RUSSELL, HESLIP

B.O.&O. 22. **Marketing Policies and Problems.**—*Prerequisite:* B.O.&O. 2. (3). 1 MWF; 222 Com. Professor CONVERSE.

B.O.&O. 90b. **Thesis or Independent Study.**—(A) Senior Thesis, primarily for candidates for graduation with high honors. *Prerequisite:* Senior standing in Commerce. (2 or 4).* Arrange. (B) Independent study: see *Annual Register*, page 83, paragraph 7. *Prerequisite:* Senior standing in Commerce and a grade average in the upper ten per cent of the junior class on Honors Day. (3 to 5).* Arrange. Members of the staff.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Courses for Graduates

B.O.&O. 102. Marketing Policies and Problems.—(1 unit). Time to be arranged. Professor CONVERSE.

B.O.&O. 104. Scientific Management.—(1 unit). Time to be arranged. Professor ANDERSON.

B.O.&O. 107. Sales Campaigns.—(1 unit). Time to be arranged. Professor RUSSELL.

B.O.&O. 129. Thesis.—(1 unit). Time to be arranged. Professor RUSSELL and members of the staff.

C. BUSINESS LAW

Courses for Undergraduates

Bus. Law 1a. General Principles of Business Law.—*Prerequisite:* 60 hours of university credit.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	113 Com.	ASHER
	B	9	MWF	113 Com.	ASHER
	L	10	TTS	113 Com.	ASHER

Bus. Law 1b. General Principles of Business Law.—*Prerequisite:* Bus. Law 1a.

3	A	8	MWF	222 Com.	DILLAVOU
	B	9	MWF	101 Com.	ROBERTS
	C	10	MWF	222 Com.	CURTIS
	D	11	MWF	101 Com.	ROBERTS
	E	1	MWF	219 Com.	CURTIS
	F	2	MWF	219 Com.	CURTIS
	J	8	TTS	113 Com.	ASHER
	K	9	TTS	222 Com.	CURTIS
	L	10	TTS	222 Com.	CURTIS

Bus. Law 2. Elementary Law of Business.—This course is offered exclusively for non-commerce students. *Prerequisite:* Junior standing. (3). 11 TWT; 222 Com. Associate Professor DILLAVOU.

Bus. Law 3. Law for Engineering Students.—*Prerequisite:* Junior standing in the College of Engineering.

3	A	8	MWF	101 Com.	ROBERTS
	F	2	MWF	101 Com.	ROBERTS

Courses for Advanced Undergraduates and Graduates

Bus. Law 10. Law of Security Relations and Banking.—*Prerequisite:* Senior standing and registration or credit in Bus. Law 1b.

3	B	9	MWF	222 Com.	DILLAVOU
	F	2	MWF	222 Com.	DILLAVOU

CERAMIC ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2 to $7.50.

Courses for Undergraduates

Cer.E. 4. Ceramic Materials.—*Prerequisite:* Cer. 1. (3). 1-4 MWF; 113 and 114 Cer.

Cer.E. 8. Glass Technology.—*Prerequisite:* Chem. 40 and Cer. 14. (2). Arrange.

Cer.E. 10. Cements.—*Prerequisite:* Chem. 40 and registration in Cer. 28. (2). 10 MW; 214 Cer.

Cer.E. 11. Drying Clay Products.—*Prerequisite:* Phys. 1a-1b, 3a-3b; Cer. 1. (3). 11 MWF; 218 Cer.

Cer.E. 14. Glasses and Glazes.—*Prerequisite:* Cer. 5 and registration in Chem. 40. (3). 11 TT; 218 Cer.; 8-11 TT; 113 and 114 Cer.

Cer.E. 20. Refractory Materials.—*Prerequisite:* Chem. 40. (2). 9 MW; 218 Cer.

Cer.E. 24. Ceramic Engineering Design.—*Prerequisite:* Cer. 23; T.A.M. 3. (3). 1-4 MWF; 212 Cer.

Cer.E. 28. Pyrochemical Problems.—*Prerequisite:* Cer. 14; Chem. 40. (2). 3 TT; 214 Cer.

Cer.E. 98. Thesis.—(3 to 5).* Arrange.

Courses for Graduates

Cer.E. 101. Chemistry of the Compounds of Silicon.—*Prerequisite:* Elementary courses in organic and physical chemistry. (¾ unit). Arrange.

Cer.E. 102. General Technology of the Clay Industries.—*Prerequisite:* The elements of mineralogy and of physical chemistry. Lectures; seminar; laboratory. (1 or 2 units).* Arrange.

Cer.E. 104. Technology of Glass.—Lectures and laboratory. (1 or 2 units).* Arrange.

Cer.E. 105. Methods of Ceramic Research.—Lectures. (1 unit). Arrange.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

CHEMISTRY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $18.

Students in the curricula of chemistry and chemical engineering, majors in chemistry, and all others who desire a thorough training in the fundamentals of chemistry and their applications to modern life, should select courses from the following, and usually in the sequence given: Chemistry 1 or 2, 6, 10, 24, 34a, 36b, 37b, 40, 41, 42, 43, 50a, and courses in the industrial, sanitary, and miscellaneous groups. Students in engineering should register for Chemistry 3 or 2, 4, 24. Students who are compelled to meet chemical requirements briefly may register for the following sequence: Chemistry 1 or 2, 5, 24, 32 or 33.

Students who find it impossible to take more than one semester's work are requested to register in Chemistry 1 or 2 in the second semester rather than in the first.

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, 6, 7, 93a, and inclusive of courses in qualitative, quantitative, and organic chemistry. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from not more than two of the following: bacteriology, botany, entomology, geology, mathematics, philosophy, physiology, physics, psychology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in Chemistry 1, 2, 3, 4, 5, 6, and 7.

Courses for Undergraduates

Chem. 7. General Chemistry.—Not open to students who have earned credit in high school chemistry. This course may be applied toward the science group requirements. After completing Chem. 7, a student is permitted to register in Chem. 2; or upon passing a proficiency examination in Chem. 2, he may register in Chem. 4, 5, or 6.

Credits	Section	Hours	Days	Room	Instructor
5[1]	Lect.	10	TT	112 Chem.A.	Reed
	70 Quiz	8	MWF	210 Chem.A.	
[1]Seniors will receive only 3 hours credit.	Lab.	1–4	Th	1 Chem.A.	
	71 Quiz	10	MWF	103, 163 Chem.	
	Lab.	1–4	Tu	1 Chem.A.	
	72 Quiz	1	MWF	210 Chem.A.	
	Lab.	2–5	W	1 Chem.A.	

Chem. 1. Inorganic Chemistry.—*Prerequisite:* One unit of entrance credit in physics, or 2½ units of entrance credit in mathematics, or registration in Math. 1a or 2 or 3. Students may register in either lecture section but are required to take the quiz and laboratory in some one section.

5[1]	A Lect.	11	TT	100 Chem.	Bailar
	B Lect.	9	TT	100 Chem.	Copley
[1]Students who have received entrance credit for high school chemistry are given only 3 hours credit for Chem. 1. Seniors will receive only 3 hours credit.	1 Quiz	8	TT	8 Chem.A., 301 Chem.	
	Lab.	8–10	MWF	212 Chem.A.	
	2 Quiz	10	TT	308 Chem.A., 300 Chem. 301, 303 Chem.	
	Lab.	10–12	MWF	1 Chem.A.	
	3 Quiz	11	MW	8 Chem.A.	
	Lab.	2–5	TT	101 Chem.A.	
	4 Quiz	1	TT	8, 9 Chem.A.	
	Lab.	1–3	MWF	101, 212 Chem.A.	
	5 Quiz	2	TT	9 Chem.A.	
	Lab.	10–12	MWF	212 Chem.A.	
	6 Quiz	9	MW	8, 9 Chem.A.	
	Lab.	3–5	MWF	212 Chem.A.	

Chem. 2. Inorganic Chemistry.—(For all students who have had one year of high school chemistry.) *Prerequisite:* One unit of entrance credit in chemistry. *Note:* Students whose preparation in chemistry is inadequate are advised to register for Chem. 1 or Chem. 3, rather than Chem. 2.

3[1]	C Lect.	11	W	112 Chem.A.	Copley
	D Lect.	9	W	112 Chem.A.	Bailar
[1]Seniors will receive only 2 hours credit in Chem. 2. Students below the rank of senior receive 5 hours credit, provided their high school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.	20 Quiz	3	MW	9 Chem.A.	
	Lab.	3–5	F	101 Chem.A.	
	21 Quiz	8	TT	303 Chem.	
	Lab.	8–10	S	212 Chem.A.	
	22 Quiz	11	TT	300, 301 Chem.	
	Lab.	10–12	F	212 Chem.A.	
	23 Quiz	1	WF	8, 9 Chem.A.	
	Lab.	10–12	Tu	212 Chem.A.	
	24 Quiz	2	TT	8 Chem.A.	
	Lab.	3–5	Tu	212 Chem.A.	
	25 Quiz	10	MW	8 Chem.A.	
	Lab.	10–12	Th	212 Chem.A.	
	26 Quiz	10	TT	111, 204 Chem.	
	Lab.	10–12	F	201 Chem.A.	
	27 Quiz	11	MF	301 Chem.	
	Lab.	3–5	W	1 Chem.A.	
	28 Quiz	11	TT	8 Chem.A.	
	Lab.	10–12	M	212 Chem.A.	
	29 Quiz	11	MF	303 Chem.	
	Lab.	1–3	W	1 Chem.A.	

Chem. 3. Inorganic Chemistry.—(For engineering students who have had no chemistry.) *Note:* Students who have credit for high school chemistry should register for Chem. 2.

Credits	Section	Hours	Days	Room	Instructor
4[1]	A Lect.	11	TT	100 Chem.	BAILAR
[1]Students who have used their high school chemistry for entrance credit are given only 3 hours credit for Chem. 3. Seniors will receive only 3 hours credit.	B Lect.	9	TT	100 Chem.	COPLEY
	80 Quiz	11	MW	9 Chem.A.	
	Lab.	1–3	MF	201 Chem.A.	
	81 Quiz	10	TT	210 Chem.A.	
	Lab.	3–5	MF	201 Chem.A.	

Chem. 4. Chemistry of the Metallic Elements.—(Limited to students in the engineering curricula.) *Prerequisite:* Chem. 1, 2, or 3.

4[1]	E Lect.	10	MF	100 Chem.	AUDRIETH
	F Lect.	11	MF	100 Chem.	STILLWELL
[1]Seniors will receive only 3 hours credit.	90 Quiz	8	MW	9 Chem.A.	
	Lab.	1–3	MF	1 Chem.A.	
	91 Quiz	9	MW	103 Chem.	
	Lab.	1–3	TT	1 Chem.A.	
	92 Quiz	10	TT	103, 163 Chem.	
	Lab.	8–10	TT	1 Chem.A.	
	93 Quiz	9	TT	9 Chem.A.	
	Lab.	1–3	TT	1 Chem.A.	
	94 Quiz	11	TT	303 Chem.	
	Lab.	8–10	MW	1 Chem.A.	
	95 Quiz	8	TT	201 Chem.	
	Lab.	10–12	TT	1 Chem.A.	
	96 Quiz	1	TT	308 Chem.A.	
	Lab.	8–10	TT	1 Chem.A.	
	97 Quiz	2	TT	210 Chem.A.	
	Lab.	8–10	MW	1 Chem.A.	
	98 Quiz	11	MW	103, 204 Chem.	
	Lab.	1–3	MF	1 Chem.A.	
	99 Quiz	8	MW	8 Chem.A., 300 Chem.	
	Lab.	3–5	MF	1 Chem.A.	

Chem. 5. Inorganic Chemistry and Qualitative Analysis.—(Limited to students in the agricultural, home economics, and pre-medical curricula.) *Prerequisite:* Chem. 1, 2, or 3.

5[1]	G Lect.	9	TT	112 Chem.A.	QUILL
	H Lect.	11	TT	112 Chem.A.	QUILL
[1]Seniors will receive only 3 hours credit.	50 Quiz	2	MW	301 Chem.	
	Lab.	3–5	TT	201 Chem.A.	
		9–11	S	201 Chem.A.	
	51 Quiz	3	TT	8, 210 Chem.A.	
	Lab.	3–5	MWF	201 Chem.A.	
	52 Quiz	2	MW	9 Chem.A.	
	Lab.	3–5	MWF	201 Chem.A.	
	53 Quiz	2	MW	201 Chem.	
	Lab.	10–12	MWF	201 Chem.A.	
	54 Quiz	11	TT	116 Chem.	
	Lab.	1–3	MWF	201 Chem.A.	
	55 Quiz	1	TT	201, 300 Chem.	
	Lab.	1–3	MWF	201 Chem.A.	
	56 Quiz	8	TT	204, 300 Chem.	
	Lab.	8–10	MWF	201 Chem.A.	
	57 Quiz	9	MW	201 Chem.	
	Lab.	10–12	MWF	201 Chem.A.	
	58 Quiz	9	WF	210 Chem.A.	
	Lab.	1–4	TT	201 Chem.A.	
[2]Sections 55h and 56h are for home economics students only.	[2]55h Quiz	1	TT	116 Chem.	
	Lab.	1–3	MWF	212 Chem.A.	
	[2]56h Quiz	8	TT	9 Chem.A., 103 Chem.	
	Lab.	8–10	MWF	201 Chem.A.	

Chem. 6. Inorganic Chemistry.—(General course for second-semester students.) *Prerequisite:* Chem. 1, 2, or 3.

5[1]	Lect.	10	TT	100 Chem.	HOPKINS
[1]Seniors will receive only 3 hours credit.	60 Quiz	10	MW	210 Chem.A.	
	Lab.	1–3	MWF	101 Chem.A.	
	61 Quiz	10	MW	9 Chem.A.	
	Lab.	2–5	TT	101 Chem.A.	
	Quiz	1	TT	210 Chem.A., 303 Chem.	
	Lab.	1–3	MWF	101 Chem.A.	
	62 Quiz	8	TT	210 Chem.A.	
[2]Sections 64 and 65 are for students in the curricula of chemistry and chemical engineering.	Lab.	8–10	MWF	101 Chem.A.	
	63 Quiz	11	TT	210, 9 Chem.A., 201 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	[2]64 Quiz	9	TT	210, 308 Chem.A.	
	[2]65 Lab.	8–10	MWF	101 Chem.A.	

Chem. 10. Qualitative Analysis.—(Required of students majoring in chemistry and of those registered in the curriculum of chemistry or of chemical engineering.) *Prerequisite:* Chem. 6.

Credits	Section	Hours	Days	Room	Instructor
5[1]	Lect.	8	F	112 Chem.A.	REEDY
[1]Students who already have credit for the laboratory work of qualitative analysis may, with the consent of the instructor, register for lecture and quiz only, and receive a credit of 2 hours.	1 Quiz	8	MW	111 Chem.	
	Lab.	1–4 8–11	TT S	310 Chem.A.	
	2 Quiz	8	MW	308 Chem.A., 161 Chem.	
	Lab.	1–4	MWF	310 Chem.A.	
	4 Quiz	8	MW	116 Chem.	

Such students must register in Section 4.

Chem. 22. Elementary Quantitative Analysis.—*Prerequisite:* Chem. 4 or 5 (for all students who have not followed the sequence Chem. 1, 2 or 3, 6 and 10).

5	Lect.	11	M	217 Chem.	CLARK
	A Quiz	11	WF	308 Chem.A.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	11	WF	111 Chem.	
	Lab.	1–4 8–11	MW S	301 Chem.A. 301 Chem.A.	

Chem. 24. Quantitative Analysis.—*Prerequisite:* Chem. 10.

5	Lect.	9	W	100 Chem.	ENGLIS
	A Quiz	9	MF	303, 111 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	9	MF	116, 204 Chem.	
	Lab.	1–4 8–11	TT S	301 Chem.A.	
	C Quiz	9	MF	308 Chem.A.	
	Lab.	8–11	TTS	301 Chem.A.	
	D Quiz	9	MF	301 Chem.	
	Lab.	1–5:30	TT	301 Chem.A.	

Chem. 32. Elementary Organic Chemistry.—(Especially for students in agriculture.) *Prerequisite:* Chem. 5 or 10.

3	Lect.	8	ThS	217 Chem.	FUSON and assistants
	Quiz	8	Tu	111, 162 Chem. 163 Chem.	
	Lab.	1–4	Tu	216 Chem.	

Chem. 33. Elementary Organic Chemistry.—(For students in home economics and pre-medical courses.) *Prerequisite:* Chem. 10 or 5.

5	Lect.	8	MW	100 Chem.	SHRINER
	Quiz	8	F	100, 111 Chem. 161, 163 Chem. 204, 300 Chem. 303, 301 Chem.	
Quiz section assignments will be made by the instructor after registration is complete.					
	A Conf.	8	Tu	100 Chem.	
	Lab.	9–11 8–11	Tu Th	250 Chem. 250 Chem.	
	B Conf.	1	Tu	100 Chem.	
	Lab.	2–4 1–4	Tu Th	250 Chem. 250 Chem.	
[1]Section C is limited to 20 premedic students.	[1]C Conf.	1	M	100 Chem.	
	Lab.	2–4 1–4	M W	250 Chem. 250 Chem.	

Chem. 90b. Thesis.—(*Note:* Beginning September 1932 senior research in chemistry and chemical engineering will be optional instead of required. Each student who desires research must receive special permission both from the instructor under whom he is to work and from the head of the division in which the research is to be taken. Such written permission should be presented, at the time of registration, to the adviser for the chemists or chemical engineers.) *Prerequisite:* Chem. 24, 34a, 40, 41, 42, and 43, or the consent of the head of the department. (3 to 5).* Professor ADAMS (in charge).

Chem. 91b. Elements of Glass-blowing.—*Prerequisite:* Two years work in chemistry. (1). Arrange. Mr. ANDERS.

Courses for Advanced Undergraduates and Graduates

Chem. 12b. Teachers' Course.—*Prerequisite:* 13 hours of chemistry and senior or graduate standing. Open to students who expect to teach. (3). No graduate credit to chemistry students. 8 WF; 217 Chem.; practice teaching to be arranged. Dr. PARR.

Chem. 27. Special Methods and Instruments in Quantitative Analysis.—*Prerequisite:* Chem. 24, 34a, and 40, 41 or registration in 40 and 41. (Limited to 20 students.)

3	Lect.	11	Tu	111 Chem.	SMITH
	A Lab.	1–4	TT	305 Chem.	
	B Lab.	1–4 8–11	F S	305 Chem. 305 Chem.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Chem. 36b. Organic Chemistry.—(Second course). *Prerequisite:* Chem. 34a. (3). 9 MWF; 217 Chem. Professor MARVEL.

Chem. 37b. Organic Chemistry.—(Laboratory). (Second course). To accompany Chem. 36b. *Prerequisite:* Chem. 34a, and 36b or registration in 36b.

Credits	Section	Hours	Days	Room	Instructor
2	A Conf.	1	W	217 Chem.	FUSON
	A Lab.	1–4	M	250 Chem.	
		2–4	W	250 Chem.	
	B Conf.	1	Th	217 Chem.	
(Section B is limited to 48 students.)	B Lab.	1–4	Tu	218 Chem.	
		2–4	Th	218 Chem.	

Chem. 40. Elementary Physical Chemistry.—*Prerequisite:* Chem. 24; Physics 1a-1b or 7a-7b; Math. 7 or 8. (3). 10 MWF; 112 Chem.A. Professor RODEBUSH.

Chem. 41. Elementary Physical Chemistry.—(Laboratory). To accompany Chem. 40.

1	A Lab.	1–4	Tu	124 Chem.	PHIPPS and assistants
	B Lab.	1–4	Th	124 Chem.	
	C Lab.	1–4	F	124 Chem.	

Chem. 42. Elementary Physical Chemistry.—*Prerequisite:* Chem. 40. (3). 8 TTS; 161 Chem. Associate Professor PHIPPS, Dr. COPLEY.

Chem. 43. Elementary Physical Chemistry.—(Laboratory). *Prerequisite:* Chem. 40, 41 and registration in 42.

1	A Lab.	1–4	M	124 Chem.	PHIPPS and assistants
	B Lab.	1–4	Tu	124 Chem.	
	C Lab.	1–4	W	124 Chem.	
	D Lab.	1–4	Th	124 Chem.	
	E Lab.	1–4	F	124 Chem.	

Chem. 44b. Advanced Physical Chemistry.—*Prerequisite:* Chem. 40, 41. (2). 10 TT; 161 Chem. Professor RODEBUSH.

Chem. 49b. Chemistry of Colloids.—*Prerequisite:* Chem. 24 and 40 or consent of the instructor. (3). 10 MWF; 161 Chem. Professor BUSWELL and Dr. SYMONS.

Chem. 51b. Problems of Metabolism.—*Prerequisite:* Chem. 50a.

3	Lect.	11	M	111 Chem.	CARTER and assistants
	Lab.	1–4	TT	450 Chem.	

Chem. 61b. Principles of Chemical Engineering.—*Prerequisite:* Chem. 42.

4	Lect.	9	MWF	161 Chem.	KRASE
	A Lab.	1–6	M	50 Chem.	KISTLER
	B Lab.	1–6	Tu	50 Chem.	KISTLER
	C Lab.	1–6	W	50 Chem.	KISTLER

Chem. 62b. Principles of Research and Development.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (2). Lect., 10 MW; 111 Chem. Professor KEYES.

Chem. 63b. Fuels and Their Combustion.—*Prerequisite:* Senior standing. (3). Lect. 11 MWF; 161 Chem. Mr. HOWARD.

Chem. 64b. High Pressure Reactions.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (2). Lectures to be arranged. Associate Professor KRASE.

Chem. 65b. Industrial Calculations.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (3). Lect., 11 MWF; 163 Chem. Assistant Professor KISTLER.

Chem. 74b. Metallurgy and Metallography.—*Prerequisite:* Chem. 24.

3	Lect.	11	TT	161 Chem.	HOWARD
	A Lab.	1–6	W	53 Chem.	
	B Lab.	1–6	Th	53 Chem.	

Chem. 92b. Chemical Literature and Reference Work.—(Required of juniors in chemistry; advised for juniors who are majoring in chemistry and for students in the curriculum of chemical engineering.) *Prerequisite:* 18 hours of chemistry; one year of French or German; junior standing.

1	A	10	Th	201 Chem.	BARTOW
[1]Section C is for students who have not had previous work in this field.	B	8	F	201 Chem.	
	[1]C	10	Tu	201 Chem.	

Chem. 97b. Food Analysis.—*Prerequisite:* Chem. 24 and 33 or 34a.

5	Lect.	9	TT	201 Chem.	ENGLIS
	Quiz	1	M	301 Chem.	
	Lab.	2–4	M	305 Chem.A.	
		1–4	WF	305 Chem.A.	

Courses for Graduates

Graduate students whose major subject is in some department other than chemistry must have had the equivalent of 15 university credits in chemistry, and the ground covered should include satisfactory work in general chemistry and in qualitative and quantitative analysis and elementary organic chemistry. Such students are advised to make selections from the following courses: Chemistry 40, 41, 42, 43, 27, 34a, 36b and 37b, 50a, 15a, and 97b. Courses of a more special nature will not as a rule

be accepted for graduate work unless preceded by one of the courses above. Graduate students who are candidates for an advanced degree in chemistry must have had the equivalent of 25 university credits in chemistry, properly distributed.

Graduate students whose major subject is in some department other than chemistry and who intend to take a first minor in chemistry or any branch of chemistry toward the Ph.D. degree must include among the courses taken Chemistry 40 and 41, or must have had the equivalent.

Graduate students who are candidates for the A.M. or M.S. degree in chemistry must include in the courses taken Chemistry 40 and 41, or must have had the equivalent. Graduate students who are candidates for the Ph.D. degree in any branch of chemistry must include among their courses Chemistry 40, 41, 42, and 43, or must have had the equivalent. Those courses (with the exception of Chemistry 12b) listed under the heading "Advanced Undergraduate and Graduate Courses" may be all counted toward advanced degrees in chemistry.

Chem. 101b. Inorganic Chemistry.—The less familiar elements and their relationship in the periodic system. (½ unit). (For laboratory work see Chem. 102b.) Twice a week. 8 MW; 303 Chem. Professor HOPKINS.

Chem. 102b. Inorganic Chemistry.—Inorganic preparations and qualitative analysis of the less familiar elements. (Laboratory work to accompany or follow Chem. 101b.) Arrange. (¼ to ¾ unit).* Professor HOPKINS.

Chem. 105b. Inorganic Seminar and Special Topics.—(¼ to 1 unit).* Once, twice, or three times per week. Seminar, 11 S; 162 Chem. Special topic: The influence of atomic radii and atomic volumes on chemical properties (Dr. QUILL). 9 MW; 105 Chem.A. Professor HOPKINS.

Chem. 124b. Quantitative Analysis.—A modern survey of advanced principles, calculations, experimental methods and applications. Lectures with or without laboratory. Twice a week. (½ to 1¼ units).* 11 MF; 116 Chem. Associate Professor REEDY, Assistant Professor SMITH.

Chem. 125b. Analytical Chemistry.—(Seminar). (Required of all students taking a major or minor in analytical chemistry.) Once a week. (¼ to 1 unit).* 9 S; 217 Chem. Additional meetings arrange. Professor CLARK.

Chem. 127b. Modern Application of X-rays to Chemical and Industrial Problems.—(½ to 1 unit).* Twice a week. 10 TT; 217 Chem. Laboratory, arrange; 308 Chem. Professor CLARK.

Chem. 133b. Organic Chemistry.—(¾ unit). Twice a week. 11 TT; 217 Chem. Professor ADAMS.

Chem. 134. Organic Chemistry.—Chiefly laboratory work. (½ to 1 unit).* Arrange. 219 Chem. Professor MARVEL.

Chem. 135b. Organic Chemistry.—(Seminar). (¼ unit). Once a week. 10 W; 217 Chem. Professor ADAMS.

Chem. 145b. Physical Chemistry.—(Seminar). (¾ unit). Twice a week. 10-12 S; 176 Chem. Professor RODEBUSH.

Chem. 150b. Physiological Chemistry.—(¾ unit). Twice a week. 9 TT; 111 Chem. Professor ROSE.

Chem. 152b. Physiological Chemistry.—(½ to 1 unit).* Chiefly laboratory. Arrange. 463 Chem. Professor ROSE.

Chem. 155b. Physiological Chemistry.—(Seminar). Required of all students majoring in physiological chemistry. (¾ unit). Two hours a week. 9-11 F; 456 Chem. Professor ROSE.

Chem. 160b. Chemical Engineering.—*Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 1 MW; 162 Chem. Professor KEYES.

Chem. 161b. Chemical Plant Design.—*Prerequisite:* Chem. 61a and 61b. (½ unit). Twice a week. 9 TT; 162 Chem. Associate Professor KRASE.

Chem. 186b. Sanitary Chemistry.—(½ to 1¼ units).* Arrange. One to five times a week. 60b Chem. Professor BUSWELL.

Chem. 190b. Research.—Work may be taken in the following subjects:

Physical and Electrochemistry.—Professor RODEBUSH, Associate Professor PHIPPS, Dr. COPLEY.

Inorganic Chemistry.—Professor HOPKINS, Associate Professor REEDY, Dr. BAILAR, Dr. AUDRIETH, Dr. QUILL, Dr. STILLWELL, Dr. COPLEY.

Analytical Chemistry.—Professor CLARK, Associate Professor REEDY, Assistant Professors ENGLIS, SMITH.

Food and Phyto-Chemistry.—Assistant Professor ENGLIS.

Applied X-rays.—Professor CLARK.

Organic Chemistry.—Professors NOYES, ADAMS, MARVEL, FUSON; Associate Professor SHRINER, Dr. BAILAR.

Sanitary Chemistry.—Professor BUSWELL.

Physiological Chemistry.—Professor ROSE.

Industrial Chemistry.—Professor KEYES, Associate Professor KRASE, Assistant Professor KISTLER.

Ceramic Chemistry.—Professor PARMELEE.

Zymochemistry.—Professor BUSWELL.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

CIVIL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $2.50.

Courses for Undergraduates

C.E. 1. Plane Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

Credits	Section	Hours	Days	Room	Instructor
3	E	8–10	MWF	C.E.S.B.	

C.E. 2. Topographic Surveying.—*Prerequisite:* C.E.1.

3	E	1–3	TT		
		1–5	W	C.E.S.B.	
	F	1–3	TT		
		1–5	W	C.E.S.B.	
	G	8–10	MF		
		8–12	W	C.E.S.B.	

C.E. 3. Railway and Highway Surveying.—*Prerequisite:* C.E. 2, 15, or 18.

4	E	10	TT	205 E.H.	
		1–4	MF	419 E.H.	
	F	11	TT	205 E.H.	
		1–4	MF	419 E.H.	
	G	9	TT	205 E.H.	
		9–12	MF	419 E.H.	

C.E. 15. General Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

3	E	8–11	MF	C.E.S.B.	
	F	1–4	MF	C.E.S.B.	
	G	8–11	TT	C.E.S.B.	
	H	1–4	TT	C.E.S.B.	

C.E. 16. Elementary Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

2	E	1–3	TT	C.E.S.B.	

C.E. 18. Surveying for Landscape Architects.—*Prerequisite:* C.E. 17.

3	E	1–3	MWF	C.E.S.B.	

C.E. 19. Construction Surveying.—*Prerequisite:* C.E. 3, Math. 7.

3	E	Time to be arranged.			

C.E. 20. Highway Construction.—*Prerequisite:* C.E. 1.

2	E	9	TT	101 E.H.	
	F	11	TT	112 M.T.L.	
	G	8	TT	102 E.H.	

C.E. 21. Highway Construction.—*Prerequisite:* C.E. 20.

2	E	9	TT	112 M.T.L.	
	F	11	TT	102 E.H.	

C.E. 23. Highway Administration.—*Prerequisite:* C.E. 21 or 28a.

3	E	10	MWF	102 E.H.	

C.E. 28a. Highway Location and Construction.—*Prerequisite:* Junior standing. (Not open to Civil Engineers.)

3	E	8	MWF	102 E.H.	

C.E. 29. Municipal Transportation.—*Prerequisite:* C.E. 21 or 28a.

3	E	8	MWF	101 E.H.	

C.E. 30a. Highway Materials Laboratory—*Prerequisite:* C.E. 20 or 28a.

1	E	1–4	Th	201 M.T.L.	

C.E. 31a. Advanced Highway Materials.—*Prerequisite:* C.E. 30a, 35.

2	E	10	Tu	102 E.H.	
		1–4	Th	207 M.T.L.	

C.E. 35. Plain Concrete.—*Prerequisite:* Sophomore standing in engineering or architecture.

2	E	11	F	112 M.T.L.	
		1–4	M	4, 112 M.T.L.	
	F	10	W	112 M.T.L.	
		1–4	F	4, 112 M.T.L.	
	G	11	F	201 M.T.L.	
		9–12	Tu	4, 201 M.T.L.	
	H	8	M	112 M.T.L.	
		8–11	F	4, 112 M.T.L.	
	EE	11	M	112 M.T.L.	
		1–4	Th	4, 112 M.T.L.	

C.E. 41a. Sewerage.—*Prerequisite:* C.E. 40a.

Credits	Section	Hours	Days	Room	Instructor
3	E	9	TT	208 E.H.	
		1–4	Tu	211 E.H.	
	F	10	TT	109 E.H.	
		1–4	Tu	309 E.H.	
	G	11	TT	208 E.H.	
		1–4	Tu	214 E.H.	

C.E. 42a. Water Purification.—*Prerequisite:* Registration or credit in C.E. 40a, Chem. 22 or 24 and 86, and Bact. 5a.

3	E	10	Tu	208 E.H.	
		2–5	Th	214 E.H.	

C.E. 43. Sewage Treatment.—*Prerequisite:* Registration or credit in C.E. 41a and 42a.

3	E	9–11	MWF	208 E.H.	

C.E. 51. Drainage and Flood Control.—*Prerequisite:* C.E. 50.

3	E	8	MWF	208 E.H.	

C.E. 55a. Water Power.—*Prerequisite:* T.A.M. 4 and 64.

3	E	11	MWF	208 E.H.	

C.E. 60a. Bridge and Building Construction.—*Prerequisite:* Sophomore standing in engineering or architecture.

3	E	10	MWF	101 E.H.	

C.E. 61a. Structural Stresses.—*Prerequisite:* Registration or credit in T.A.M. 3.

4	E	10	MWF	400 E.H.	
		1–4	Tu	419 E.H.	

C.E. 62. Elementary Structural Design.—*Prerequisite:* Registration or credit in C.E. 61a.

3	E	8–10	MWF	405, 419 E.H.	
	F	8–10	MWF	407 E.H.	
	G	1–3	MWF	407 E.H.	

C.E. 63. Theory of Reinforced Concrete.—*Prerequisite:* T.A.M. 3 and registration or credit in C.E. 61a.

2	E	9	TT	405 E.H.	
	F	10	TT	405 E.H.	
	G	8	TT	101 E.H.	

C.E. 65. Structural Design.—*Prerequisite:* C.E. 64a.

5	E	8	TT	405 E.H.	
		1–4	MWF	211 E.H.	
	F	8	TT	407 E.H.	
		1–4	MWF	309 E.H.	
	G	8	TT	400 E.H.	
		1–4	MWF	214 E.H.	

C.E. 66. Masonry Construction.—*Prerequisite:* C.E. 61a, 63a.

3	E	8	MWF	205 E.H.	
	F	9	MWF	205 E.H.	

C.E. 68. Indeterminate Structures.—*Prerequisite:* C.E. 67.

3	E	10	MWF	205 E.H.	
	F	11	MWF	205 E.H.	

C.E. 87a. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 86.

4	E	10	MW	408 E.H.	
		8–10	MWF		

C.E. 88a. Mine Structures.—*Prerequisite:* Registration or credit in T.A.M. 3.

2	E	8–10	WF	407 E.H.	

C.E. 90. Contracts and Specifications.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	10	TT	101 E.H.	
	F	11	TT	101 E.H.	

C.E. 91. Estimates and Costs.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	11	MW	405 E.H.	

C.E. 98. Thesis.—*Prerequisite:* High standing and approval of head of the department. Arrange.

Courses for Graduates

C.E. 102. Sewerage.—(1 unit). 8 TuF; 204 E.H. Professor Babbitt.

C.E. 104. Municipal Engineering.—(1 unit). 10 MW; 308 E.H. Professor Crandell.

C.E. 108. Bridge Design.—(1 unit). 4 MF; 205 E.H. Professor Cross.

C.E. 110. Sewage and Waste Disposal.—(1 unit). 8 MTh; 204 E.H. Professor Babbitt.

C.E. 112. Masonry Construction.—(1 unit). 11 MF; 304 E.H. Professor HUNTINGTON.

C.E. 125. Design of Industrial Structures.—(1 unit). 10-12 Tu; 103 E.H. Dean KETCHUM.

C.E. 131. Water Power.—(1 unit). 9 TT; 304 E.H. Associate Professor DOLAND.

C.E. 140. Research.—(½ to 2 units).* Arrange.

C.E. 198. Thesis.—(1 to 2½ units).* Arrange.

CLASSICS

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, and 17.

Minors: 20 hours chosen from not more than two of the following: Foreign language (Latin being especially recommended), English literature, history, and philosophy. At least eight hours must be taken in each subject, if two are chosen.

Latin

Major: 20 hours, excluding Latin 11a-11b, 6, 1a-1b, 13, and 20, and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours chosen from not more than two of the following: Foreign language (Greek being especially recommended), English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17 and Latin 11a-11b, 6, 1a-1b, 9, 13, 20. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours chosen from not more than two of the following: Foreign language, English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

GREEK

Courses for Undergraduates

Greek 1b. Elementary Greek (continuation of 1a).—(4). 8 TWTF; 114 L.H. Dr. MYLONAS.

Greek 4. Homer.—Selections from the **Iliad.** *Prerequisite:* Greek 3 or an equivalent. (3). 11 MWF; 114 L.H. Mr. DUNKIN.

Greek 17. Greek Drama in English Translation.—*Prerequisite:* Presupposes no knowledge of Greek and is open to all students except freshmen. (2). 11 TT; 120 L.H. Associate Professor PERRY.

Course for Advanced Undergraduates and Graduates

Greek 7. Greek Drama: Tragedy and Comedy.—*Prerequisite:* Greek 4 and 5. (3). 8 TTS; 120 L.H. Associate Professor PERRY.

Courses for Graduates

Note: Preparation for graduate work in Greek must include at least two years of preparatory Greek, two years of college Greek, and two years of college Latin.

Greek 105b. Plato (Republic).—(1 unit). Twice a week. Arrange. Professor OLDFATHER.

Greek 110b.—See Latin 110b.

LATIN

Courses for Undergraduates

Latin 1b. Vergil.—*Prerequisite:* Three entrance units in Latin, or Latin 6. (4). 1 TWTF; 114 L.H. Mr. RAPP.

Latin 12b. Sallust and Cicero (De Senectute).—*Prerequisite:* Four entrance units in Latin, or Latin 1a-1b. (4). 9 TWTF; 120 L.H. Associate Professor PERRY.

Latin 4. Horace (Satires) and Vergil (Eclogues and Georgics).—*Prerequisite:* Latin 12a-12b or an equivalent. (3). 10 MWF; 120 L.H. Mr. RAPP.

Latin 5b. Latin Composition.—*Prerequisite:* Three entrance units in Latin, or Latin 6. (Required of students who desire the department's recommendation to teach). (1). 4 Th; 120 L.H. Professor CANTER.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Latin 9. **Teachers' Course.**—*Prerequisite:* 14 hours of Latin acceptable for a major. (Required of students who desire the department's recommendation to teach). (2). 11 TT; 114 L.H. Professor CANTER.

Courses in Roman Life and History: Roman Archaeology

Latin 13. **Roman Life.**—*Prerequisite:* Sophomore standing. Knowledge of Latin not required. (1). 3 Th; 202 L.H. Dr. MYLONAS.

Roman History.—See History 56, Professor OLDFATHER; and History 57b, Associate Professor SWAIN.

Courses for Advanced Undergraduates and Graduates

Latin 24. **Ovid (Elegy) and Seneca (Epistles and Tragedies).**—*Prerequisite:* 12 hours of Latin acceptable for a major. (3). 2 MWF; 120 L.H. Professor CANTER.

Latin 10. **Latin Composition.**—*Prerequisite:* 12 hours of Latin acceptable for a major, including Latin 5a-5b or an equivalent. Required to secure the department's recommendation to teach. (2). 10 TT; 120 L.H. Associate Professor PERRY.

Latin 18. **Roman Archaeology.**—(2). 2 TT; 120 L.H. Dr. MYLONAS.

Latin 30b. **Honors Course.**—Thesis or a special course of study approved by the department. *Prerequisite:* Senior standing; 14 hours of Latin acceptable for a major. (2). Time to be arranged. Professor CANTER.

Courses for Graduates

Note: Students desiring to take graduate work in Latin should have had at least three years of college Latin in addition to the Latin prescribed to meet entrance requirements.

Latin 101. **Epigram.**—(1 unit). 4-6 Tu; 120 L.H. Professor CANTER.

Latin 110b. **Bibliography and Criticism.**—(Same as Greek 110b). (1 unit). Arrange. 114 Lib. Professor OLDFATHER.

Latin 114. **Caesar.**—(1 unit). Arrange. Professor OLDFATHER.

DAIRY HUSBANDRY

Note: Certain courses in this department require laboratory fees varying from $2 to $4.

Courses for Undergraduates

D.H. 2. **Dairy Cattle.**—*Prerequisite:* D.H. 24a; An. Husb. 21.

Credits	Section	Hours	Days	Room	Instructor
5		8	MWF	127 New Agr.	YAPP
		8–10	TT	S.P.	NEVENS

D.H. 6b. **Dairy Products Plant Operations.**—*Prerequisite:* D.H. 1, 11, 12, or registration therein. (3). Arrange. D.Mfrs. Associate Professor TRACY, Mr. TUCKEY.

D.H. 9. **Dairy Products Judging.**—*Prerequisite:* D.H. 24b. (2). 4 TT; D.Mfrs. Associate Professor TRACY, Mr. TUCKEY. Inspection trip waived, 1932-33.

D.H. 11. **General Dairy Bacteriology.**—*Prerequisite:* Sophomore standing. (2). 11 TT; 553 Agr. Professor PRUCHA.

D.H. 12. **General Dairy Bacteriology.**—*Prerequisite:* D.H. 11 or registration therein. (2). 3-5 TT; 455 Agr. Professor PRUCHA, Assistant Professor BRANNON.

D.H. 23b-k. **Investigation with Thesis.**—(Continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem and approval of the head of the department. (5). Arrange.

(b) **Dairy Bacteriology.**—Professor PRUCHA, Assistant Professor BRANNON.
(d) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(f) **Dairy Farming and Economic Milk Production.**—Professor FRASER.
(h) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.
(k) **Dairy Production.**—Professors GAINES, YAPP, Associate Professor NEVENS.

D.H. 24a. **Elementary Dairy Production.**—*Note:* Juniors and seniors allowed only 2 hours credit.

3	Lect.	9	M	127 New Agr.	NEVENS
	Lab.	8–10	W	S.P.	
	Quiz	9	F	127 New Agr. 206 Agr.	KUHLMAN

D.H. 24b. **Elementary Testing and Manufacture of Dairy Products.**—*Prerequisite:* Credit or registration in Chemistry 1 or 2. *Note:* Juniors and seniors allowed only 2 hours credit. (3). 3-5 MW (Lect., Quiz, Lab.); D.Mfrs. Mr. TUCKEY.

Courses for Advanced Undergraduates and Graduates

D.H. 5. **Composition of Dairy Products.**—*Prerequisite:* Junior standing, including Chem. 32. (3). 10-12 MWF; 502 Agr. Assistant Professor OVERMAN.

D.H. 7. Creamery Buttermaking and Factory Management.—*Prerequisite:* D.H. 24b or its equivalent and junior standing. (5). Lect. 1 MF; Lab. 1-3 TT, 2-6 F; D.Mfrs. Professor RUEHE, Mr. TUCKEY. Inspection trip waived, 1932-33.

D.H. 8. Fluid Milk Plant Operations.—*Prerequisite:* D.H. 24b or its equivalent and junior standing. (3). 9 M, 8-10 WF; D.Mfrs. Associate Professor TRACY, Mr. RAMSEY. Inspection trip waived, 1932-33.

D.H. 14. Milk Condensing.—*Prerequisite:* D.H. 24b or its equivalent and junior standing. (3). Lect. 9 TT; Lab. 1-5 W; D.Mfrs. Associate Professor TRACY, Mr. RAMSEY. Inspection trip waived, 1932-33.

D.H. 21. Systems of Dairy Farming.—*Prerequisite:* Junior standing. (3). 11 MWF; 302 Agr. Accompanied by a three-day inspection trip costing about $12. Professor FRASER.

D.H. 26. Marketing Dairy Products.—See Agricultural Economics 34.

Courses for Graduates

D.H. 101. Economic Milk Production.—(½ to 2 units).* Twice a week. Arrange. Professor FRASER.

D.H. 104. Dairy Bacteriology.—(½ to 1 unit).* Arrange. Professor PRUCHA.

D.H. 105. Dairy Manufactures.—(½ to 2 units).* Arrange. Professor RUEHE, Associate Professor TRACY.

D.H. 106. Dairy Bacteriology.—(½ to 2 units).* Arrange. Professor PRUCHA.

D.H. 107. Dairy Chemistry.—(½ to 2 units).* Arrange. Assistant Professor OVERMAN.

D.H. 108. Physiology of Lactation.—(½ to 2 units).* Once a week. Arrange. Professor GAINES.

D.H. 112a-f. Research.—(1 to 4 units).* Arrange. *Note:* Graduate students writing a thesis should so indicate when registering in Dairy Husbandry 112.

(a) **Dairy Bacteriology.**—Professor PRUCHA.
(b) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(c) **Dairy Cattle Breeding.**—Professor YAPP.
(d) **Dairy Cattle Feeding.**—Associate Professor NEVENS.
(e) **Milk Production.**—Professor GAINES.
(f) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.

D.H. 113. Seminar.—(½ unit). Once a week. Both semesters. Current literature in dairy bacteriology, dairy chemistry and dairy manufactures. Members of the graduate staff.

D.H. 114. Seminar.—(½ unit). Once a week. Both semesters. Current literature in biology of milk production. Professor GAINES.

DRAWING

(See General Engineering Drawing.)

ECONOMICS

(See also Business Organization and Operation, Public Utilities and Transportation, and Agricultural Economics.)

Major: For students in the College of Liberal Arts and Sciences, 20 hours made up of Economics 1 and other courses in economics for which it is a prerequisite. The courses in Public Utilities and Transportation will be accepted by the Department of Economics as courses in satisfaction of the major.

Minors: 20 hours in any one or two of the following subjects: geography, history, philosophy, political science, and sociology.

Note: Economics 22 and 27 are open only to freshmen, without previous requirements.

Economics 1 is the fundamental course in economics. It is a prerequisite for most of the advanced courses, and students expecting to do advanced work in economics should take it in their sophomore year.

Courses for Undergraduates

Econ. 1. Principles of Economics.—*Prerequisite:* 30 hours of university work.

Credits	Section	Hours	Days	Room	Instructor
5	Lect.	9	TT	114 Com.	BEHLING
	A Quiz	8	MWF	306 Com.	BRAINARD
	B1 Quiz	9	MWF	106 Com.	HOOVER
	B2 Quiz	9	MWF	312 Com.	ALYEA
	B3 Quiz	9	MWF	326 Com.	BEHLING
	B4 Quiz	9	MWF	306 Com.	BRAINARD
	C1 Quiz	10	MWF	312 Com.	ALYEA
	C2 Quiz	10	MWF	106 Com.	HOOVER

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Econ. 2. Elements of Economics.—*Prerequisite:* 30 hours of university work.

Credits	Section	Hours	Days	Room	Instructor
3	C1 Quiz	10	MWF	307 Com.	Lounsbury
	C2 Quiz	10	MWF	224 Com.	Bruce
	C3 Quiz	10	MWF	306 Com.	Curtis
	C4 Quiz	10	MWF	329 Com.	Sanford
	E1 Quiz	1	MWF	307 Com.	Lounsbury
	E2 Quiz	1	MWF	322 Com.	Curtis
	F Quiz	2	MWF	224 Com.	Bruce

Econ. 3. Money, Credit, and Banking.—*Prerequisite:* Econ. 1 or 2.

3	[1]Lect. I	8	W	114 Com.	Lee
	A1 Quiz	8	MF	329 Com.	Sanford
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II.	A2 Quiz	8	MF	312 Com.	Alyea
	A3 Quiz	8	MF	307 Com.	Fitzgerald
	A4 Quiz	8	MF	106 Com.	Long
	A5 Quiz	8	MF	123 Com.	Stalnaker
	B1 Quiz	9	MF	329 Com.	Sanford
	K1 Quiz	9	TT	307 Com.	Fitzgerald
	O1 Quiz	2	TT	106 Com.	Long
	O2 Quiz	2	TT	312 Com.	Alyea
	[1]Lect. II	8	Th	114 Com.	Lee
	J1 Quiz	8	TuS	306 Com.	Alyea
	J2 Quiz	8	TuS	307 Com.	Fitzgerald
	J3 Quiz	8	TuS	305 Com.	Sanford
	J4 Quiz	8	TuS	223 Com.	Stalnaker
	K2 Quiz	9	TuS	223 Com.	Stalnaker
	B2 Quiz	9	MF	305 Com.	Lee
	D Quiz	11	WF	106 Com.	Long
	G Quiz	3	MW	305 Com.	Sanford

Econ. 27. Modern Industry.—Open to freshmen only.

3	[1]Lect. I	1	M	114 Com.	Hunter
	E1 Quiz	1	WF	106 Com.	Gay
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II, etc.	E2 Quiz	1	WF	306 Com.	Heckman
	E3 Quiz	1	WF	123 Com.	Tandy
	E4 Quiz	1	WF	126 Com.	Allen
	E5 Quiz	1	WF	310 Com.	Cover
	N Quiz	1	TT	310 Com.	Cover
	K Quiz	9	TT	111 Com.	Hoover
	[1]Lect. II	2	M	114 Com.	Hunter
	F1 Quiz	2	WF	126 Com.	Allen
	F2 Quiz	2	WF	111 Com.	Hoover
	F3 Quiz	2	WF	123 Com.	Tandy
	F4 Quiz	2	WF	106 Com.	Gay
	F5 Quiz	2	WF	310 Com.	Cover
	O Quiz	2	TT	310 Com.	Cover
	[1]Lect. III	8	S	114 Com.	Hunter
	J1 Quiz	8	TT	123 Com.	Tandy
	J2 Quiz	8	TT	106 Com.	Gay
	J3 Quiz	8	TT	111 Com.	Hoover
	J4 Quiz	8	TT	224 Com.	Heckman
	J5 Quiz	8	TT	126 Com.	Allen

Courses for Advanced Undergraduates and Graduates

Econ. 8. Foreign Exchange and the Money Market.—*Prerequisite:* Econ. 1 and 3; senior standing.

3	Lect.	8	W	215 Com.	Wright
	A1 Quiz	8	MF	322 Com.	Wright
	A2 Quiz	8	MF	305 Com.	Lounsbury
	J Quiz	8	TT	322 Com.	Wright
	K Quiz	9	TT	322 Com.	Wright

Econ. 10. Corporation Finance and Management.—*Prerequisite:* Econ. 1 and 3; Accy. 1a and 1b.

3	B Quiz	9	MWF	111 Com.	Van Arsdell
	C1 Quiz	10	MWF	111 Com.	Van Arsdell
	C2 Quiz	10	MWF	326 Com.	Behling
	C3 Quiz	10	MWF	325 Com.	Brown
	D1 Quiz	11	MWF	108 Com.	Brown
	D2 Quiz	11	MWF	111 Com.	Van Arsdell
	D3 Quiz	11	MWF	125 Com.	Green
	D4 Quiz	11	MWF	326 Com.	Behling
	D5 Quiz	11	MWF	126 Com.	Gray
	D6 Quiz	11	MWF	115 Com.	Winakor
	K Quiz	9	TTS	106 Com.	Van Arsdell
	L Quiz	10	TTS	125 Com.	Gray
	M Quiz	11	TTS	125 Com.	Green

Econ. 14. Cooperation in Agriculture.—See Agricultural Economics 14.

Econ. 15. Financing Agriculture.—See Agricultural Economics 15.

Econ. 18. Land Economics.—See Agricultural Economics 18.

Econ. 23. Economic Problems.—*Prerequisite:* Econ. 1 or 2; junior standing. Not open to commerce students or L.A.S. students majoring in economics. (3). 10 MWF; 305 Com. Professor LEE.

Econ. 24. Economic Development of Modern Europe.—*Prerequisite:* Econ. 1 or 2; junior standing.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	9	F	215 Com.	BOGART
	B Quiz	9	MW	125 Com.	BOGART
	K Quiz	9	TT	125 Com.	BOGART

Econ. 29. Foreign Commerce and Commercial Policies.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 9 MWF; 322 Com. Professor LITMAN.

Econ. 30. World Markets.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	10	W	215 Com.	LITMAN
	C Quiz	10	MF	322 Com.	LITMAN
	L Quiz	10	TT	322 Com.	LITMAN

Econ. 36. Investments.—*Prerequisite:* Econ. 10; senior standing.

3	Lect.	9	W	114 Com.	ROBINSON
	K Quiz	9	ThS	325 Com.	ROBINSON
	B1 Quiz	9	MF	325 Com.	ROBINSON
	B2 Quiz	9	MF	108 Com.	BROWN
	L Quiz	10	TT	108 Com.	BROWN
	D Quiz	11	MF	322 Com.	ROBINSON

Econ. 42. Trade Unionism.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 1 MWF; 312 Com. Dr. HELBING.

Econ. 43. Personnel Administration.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	2	F	114 Com.	HELBING
	F1 Quiz	2	MW	312 Com.	HELBING
	F2 Quiz	2	MW	306 Com.	HECKMAN
	J Quiz	8	TT	312 Com.	HELBING
	L Quiz	10	TT	306 Com.	HECKMAN

Econ. 52. Modern Problems of Taxation.—*Prerequisite:* Econ. 51. (3). 10 MWF; 100 Com. Professor HUNTER.

Econ. 56. Property Insurance.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	8	F	215 Com.	DICKINSON
	A Quiz	8	MW	325 Com.	DICKINSON
	J Quiz	8	TT	325 Com.	DICKINSON

Econ. 61. Economic Theory.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	C Quiz	10	MWF	113 Com.	WASSERMAN
	D Quiz	11	MWF	113 Com.	WASSERMAN

Econ. 72. Economic Statistics.—*Prerequisite:* Econ. 71 or the permission of the instructor. (3). 10 TT; 325 Com. Practice 3-5 M; 317 Com. Assistant Professor DICKINSON.

Econ. 83. Public Utility Rates.—See Public Utilities 83.

Econ. 90. Thesis.—Primarily for candidates for honors. *Prerequisite:* Major in economics; senior standing. (2 to 4).* Time to be arranged. Assistant Professor WASSERMAN.

Courses for Graduates

Econ. 101. Economic Theory.—(1 unit). 3 MW; 125 Com. Professor WESTON.

Econ. 102. Theory and History of Money, Credit, and Prices.—(1 unit). Time to be arranged. Assistant Professor WASSERMAN.

Econ. 103. The Distribution of Wealth.—(1 unit). 11 TT; 212 Com. Professor WESTON.

Econ. 104b. Organization of International Trade.—(1 unit).* 3 TT; 212 Com. Professor LITMAN.

Econ. 105. Public Finance.—(1 unit). 4-6 Tu; 212 Com. Professor HUNTER.

Econ. 106. International Exchange and the Money Markets.—(1 unit). Time to be arranged. Professor WRIGHT.

Econ. 107. The Corporation in Economic Evolution.—(1 unit). Time to be arranged. Assistant Professor BROWN.

Econ. 110b. Finance and Investments.—(1 unit). 4-6 F; 212 Com. Professor ROBINSON.

Econ. 120. History of Economic Thought.—(1 unit). 9 TT; 212 Com. Professor WESTON.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Econ. 123. Industrial and Financial Organization of Society.—(1 unit). 4-6 W; 209 Com. Professor LEE.

Econ. 124. International Finance.—(1 unit). 4-6 Tu; 209 Com. Professor BOGART.

Econ. 130. Theory of Agricultural Economics.—See Agricultural Economics 110.

Econ. 131. Agricultural Resources and Prices.—See Agricultural Economics 111.

Econ. 132. Agricultural Economics Research.—See Agricultural Economics 112.

Econ. 143. Administration of Industrial Relations.—(1 unit). Time to be arranged. Dr. HELBING.

Econ. 144. Statistical Theory and Analysis.—(1 unit). Time to be arranged. Assistant Professor DICKINSON.

Econ. 180. Management of Public Utilities.—See Public Utilities 180.

Econ. 118. Seminar.—Thesis Course. (All graduate students writing theses in economics register in Econ. 118; registration for others is optional). (1 to 4 units).* 4-6 Th (alternate weeks); 420 Com.

(a) **Third Year Seminar.**—Professor WESTON.
(b) **First Year: General Economics.**—Assistant Professor BROWN.
(c) **First Year: Public Utilities.**—Assistant Professor GRAY.

EDUCATION

A. GENERAL EDUCATION

Introductory Courses

Ed. 2. History of Education.—*Prerequisite:* Junior standing.

Credits	Section	Hours	Days	Room	Instructor
3	B	9	MWF	303 Adm.(E)	SEYBOLT
	C	10	MWF	303 Adm.(E)	SEYBOLT

Ed. 5. Comparative Education.—*Prerequisite:* Junior standing.

3	E	1	MWF	204 Adm.(E)	JOHNSTON
	F	2	MWF	204 Adm.(E)	JOHNSTON
	L	10	TTS	204 Adm.(E)	JOHNSTON

Ed. 6. Principles of Secondary Education.—*Prerequisite:* Ed. 10 and 25.

3	J	8	TTS	308 Adm.(E)	WEBER
	K	9	TTS	308 Adm.(E)	CLEMENT
	L	10	TTS	307 Adm.(E)	PETERS
	M	11	TTS	204 Adm.(E)	JOHNSTON
	D	11	MWF	304 Adm.(E)	WILLIAMS
	E1	1	MWF	303 Adm.(E)	WILLIAMS
	E2	1	MWF	307 Adm.(E)	PETERS
	F1	2	MWF	303 Adm.(E)	BROWNE
	F2	2	MWF	307 Adm.(E)	PETERS
	G	3	MWF	307 Adm.(E)	WEBER

Ed. 10. Technic of Teaching.—*Prerequisite:* Ed. 25.

3	A	8	MWF	308 Adm.(E)	REAGAN
	B1	9	MWF	307 Adm.(E)	ODELL
	B2	9	MWF	308 Adm.(E)	REAGAN
	C1	10	MWF	308 Adm.(E)	REAGAN
	C2	10	MWF	307 Adm.(E)	ODELL
	D	11	MWF	206 Adm.(E)	MONROE
	E	1	MWF	117 W.B.	ROBINSON
	F	2	MWF	206 Adm.(E)	LAWSON
	G	3	MWF	206 Adm.(E)	LAWSON

Ed. 25. Educational Psychology.—*Prerequisite:* Psych. 1 (or Ed. 28 in case of A.C. students).

3	J	8	TTS	312 Adm.(E)	POTTHOFF
	K1	9	TTS	312 Adm.(E)	POTTHOFF
	K2	9	TTS	307 Adm.(E)	PETERS
	L	10	TTS	312 Adm.(E)	DOLCH
	M	11	TTS	312 Adm.(E)	DOLCH
	E1	1	MWF	312 Adm.(E)	DOLCH
	E2	1	MWF	304 Adm.(E)	POTTHOFF
	F1	2	MWF	312 Adm.(E)	DOLCH
	F2	2	MWF	304 Adm.(E)	POTTHOFF
	G	3	MWF	204 Adm.(E)	CAMERON
	H	4	MWF	206 Adm.(E)	LAWSON

Ed. 91. Special Problems of Education in Rural Communities.—*Prerequisite:* Senior standing and at least 6 hours in education. (Same as Agr. Ed. 91.) (2). 2 TT; 122 Agr. Mr. LAWSON.

Courses for Advanced Undergraduates and Graduates

Ed. 18. Educational Measurements.—*Prerequisite:* Ed. 25. (3). 8 MWF; 204 Adm.(E). Associate Professor ODELL.

Ed. 30. History of American Education.—*Prerequisite:* Senior standing or Ed. 2 or 11. (2). 9 TT; 303 Adm.(E). Professor SEYBOLT.

Ed. 44. Laboratory Problems in Learning.—*Prerequisite:* Ed. 25.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	2	MW	202 Adm.(E)	GRIFFITH
	Lab.	1–3	F	202 Adm.(E)	GRIFFITH

Ed. 45. Genetic Psychology for Teachers.—*Prerequisite:* Senior standing, Psych. 1, Ed. 25, or consent of instructor. (3). 11 MWF; 204 Adm.(E). Associate Professor GRIFFITH.

Ed. 53. Problems of Industrial Education.—*Prerequisite:* Junior standing or consent of instructor. (Same as Ind. Ed. 50.) (3). 8 MWF; 304 Adm.(E). Professor MAYS.

Ed. 54a. Curriculum and Administration of the Part-Time School.—*Prerequisite:* Senior standing. Same as Ind. Ed. 54a. (2). 9 TT; 304 Adm.(E). Professor MAYS.

Ed. 55. Problems of Vocational Guidance.—*Prerequisite:* Senior standing. Same as Ind. Ed. 55. (3). 9 MWF; 304 Adm.(E). Professor MAYS.

Ed. 99b. Thesis.—*Prerequisite:* Senior standing. (2). Time to be arranged. Dean BENNER and others.

Courses for Graduates

For a Master's degree in Education, course 125 is required. For students who have not taken a course in history of education as undergraduates, Education 11 or Education 30 is required. Education 6 and 25, or their equivalents, are prerequisites for all courses for graduates.

Ed. 101. Educational Theory.—(1 unit). 4-6 F; 204 Adm.(E). Professor CAMERON.

Ed. 102. Research in History of American Education.—(1 unit). Arrange. 311 Adm.(E). Professor SEYBOLT.

Ed. 104. Educational Administration.—(1 unit). 4-6 M; 308 Adm.(E). Associate Professor WEBER.

Ed. 120a. Seminar in the Supervision of Secondary Education.—*Prerequisite:* Ed. 106. (1 unit). 3 TT; 308 Adm.(E). Professor CLEMENT.

Ed. 121. Educational Measurements.—Seminar. (1 unit). 10-12 S; 304 Adm.(E). Associate Professor ODELL.

Ed. 124. Reading in Educational Research.—(1 unit). 4-6 W; 204 Adm.(E). Professor MONROE.

Ed. 125. Educational Psychology.—(1 unit). 10-12 S; 303 Adm.(E). Professor CAMERON.

Ed. 129. The Junior College.—*Prerequisite:* 3 units of graduate work in education. (1 unit). 10-12 S; 308 Adm.(E). Professor CLEMENT.

Ed. 131. Analysis and Evaluation of High School Texts.—*Prerequisite:* Ed. 127. (1 unit). 4 TT; 308 Adm.(E). Professor CLEMENT.

Ed. 141. Problems in the Teaching of English in Secondary Schools.—(1 unit). 4-6 Tu; 322 L.H. Professor PAUL.

Ed. 150. Thesis.—(1 to 2 units).* Dean BENNER and others.

Ed. 184. Seminar in School Administration.—*Prerequisite:* 3 units of graduate work in education including Ed. 104 or 106 and consent of instructor. (1 unit). Arrange. 302 Adm.(E). Associate Professor WEBER.

Ed. 185. Seminar in Educational Psychology.—*Prerequisite:* Ed. 125 and consent of the Dean. (1 unit). Arrange. 203 Adm.(E). Professor CAMERON.

Ed. 190. Research in Education.—*Prerequisite:* 3 units of graduate work in Education and consent of instructor. (1 unit). Dean BENNER and others.

B. RELATED COURSES IN SPECIAL SUBJECTS

The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 20 hours in Education for graduation; for the 15 hours in Education for the State High School Certificate; or for the hours of Education necessary as a qualification for teachers in the North Central Association accredited schools.

Art. 15b. Course for Teachers.—*Prerequisite:* Art 2a. (3). (See Art). Miss ANDERSON.

Botany 14. Course for Teachers.—*Prerequisite:* 15 hours of botany. (3). (See Botany). Associate Professor VESTAL.

Chemistry 12b. Course for Teachers.—*Prerequisite:* 13 hours of chemistry and senior or graduate standing. (3). (See Chemistry). Dr. PARR.

Education 7. School Program of Physical Education.—*Prerequisite:* Senior standing or consent of instructor. (3). 1 MWF; 209 New Gym. Professor STALEY.

Education 8. History, Systems, and Theories of Physical Education.—*Prerequisite:* Senior standing or consent of instructor. (2). 1 TT; 209 New Gym. Professor STALEY.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

English 41. Teaching of English Literature.—*Prerequisite:* 10 hours of English literature and junior standing. (2). (See English). Professor PAUL.

English 42. Teaching of English Composition.—*Prerequisite:* 10 hours of English literature and junior standing. (2). (See English). Professor PAUL.

German 25. Teachers' Course.—*Prerequisite:* 3 years of college German or equivalent. (2). (See German). Assistant Professor GEISSENDOERFER.

History 18. Teaching of History.—*Prerequisite:* One year of college history and senior standing. (2). (See History). Assistant Professor WERNER.

Home Economics 11. Teachers' Course.—*Prerequisite:* Home Econ. 6, 29. Preregistration or concurrent registration in Education 10, Home Econ. 5, 10, 19. (3). (See Home Economics). Miss ROBINSON.

Industrial Education 57. Methods of Trade Teaching.—(3). (See Industrial Education). Professor MAYS.

Latin 9. Teachers' Course.—*Prerequisite:* 14 hours in Latin acceptable for a major. (2). (See Classics). Professor CANTER.

Mathematics 35. Teachers' Course.—*Prerequisite:* 18 hours in mathematics, including Math. 7 and 9. (3). (See Mathematics). Associate Professor LYTLE.

Music 25b. Public School Methods.—*Prerequisite:* The first semester of the third year of the curriculum in Public School Music Education, or consent of instructor. (3). (See Music). Mr. HOLMES.

Music 26b. Public School Methods.—*Prerequisite:* Senior standing in the curriculum in Public School Music Education or consent of instructor. (3). (See Music). Miss KITCHELL.

Physical Education for Women 95b. Methods.—*Prerequisite:* Physical Education 95a; junior standing in the College of Education. (4). (See Physical Education for Women). Miss ROBERTSON.

Spanish 25. Methods of Teaching Spanish.—*Prerequisite:* 20 hours in Spanish or 16 hours in Spanish plus 20 hours in French. (3). (See Spanish). Assistant Professor GULLETTE.

Speech 12. Teaching of Speech.—*Prerequisite:* 10 hours in speech; junior standing. (2). (See Speech). Associate Professor SANDFORD.

C. EDUCATIONAL PRACTICE

The following courses are open to seniors. *Prerequisite:* Education 25 and Education 10. For Educational Practice in Physical Education, see Mr. JACKSON at 202 Old Gymnasium. For Educational Practice in Agriculture, see Associate Professor NOLAN at 116 Old Agriculture. For Educational Practice in Home Economics, see Miss ROBINSON, Miss TODD, and Miss KING at 119 Woman's Building. Arrange for all other courses in Educational Practice with Principal C. W. SANFORD at 102 University High School.

Ed. Prac. 1. Physical Education for Men.—(2 to 4).*

Ed. Prac. 2. Physical Education for Men.—(2 to 4).*

Ed. Prac. 3. Physical Education for Men.—(2 to 4).*

Ed. Prac. 4. Physical Education for Men.—(2 to 4).*

Ed. Prac. 5. Agricultural Education.—(3 to 5).* (Same as Agr. Ed. 50.)

Ed. Prac. 6. Biology.—(5).

Ed. Prac. 7. Chemistry.—(5).

Ed. Prac. 8. Civics.—(5).

Ed. Prac. 9. Drawing, Art.—(3 to 5).*

Ed. Prac. 10. Drawing, Mechanical.—(3 to 5).*

Ed. Prac. 11. English.—(5).

Ed. Prac. 11a. Speech.—(5).

Ed. Prac. 12. French.—(5).

Ed. Prac. 13. General Science.—(5).

Ed. Prac. 14. Home Economics Education.—(5). *Prerequisite:* Home Econ. 11, or concurrent registration therein.

Ed. Prac. 15. History.—(5).

Ed. Prac. 16. Industrial Education.—(3 to 5).*

Ed. Prac. 17. Latin.—(5).

Ed. Prac. 19. Mathematics.—(5).

Ed. Prac. 20. Music.—(3 to 5).*

Ed. Prac. 21. Physics.—(5).

Ed. Prac. 24. Stenography and Typewriting.—(3 to 5).*

Ed. Prac. 25. Elementary Education.—(5).

Ed. Prac. 26. Bookkeeping.—(5).

Ed. Prac. 27. Economics.—(5).

Ed. Prac. 28. German.—(5).

D. AGRICULTURAL EDUCATION

Agr. Ed. 1. Introduction to Agricultural Education.—*Prerequisite:* Sophomore standing and 10 hours of technical agriculture. (2). 11 TT; 122 Agr. Associate Professor NOLAN.

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Agr. Ed. 50. Teaching.—*Prerequisite:* Ed. 10 and senior standing. (Same as Ed. Prac. 5.)

Credits	Section	Hours	Days	Room	Instructor
2 to 5*	A	8:30- 9:52 10:44-12:06	MTWTF	Tolono H.S.	HENDERSON
	B	9:00-10:26 1:28- 3:00	MTWTF	St. Joseph H.S.	RUCKER
	C	Apprentice teaching in State			NOLAN

One conference hour per week with staff teacher for all student teachers.

Agr. Ed. 51. Teachers' Course in Agriculture.—*Prerequisite:* Ed. 10, 25, and senior standing. (3). 4 MWF; 122 Agr. Associate Professor NOLAN.

Agr. Ed. 91. Special Problems of Education in Rural Communities.—(Same as Ed. 91.) *Prerequisite:* Senior standing and at least 6 hours in Education. (2). 2 TT; 122 Agr. Mr. LAWSON.

Agr. Ed. 92. Adult Education in Vocatioual Agriculture.—*Prerequisite:* 25 hours of technical agriculture, Ed. 25, Ed. 10, and senior standing. (Subject-matter and methods in part-time and evening classes, and other extension service in vocational agriculture.) (2). 11 MW; 122 Agr. Associate Professor NOLAN.

E. INDUSTRIAL EDUCATION

Ind. Ed. 1. Industrial Arts.—First Course. (4). Lect., 9 TT; Shop, 8-10 MWF; 3 Wood Shop. Mr. BRAUCHER and assistant.

Ind. Ed. 2. Advanced Industrial Arts.—(4). Lect., 10 TT; Shop, 10-12 MWF; 3 Wood Shop. Mr. BRAUCHER and assistant.

Ind. Ed. 2a. Problems of House Construction.—(4). Lect., 2 TT; Shop, 2-4 MWF; 3 Wood Shop. Mr. BRAUCHER and assistant.

Note: The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 25 hours in Industrial Education.

G.E.D. 1. Elements of Drawing.—(4). (See General Engineering Drawing).

G.E.D. 2. Descriptive Geometry.—(4). (See General Engineering Drawing).

G.E.D. 4. Advanced Drawing.—(4). (See General Engineering Drawing).

Journ. 9b. History and Practice of Printing and Publishing.—(2 or 3). (See Journalism.)

M.E. 85. Pattern and Foundry Laboratory.—(3). (See Mechanical Engineering).

M.E. 87. Machine Laboratory.—(3). (See Mechanical Engineering).

Courses for Advanced Undergraduates and Graduates

Ind. Ed. 53. Problems of Industrial Education.—(Same as Ed. 53.) *Prerequisite:* Junior standing or consent of instructor. (3). 8 MWF; 304 Adm.(E). Professor MAYS.

Ind. Ed. 54a. Curriculum and Administration of the Part-Time School.—(Same as Ed. 54.) *Prerequisite:* Senior standing. (2). 9 TT; 304 Adm.(E). Professor MAYS.

Ind. Ed. 55. Problems of Vocational Guidance.—Same as Ed. 55 and Ind. Ed. E55. *Prerequisite:* Senior standing. (3). 9 MWF; 304 Adm.(E). Professor MAYS.

Ind. Ed. 57. Methods of Trade Teaching.—(3). Arrange. 310 Adm.(E). Professor MAYS.

Extra-mural Courses

Ind. Ed. E. 41. Survey of Vocational Education.—Same as Ed. 41 and Ind. Ed. 41. Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 52. Teaching Related Trade Subjects.—(1 to 3).* Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 53. Problems of Industrial Education.—Same as Ed. 53 and Ind. Ed. 53. Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 54. Principles and Methods of the Part-Time School.—Same as Ed. 54 and Ind. Ed. 54. Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 54a. Continuation of Ind. Ed. E. 54.

Ind. Ed. E. 55. Problems of Vocational Guidance.—Same as Ed. 55 and Ind. Ed. 55. Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 55a. Continuation of Ind. Ed. E. 55.

Ind. Ed. E. 56. Teaching Shopwork.—*Prerequisite:* (a) Two years of trade or industrial experience beyond apprenticeship; (b) completion of elementary school curriculum. (1 to 3). Extra-mural. Assistant Professor DODGE.

Ind. Ed. E. 56a. Continuation of Ind. Ed. E. 56.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

ELECTRICAL ENGINEERING

Note: Certain courses in this department require laboratory fees of $2.

Courses for Undergraduates

E.E. 2. **Elementary Electrical Engineering.**—*Prerequisite:* One year of college physics.

Credits	Section	Hours	Days	Room	Instructor
3		10	MWF	200 E.E.A.	

E.E. 12. **Alternating Current Apparatus.**—*Prerequisite:* E.E. 11, 61 and registration in E.E. 62.

3	C1	8	MWF	305 E.H.
	C2	8	MWF	400 E.H.
	Q1	10	MWF	305 E.H.
	Q2	10	MWF	109 E.H.
	J1	11	MWF	305 E.H.
	J2	11	MWF	102 E.H.
	P1	1	MWF	305 E.H.
	P2	1	MWF	102 E.H.

E.E. 26. **Alternating Currents.**—*Prerequisite:* E.E. 25, Physics 44a, registration in E.E. 76.

4	Y	9	MTWTF	109 E.H.
	L	11	MTWTF	111 E.H.
	M	11	MTWTF	104 P.L.
	K	1	MTWTF	109 E.H.
	N	1	MTWTF	111 E.H.

E.E. 36. **Alternating Current Apparatus.**—*Prerequisite:* E.E. 35, registration in E.E. 86.

4	K	8	MTWTF	111 E.H.
	L	8	MTWTF	109 E.H.
	M	11	MTWTF	108 P.L.
	N	11	MTWTF	109 E.H.

E.E. 52. **Radio Communication Theory.**—*Prerequisite:* E.E. 35 or consent of instructor.

3		10	TT	111 E.H.
	Lab.	2–5	Tu	311 E.E.L.

E.E. 54. **Vacuum Tubes and Control Devices.**—*Prerequisite:* E.E. 26.

2-3*		11	TTS	208 P.L.
	Lab.	2–5	W	305 E.E.L.

E.E. 56. **Economical Design of Electrical Systems.**—*Prerequisite:* E.E. 35, M.E. 2 or M.E. 3.

4	Lect. KLMN	9	Th	319 E.H.
	K	9	MWF	111 E.H.
	L	9	MWF	312 E.H.
	M	10	MWF	312 E.H.
	N	1	MWF	312 E.H.

E.E. 58. **Power and Communication Networks.**—*Prerequisite:* Grade of A or B in E.E. 26.

3		10	MF	111 E.H.
	K	1–4	M	311a E.E.L.
	L	1–4	F	311a E.E.L.

E.E. 62. **Alternating Current Laboratory.**—*Prerequisite:* E.E. 11, E.E. 61, registration in E.E. 12.

1	J1	9–12	Tu	200 E.E.L.
	J2	9–12	Tu	214 E.E.L.
	Q1	1–4	Tu	200 E.E.L.
	Q2	1–4	Tu	214 E.E.L.
	P1	9–12	Th	200 E.E.L.
	P2	9–12	Th	214 E.E.L.
	R1	1–4	Th	200 E.E.L.
	R2	1–4	Th	214 E.E.L.
	X	1–4	F	214 E.E.L.
	C1	9–12	S	200 E.E.L.
	C2	9–12	S	214 E.E.L.

E.E. 72. **Electrical Engineering Problems.**—(Elective for juniors and seniors.) *Prerequisite:* E.E. 25. (1 to 3).* Arrange.

E.E. 76. **Electrical Engineering Laboratory.**—*Prerequisite:* E.E. 25, 75, registration in E.E. 26.

2	NY	8	Tu	119 P.L.
	KLM	9	W	215 E.E.L.
	K1	8–11	M	200 E.E.L.
	N	2–5	M	214 E.E.L.
	M1	2–5	W	200 E.E.L.
	M2	2–5	W	214 E.E.L.
	K2	8–11	F	200 E.E.L.
	Y	1–4	F	200 E.E.L.
	L	8–11	S	200 E.E.L.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

E.E. 86. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 85, registration in E.E. 36.

Credits	Section	Hours	Days	Room	Instructor
2	KLMN	9	Tu	119 P.L.	
	K1	8–11	M	200 E.E.L.	
	L1	1–4	M	200 E.E.L.	
	N1	2–5	Tu	200 E.E.L.	
	K2	9–12	W	200 E.E.L.	
	M	2–5	W	200 E.E.L.	
	N2	2–5	Th	200 E.E.L.	
	L2	1–4	F	200 E.E.L.	

E.E. 96. Seminar.—*Prerequisite:* Senior standing in E.E.

1	K	1	M	119 P.L.
	L	10	W	111 E.H.
	M	1	W	119 P.L.
	N	10	F	119 P.L.
	Y	1	F	119 P.L.

E.E. 98. Thesis.—(3). Arrange.

Courses for Graduates

E.E. 101. Advanced Courses in Alternating Currents.—(½ to 2 units).* Professor PAINE, Associate Professor KNIGHT, Assistant Professors REICH, KEENER, KRAEHENBUEHL.

E.E. 102. Electric Waves and Oscillations.—(½ to 1 unit).* 10 S; 306 E.E.L. Laboratory arrange. Assistant Professor REICH.

E.E. 103. Electrical Design.—(1 unit). Once a week. Associate Professor WALDO.

E.E. 104. Advanced Course in Vacuum Tubes and Control Devices.—(1 unit). 11 TTS; 306 E.H. Laboratory arrange. Assistant Professor REICH.

E.E. 105. Electrical Engineering Research.—(1 to 3 units).* Professors PAINE, TYKOCINER, Associate Professor KNIGHT, Assistant Professors BROWN, REICH, KEENER, KRAEHENBUEHL.

ENGLISH

(Including Rhetoric, Speech, and Scandinavian Languages.)

Major: 20 hours in English *excluding* Rhetoric 1, 2, 10, 12, 21, 22, English 10a, 10b, 20a, 20b, 41, 42, and *including* at least 10 hours in English literature, at least 3 hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours in (a) Latin or Greek or French or German or Spanish; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history. No language courses may be regarded as satisfying the minor requirement if they are excluded from the major of that department (excepting elementary courses in Greek, Latin, French 2a and Spanish 2a). At least eight hours must be offered in each subject.

Major in Speech

Major: 10 hours in speech, inclusive of Speech 7 and 8 and either 4 or 6; and 10 hours of English, exclusive of English 10a, 10b, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, 22, and inclusive of one course in English literature from the advanced group.

Minors: 20 hours, in any one or two of the following subjects: psychology, philosophy, Greek, Latin, French, German, history, political science, economics, law, or sociology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in English 10 and Rhetoric 1-2.

A. ENGLISH LANGUAGE AND LITERATURE

Courses for Undergraduates

Engl. 2. Survey of English Literature.—(A course primarily for English majors.) *Prerequisite:* Consent of instructor.

3	D	11	MWF	303a L.H.	FINNEY
	F	2	MWF	123 L.H.	PARRY

Engl. 10a. An Introduction to Literature.—Forms of poetry, mainly narrative. *Prerequisite:* The minimum entrance requirement in English. (Credit is not given for Engl. 10a in addition to 20a and 20b).

3[1]	A	8	MWF	104 L.H.	GETTMAN
[1]Seniors will receive only 2 hours credit.	B	9	MWF	202 U.H.	MOOD
	C	10	MWF	204a L.H.	ZEITLIN
	D	11	MWF	302 U.H.	GLENN
	E	1	MWF	203 U.H.	SANDIN
	F	2	MWF	203 U.H.	HASKELL

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Engl. 10b. An Introduction to Literature.—Forms of poetry, mainly lyrical. (Credit is not given for Engl. 10b in addition to 20a and 20b). *Prerequisite:* Engl. 10a.

Credits	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	204a L.H.	Kelso
[1]Seniors will receive only 2 hours credit.	A2	8	MWF	310 U.H.	Goldman
	B1	9	MWF	204a L.H.	Rinaker
	B2	9	MWF	219 L.H.	Tupper
	C1	10	MWF	203 U.H.	French
	C2	10	MWF	232 L.H.	Rinaker
	C3	10	MWF	206 L.H.	Rapp
	D1	11	MWF	128 L.H.	Landis
	D2	11	MWF	235 L.H.	Weirick
	D3	11	MWF	206 L.H.	Tupper
	E1	1	MWF	123 L.H.	Bloom
	E2	1	MWF	302 L.H.	Kelley
	F1	2	MWF	133 L.H.	Busey
	G1	3	MWF	219 L.H.	Parry

Engl. 13. American Literature.—*Prerequisite:* Engl. 10a-10b, or junior standing. (2). 1 TT; 103 New Agr. Professor Paul.

Engl. 20a. Chief English Writers of the Nineteenth Century.—Intended for students in professional and technical courses such as law, medicine, commerce, engineering, etc. *Prerequisite:* One year of college work. (Credit is not given for Engl. 20a in addition to Engl. 10a and 10b).

4	A	8	MTWT	203 U.H.	Davidson
	B1	9	MTWT	413 U.H.	Blair
	B2	9	MTWT	208 U.H.	Noble
	C	10	MTWT	208 U.H.	Peterson
	D	11	MTWT	207 U.H.	Harris
	E	1	MTWT	207 U.H.	Hamilton

Engl. 20b. Chief English Writers Before 1800.—*Prerequisite:* Engl. 20a. (Credit is not given for the course in addition to Engl. 10a and 10b).

4	A1	8	MTWT	204 U.H.	Templeman
	A2	8	MTWT	302 U.H.	Glenn
	B	9	MTWT	310 U.H.	Jefferson
	C	10	MTWT	310 U.H.	Trelease
	D	11	MTWT	139 L.H.	Kelso
	E	1	MTWT	208 U.H.	French
	F	2	MTWT	214 U.H.	Sandin

Engl. 22. Literary Study of the Bible.—*Prerequisite:* Six hours of English literature, or Engl. 20a or 20b with a grade of B. (3). 11 MWF; 103 New Agr. Professor E. C. Baldwin.

Engl. 23. Introduction to Shakespeare.—*Prerequisite:* Engl. 10a and 10b; or 20a-20b with a grade of B, or junior standing.

3	B	9	MWF	109 L.H.	Secord
	D	11	MWF	212 U.H.	Templeman
	E	1	MWF	109 L.H.	Finney

Engl. 27. Shakespeare's Non-dramatic Poetry.—*Prerequisite:* Nine hours of English literature. (3). 2 MWF; 114 L.H. Assistant Professor Rinaker.

Engl. 31. English Literature from 1688 to 1789 (Exclusive of the Drama).—*Prerequisite:* Six hours of English literature. (3). 2 MWF; 109 L.H. Assistant Professor Secord.

Engl. 44. Contemporary Poetry.—*Prerequisite:* Ten hours of English literature, or junior standing. (3). 1 MWF; 103 New Agr. Assistant Professor Weirick.

Courses for Advanced Undergraduates and Graduates

Prerequisite: Junior or senior standing and either ten hours of English literature or the consent of the instructor.

Engl. 3. The Poetry of Milton.—(3). 9 MWF; 304 L.H. Professor E. C. Baldwin.

Engl. 5. Shakespeare.—(3). 11 MWF; 109 L.H. Professor T. W. Baldwin.

Engl. 9. Old English (Anglo-Saxon).—Beowulf. (3). 11 MWF; 305 L.H. Professor Jones.

Engl. 17. History of the English Language.—(Consent of instructor must be obtained). (3). 9 MWF; 305 L.H. Professor Flom.

Engl. 26. Spenser.—(3). 9 MWF; 114 L.H. Professor Jones.

Engl. 36. The English Drama (exclusive of Shakespeare) from 1600 to 1700.—(3). 2 MWF; 308 L.H. Professor Hillebrand.

Engl. 38. The Development of the Arthurian Tradition.—(3). 1 MWF; 117 L.H. Associate Professor Parry.

Engl. 41. The Teaching of English Literature.—(2). 3 TT; 306 L.H. Professor Paul, Mrs. Sweney.

Engl. 42. The Teaching of English Composition.—(2). 2 TT; 202 L.H. Professor Paul, Mrs. Sweney.

Engl. 43. Browning.—(3). 10 MWF; 203 L.H. Professor Graham.

Engl. 53. Modern American Criticism.—(3). 11 MWF; 120 L.H. Professor Zeitlin.

Engl. 54b. Introduction to Comparative Literature.—*Prerequisite:* Engl. 54a. Survey of the greatest French, German, and English authors.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	10	WF	218 U.H.	BERNBAUM ARON CARNAHAN
	A Disc.	10	M	136 L.H.	PARRY
	B Disc.	10	M	203a L.H.	LANDIS

Engl. 60b. Thesis.—(2). Primarily for candidates for honors. Arrange. Dr. TUPPER and others.

Courses for Graduates

Engl. 101. Research in Special Topics.—(1 to 2 units).* Professors GRAHAM, BERNBAUM, FLOM, PAUL, ZEITLIN, T. W. BALDWIN, E. C. BALDWIN, JONES, HILLEBRAND, JEFFERSON; Associate Professors SANDFORD, FLETCHER, PARRY; Assistant Professors RINAKER, SECORD, FINNEY.

Engl. 114. Development of the Essay.—(1 unit). 11 TT; 311 Library. Professor ZEITLIN.

Engl. 129. English Literature from the Norman Conquest to 1400.—(1 unit). 10 TT; 117 L.H. Professor JONES.

Engl. 130. Tragedy.—(1 unit). 1 TT; 113 L.H. Professor HILLEBRAND.

Engl. 135. Problems in American Literature.—Whitman and Lowell. (1 unit). 8 TT; 113 L.H. Professor PAUL.

Engl. 138. The Romantic Movement.—(1 unit). 2 TT; 303a L.H. Professor BERNBAUM.

Engl. 140. Investigations in Modern English Literature.—(1 to 3 units).* Three hours once a week. Arrange. 220 L.H. Professor BERNBAUM.

Engl. 141. Literature of the Seventeenth Century.—(1 unit). 3 TT; 302 L.H. Professor E. C. BALDWIN.

Engl. 143. Seminar in the History and Theory of Prose Fiction.—(1 unit). 1 WF; English Seminar. Professor BERNBAUM.

Engl. 145. Studies in the Eighteenth Century Literature.—(1 unit). 2 MW; 113 L.H. Professor GRAHAM.

Engl. 147. Shakespeare and Elizabethan Drama.—Critical study of the chief plays. (1 unit). 10 MW; 219 L.H. Professor T. W. BALDWIN.

Engl. 149. The Development of Tudor Drama.—(1 unit). Arrange. Professor T. W. BALDWIN.

Engl. 153. Seminar in Restoration Drama.—(1 unit). 11 WF; 204a L.H. Professor HILLEBRAND.

B. RHETORIC

Rhet. 1. Rhetoric and Composition.—*Prerequisite:* The minimum entrance requirements in English.

3	A1	8	MWF	213 U.H.	HARRIS
	[1]A2	8	MWF	207 U.H.	JOHNSON
[1]Sections A2, B2, D2, E2, F2, and G2 are for students who are repeating Rhet. 1.	B1	9	MWF	411 U.H.	CHARLES
	[1]B2	9	MWF	123 L.H.	HURLEY
	C1	10	MWF	212 U.H.	MARTIN
	C2	10	MWF	207 U.H.	JOHNSON
	D1	11	MWF	123 L.H.	MAXWELL
	[1]D2	11	MWF	203a L.H.	STUTZMAN
	E1	1	MWF	312 U.H.	DOLK
	[1]E2	1	MWF	211 U.H.	OSENBURG
	F1	2	MWF	203 L.H.	ROBERTS
	[1]F2	2	MWF	207 U.H.	GRESS
	G1	3	MWF	204 U.H.	OSENBURG
	[1]G2	3	MWF	207 U.H.	DOLK
	H	4	MWF	208 U.H.	GRISWOLD
	K	8	TTS	207 U.H.	ORLOVICH
	L	9	TTS	207 U.H.	RIEBEL
	M	10	TTS	404 U.H.	FIELDER

Rhet. 2. Rhetoric and Composition.—*Prerequisite:* Rhet. 1.

3	A1	8	MWF	404 U.H.	WASHBURN
	A2	8	MWF	321 L.H.	PETERSON
[1]Sections A6, B5, B6, C6, D6, E6, F5, F6, G6, K2, M2, and N2 are for students who received a grade of "D" in Rhet. 1.	A3	8	MWF	413 U.H.	HURLEY
	A4	8	MWF	407 U.H.	BLAIR
	A5	8	MWF	203a L.H.	MAXWELL
	[1]A6	8	MWF	212 U.H.	CHARLES
	B1	9	MWF	207 U.H.	TEMPLEMAN
	B2	9	MWF	311 U.H.	KELLEY
	B3	9	MWF	203 U.H.	FRENCH
	B4	9	MWF	302 U.H.	TRELEASE
	[1]B5	9	MWF	412 U.H.	GETTMANN

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Rhet. 2 Rhetoric and Composition (Concluded)

Credits	Section	Hours	Days	Room	Instructor
3	[1]B6	9	MWF	204 U.H.	Davidson
	C1	10	MWF	204 U.H.	Charles
[1]Sections A6, B5, B6,	C2	10	MWF	128 L.H.	Stutzman
C6, D6, E6, F5, F6,	C3	10	MWF	211 U.H.	Kelley
G6, K2, M2, and N2	C4	10	MWF	412 U.H.	Jefferson
are for students who	C5	10	MWF	403 U.H.	
received a grade of	[1]C6	10	MWF	413 U.H.	Blair
"D" in Rhet. 1.	D1	11	MWF	311 U.H.	Davidson
	D2	11	MWF	318 U.H.	Secord
	D3	11	MWF	413 U.H.	Gettmann
	D4	11	MWF	406 U.H.	Goldman
	D5	11	MWF	211 L.H.	Rapp
	[1]D6	11	MWF	412 U.H.	Martin
	E1	1	MWF	213 U.H.	Noble
	E2	1	MWF	219 L.H.	Roberts
	E3	1	MWF	204 U.H.	Gress
	E4	1	MWF	214 U.H.	Haskell
	E5	1	MWF	407 U.H.	Griswold
	[1]E6	1	MWF	406 U.H.	
	F1	2	MWF	204 U.H.	Bloom
	F2	2	MWF	213 U.H.	Dolk
	F3	2	MWF	406 U.H.	Hamilton
	F4	2	MWF	412 U.H.	Osenburg
	[1]F5	2	MWF	404 U.H.	Griswold
	[1]F6	2	MWF	104 L.H.	Noble
	G1	3	MWF	406 U.H.	Sandin
	G2	3	MWF	311 U.H.	
	G3	3	MWF	403 U.H.	Hamilton
	G4	3	MWF	212 U.H.	Haskell
	G5	3	MWF	404 U.H.	Gress
	[1]G6	3	MWF	413 U.H.	
	H1	4	MWF	404 U.H.	Fisher
	H2	4	MWF	204 U.H.	Bloom
	K1	8	TTS	112 U.H.	Wheeler
	[1]K2	8	TTS	315 U.H.	Fielder
	L1	9	TTS	315 U.H.	Orlovich
	L2	9	TTS	311 U.H.	Wheeler
	M1	10	TTS	413 U.H.	Brawner
	[1]M2	10	TTS	213 U.H.	Orlovich
	N1	11	TTS	407 U.H.	Fielder
	[1]N2	11	TTS	212 U.H.	Brawner

Rhet. 3. Exposition.—*Prerequisite:* Rhet. 1 and 2.

3	B	9	MWF	104 L.H.	Goldman
	C	10	MWF	104 L.H.	Busey
	G	3	MWF	104 L.H.	Landis

Rhet. 4. Narration and Description.—Elements of narrative writing. (Not a course in short-story writing). *Prerequisite:* Rhet. 1 and 2.

3	B	9	MWF	113 L.H.	Rapp
	C	10	MWF	123 L.H.	Kelso
	D	11	MWF	407 U.H.	Trelease
	F	2	MWF	203a L.H.	Finney

Rhet. 7. Advanced Narrative Composition.—*Prerequisite:* Rhet. 6. (3). 3 MWF; 204a L.H. Assistant Professor Weirick.

Rhet. 10. Business Letter Writing.—*Prerequisite:* Rhet. 1 and 2.

2	A1 Eng.	8	MW	318 U.H.	Lang
	A2 Com.	8	TT	101 Com.	Lang
	B1 Com.	9	MW	328 Com.	Anderson
	B2 Eng.	9	TT	204 U.H.	Lang
	C1 Com.	10	MW	328 Com.	Anderson
	C2 Com.	10	TT	106 Com.	Mood
	C3 Com.	10	MW	108 Com.	Lang
	C4 LAS, Agr., Ed.	10	MW	318 U.H.	Mood
	C5 Com.	10	TT	413 Com.	Coleman
	D1 LAS, Agr., Ed.	11	MW	312 U.H.	Mood
	D2 Eng.	11	TT	211 U.H.	Coleman
	D3 Com.	11	TT	312 Com.	Anderson
	E1 Com.	1	MW	305 Com.	Saunders
	E2 Com.	1	MW	325 Com.	Coleman
	F1 Com.	2	MW	305 Com.	Saunders
	F2 Com.	2	TT	305 Com.	Saunders
	F3 Eng.	2	TT	203 U.H.	Coleman

Rhet. 17. Advanced Composition.—Theory and practice. (Open to a limited number of students and only on recommendation). (3). *Prerequisite:* Junior standing. 10 MWF; 302 L.H. Dr. Tupper.

Rhet. 21. Advanced Business Writing.—Sales letter campaigns and advertising copy. *Prerequisite:* Grade of "A" or "B" in Rhet. 10. (2). 11 TT; 305 Com. Associate Professor Saunders.

Rhet. 22. Special Types of Business Writing.—Business reports and articles for business magazines. *Prerequisite:* Rhet. 10. (2). 10 TT; 312 Com. Assistant Professor C. R. ANDERSON.

C. SPEECH

Speech 1. Principles of Effective Speaking.—*Prerequisite:* Rhet. 1 and 2.

Credits	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	148 L.H.	HUSTON
	A2	8	MWF	202 Entom.	BRAWNER
	B1	9	MWF	148 L.H.	HUSTON
	B2	9	MWF	202 Entom.	FISHER
	C1	10	MWF	148 L.H.	NELSON
	C2	10	MWF	202 Entom.	SWANSON
	D1	11	MWF	148 L.H.	NELSON
	D2	11	MWF	202 Entom.	HENDERSON
	E1	1	MWF	148 L.H.	WALTZ
	F1	2	MWF	148 L.H.	HENDERSON
	F2	2	MWF	202 Entom.	FISHER
	G	3	MWF	148 L.H.	HENDERSON

Speech 2. Business and Professional Speaking.—*Prerequisite:* Speech 1.

2	J	8	TT	148 L.H.	SANDFORD
	K	9	TT	148 L.H.	SANDFORD
	L	10	TT	148 L.H.	WALTZ
	M	11	TT	148 L.H.	HUSTON

Speech 3. Elements of Debating.—*Prerequisite:* Speech 1.

3	B	9	MWF	142 L.H.	WALTZ
	E	1	MWF	142 L.H.	HUSTON

Speech 10. Oral Interpretation of Literature.—*Prerequisite:* Speech 1.

2	K	9	TT	142 L.H.	NELSON
	L	10	TT	142 L.H.	NELSON
	M	11	TT	142 L.H.	HENDERSON
	N	1	TT	142 L.H.	NELSON

Courses for Advanced Undergraduates and Graduates

Speech 4. Advanced Debating.—*Prerequisite:* Speech 3, junior standing. (3). 10 MWF; 142 L.H. Mr. WALTZ.

Speech 7. Masters of Public Address.—*Prerequisite:* Speech 2 or 3, junior standing. (3). 11 MWF; 142 L.H. Associate Professor SANDFORD.

Speech 8. Dramatization.—*Prerequisite:* Speech 9 or 10, junior standing. (3). 1 MWF; L.H. Theatre. Mr. SWANSON.

Speech 11. Play Production.—*Prerequisite:* Speech 8, junior standing. (3). (Laboratory fee $5). 2 MWF; L.H. Theatre. Mr. SWANSON.

Speech 12. The Teaching of Speech.—*Prerequisite:* 10 hours of speech, junior standing. (2). 1 TT; 148 L.H. Associate Professor SANDFORD.

D. SCANDINAVIAN LANGUAGES AND LITERATURE

Courses for Undergraduates

Scand. 6. Ibsen.—Lectures; study of three of the social dramas; parallel reading of three early and three of the later dramas. *Prerequisite:* Junior standing. (2). 9 TT; 202 L.H. Professor FLOM.

Scand. 22b. Elementary Swedish.—(Not open to freshmen.) *Prerequisite:* Scand. 22a or consent of instructor. (3). 1 MWF; 204a L.H. Mr. JOHNSON.

Courses for Graduates

Scand. 101. Old Norse.—(1 unit). Arrange; 209 L.H. Professor FLOM. (May be taken for a single semester).

Scand. 103. Old Swedish.—Introduction to the language. (1 unit). Arrange; 209 L.H. Professor FLOM.

ENTOMOLOGY

Note: Certain courses in this department require laboratory fees varying from $1.50 to $5.

Major: 20 hours exclusive of Entomology 1, 2, 31. At least five hours must be offered from the advanced group.

Minors: 20 hours in not more than two of the following, with not less than eight hours in either department, if two subjects are chosen: zoology, botany, chemistry, physiology, horticulture, and agronomy.

Entomology 1 is open to freshmen, without prerequisite. It is prerequisite to all other courses in the department except 2, 31, and 32, and may be followed by any of the other courses for undergraduates

or by 6, 10, 20, or 21 in the senior year. Agricultural students and others desiring strictly practical work may take 1, 8, and 20 in sequence. Students majoring in entomology should take as many of the courses offered as possible, including some work in classification, morphology, and control, and should consult the head of the department. Seniors receive reduced credit in Entomology 1.

Courses for Undergraduates

Entom. 1. Destructive and Useful Insects.—Two discussion periods and four hours laboratory a week.

Credits	Section	Hours	Days	Room	Instructor
3[1]	A	10–12	MWF	309 Entom.	METCALF, BALDUF, and KEARNS
[1]Seniors will receive only 2 hours credit.	B	1–3	MWF	309 Entom.	METCALF, MILUM, and KEARNS

Entom. 2. Insects: Their Ways and Their Relations to Man.—A non-technical, cultural course. *Prerequisite:* 30 hours of university work. (Not open to students who have taken Entomology 1.)

2	A Lect.-Quiz	11	TT	310 Entom.	BALDUF and staff
	B Lect.-Quiz	2	TT	310 Entom.	

Entom. 3b. Classification of Insects: Orders with complete metamorphosis.—*Prerequisite:* Entomology 1 and 30 hours of university work. (5). Lab., 8-11 TT; Lect., to be arranged; 310 Entom. Assistant Professor BALDUF.

Entom. 7b. Insect Morphology.—*Prerequisite:* Entom. 1 and 30 hours of university work. (3). 8-11 TT; 312 Entom. Associate Professor HAYES.

Entom. 8b. Insect Pests of Field Crops.—*Prerequisite:* Entom. 1 and 30 hours of university work. (3 or 5).* 1-4 TT; 312 Entom. Associate Professor HAYES.

Entom. 32. Advanced Beekeeping.—*Prerequisite:* Entom. 31 or 30 hours of university work and consent of instructor. (2). 3-5 TT; 104 Viv. Assistant Professor MILUM.

Courses for Advanced Undergraduates and Graduates

Entom. 6. Special Problems.—*Prerequisite:* Any of the following: Entom. 3, 7, 8, 10, 20, 21, 22, or 31; senior standing. (2 to 5).* Saturday morning; additional hours to be arranged. Various instructors.

Entom. 21. Insect Bionomics.—*Prerequisite:* Entom. 1 and senior standing. (3). 11 MWF; 312 Entom. Professor METCALF.

Courses for Graduates

Note: The prerequisite for graduate work in entomology is two years of undergraduate biology, including zoology and entomology.

Entom. 102. Research in the Morphology and Embryology of Insects.—(½ to 2 units).* Time to be arranged. Associate Professor HAYES.

Entom. 107b. Insect Anatomy.—(½ unit). 8-11 TT; 312 Entom. Associate Professor HAYES.

Entom. 108. Research in Economic Entomology.—(½ to 2 units).* Time to be arranged. Professor METCALF.

Entom. 109. Research in Systematic Entomology.—(½ to 2 units).* Time to be arranged. Professor METCALF, Assistant Professor BALDUF.

Entom. 110. Research in the Biology and Ecology of Insects.—(½ to 2 units).* Time to be arranged. Professor METCALF.

FARM MECHANICS

(See Agricultural Engineering.)

FARM ORGANIZATION AND MANAGEMENT

(See Agricultural Economics.)

FINE AND APPLIED ARTS

(See Architecture, Art, Landscape Architecture, and Music.)

FLORICULTURE

(See Horticulture.)

FRENCH

(See Romance Languages and Literature, A.)

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

GENERAL ENGINEERING DRAWING

Note: All courses in this department require laboratory fees of $1.50.

G.E.D. 1. Elements of Drawing.—*Prerequisite:* Plane geometry.

Credits	Section	Hours	Days	Room	Instructor
4	A	8–11	MF	316 T.B.	Department staff
		8–10	W	316 T.B.	
	B	1–4	MF	316 T.B.	
		1–3	W	316 T.B.	

G.E.D. 2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry.

4	A	8–11	MF	To be assigned at registration time.	Department staff
		8–10	W		
	B	1–4	MF		
		1–3	W		
	C	8–11	TT		
		8–10	S		
	D	1–4	TT		
		10–12	S		

G.E.D. 4. Advanced Drawing.—*Prerequisite:* At least three years of drawing in high school, or the equivalent in commercial practice, to be determined by the department at registration time.

4	C	8–11	TT	316 T.B.	Crossman
		8–10	S	316 T.B.	

G.E.D. 6. Elements of Drawing.—*Prerequisite:* Plane geometry. (For students in chemical engineering.) (3). Sec. D, 1-4 TT; 316 T.B. Mr. Jorgensen.

G.E.D. 8. Architectural Projections.—Continuation of G.E.D. 7. *Prerequisite:* G.E.D. 7. (Student completing G.E.D. 7 and 8 may substitute them for G.E.D. 2.)

2	A	8–11	MF	103 T.B.	Porter and Lendrum
	B	2–5	MF	103 T.B.	
	C	9–12	TT	103 T.B.	

GEOLOGY

(Including Mineralogy, Paleontology, and Geography.)

Note: Certain courses in this department require a laboratory fee varying from $1 to $2.50.

A. GEOLOGY

Major: 20 hours in geology, exclusive of Geol. 1, 43, and 44, and inclusive of at least 5 hours of courses not open to freshmen or sophomores.

Minors: 20 hours of courses in one or two of the following departments: astronomy, botany, chemistry, geography, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in Geol. 1 and 2.

Courses for Undergraduates

Geol. 1. General Geology.—Cultural Course. Lectures; one or two field trips.

3[1]	A	9	MWF	247 N.H.	DeWolf, Sutton, Savage
[1]Seniors receive only 2 hours credit; students who have credit for Geog. 1 receive only 1 hour credit for Geol. 1.	B	10	MWF	247 N.H.	
	C	11	MWF	247 N.H.	DeWolf and Sutton

Geol. 1a. General Geology Laboratory.—*Prerequisite:* Geol. 1 or concurrent registration in it. (Not open to students who received credit for Geol. 1 prior to September, 1932.)

2	Lab. 1	8–10	TT	251 N.H.	Wanless
	Lab. 2	10–12	TT	251 N.H.	DeWolf
	Lab. 3	1–3	TT	251 N.H.	Shepard

Geol. 2a. Historical Geology.—*Prerequisite:* Geol. 1.

4[1]	Lect. A	8	TWTF	247 N.H.	Sutton
[1]Seniors receive only 3 hours credit.	Lect. B	9	TWTF	241 N.H.	Savage

Geol. 4. Field Work.—Field observations during the week following the Easter recess. Credit will be given only upon the completion of a satisfactory written report. *Prerequisite:* Geol. 1 taken since Sept., 1932, or Geol. 2a taken earlier. Estimated traveling expense about $25. (2). Assistant Professor Wanless.

Geol. 43. Engineering Geology.—*Prerequisite:* Sophomore standing in the College of Engineering.

3	Lect.	1	TT	247 N.H.	Howard
		11	S	247 N.H.	
	Lab. 1	2–4	Tu	147 N.H.	
	Lab. 2	9–11	S	147 N.H.	

Geol. 44. **Agricultural Geology.**—*Prerequisite:* Sophomore standing in the College of Agriculture.

Credits	Section	Hours	Days	Room	Instructor
3	Lect. and Quiz	1	MWF	247 N.H.	WANLESS
	Lab.	10–12	F	147 N.H.	WANLESS

Courses for Advanced Undergraduates and Graduates

Geol. 15. **Structural Geology.**—Discussion and one two-day field trip. *Prerequisite:* Geol. 2a and junior standing. (3). 10 MWF; 134 N.H. Assistant Professor SHEPARD.

Geol. 16. **Stratigraphy.**—*Prerequisite:* Geol. 9. (3). 10 MWF; 236 N.H. Lab. hours to be arranged. Assistant Professor SUTTON.

Geol. 49. **Microscopic Mineralogy.**—*Prerequisite:* Geol. 20 or 47.

5	Lect. and Lab.	1–3	TT	254 N.H.	QUIRKE and assistants
	Lab. 1	8–10	MWF	254 N.H.	
	Lab. 2	8–10	TTS	254 N.H.	

Geol. 60b. **Introduction to Research.**—Limited to seniors majoring in Geology. (2). Members of the department.

Geol. 96. **Economic Geology.**—*Prerequisite:* Geol. 2a or 43, and 20 or 48. 9 MWF; 150 N.H. Professor QUIRKE.

Courses for Graduates

Geol. 102. **Igneous Petrography.**—(1 unit). Twice a week. Hours to be arranged; 253 N.H. Professor QUIRKE.

Geol. 122. **Mountain and Continental Structures.**—(1 unit). Hours to be arranged; 134 N.H. Assistant Professor SHEPARD.

Geol. 135. **Research.**—(½ to 4 units).* Once a week. Hours to be arranged. Members of the department.

Geol. 142. **Stratigraphic Paleontology: Paleozoic.**—(1 unit). Hours to be arranged; 236 N.H. Professor SAVAGE.

Geol. 143. **Stratigraphic Paleontology: Mesozoic and Cenozoic.**—(1 unit). Hours to be arranged; 134 N.H. Assistant Professor SUTTON.

Geol. 152. **Advanced Historical Geology.**—(1 unit). 11 MWF; 150 N.H. Assistant Professor CRICKMAY.

Geol. 160. **Principles of Petroleum Geology.**—(1 unit). Three times a week. Hours to be arranged. Associate Professor HOWARD.

Geol. 163. **Geologic Development of the Continents.**—(1 unit). Three times a week. Hours to be arranged. Associate Professor HOWARD.

B. GEOGRAPHY

Major: 20 hours of courses that have prerequisites in geography, exclusive of Geography 1, and including at least 5 hours of courses not open to freshmen.

Minors: 20 hours selected from not more than two of the following named departments: economics, education, history, zoology, botany, and geology. At least eight hours must be offered in each subject, if two are chosen.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geog. 1, 2, 4, 5, 7, 14, 15, or 10 or 11, or 12 or 8 or 53.

Courses for Undergraduates

Geog. 1. **Elements of Geography.**—Lectures and discussions; two or three field trips.

5[1]	A	8	MTWTF	435 N.H.	BURGY
[1]Seniors receive only 4 hours; students who have credit for Geol. 1 receive only 3 hours for Geog. 1.	B	9	MTWTF	435 N.H.	BURGY
	C	10	MTWTF	435 N.H.	PAGE
	D	11	MTWTF	435 N.H.	POGGI
	E	1	MTWTF	435 N.H.	PAGE

Geog. 2. **Economic Geography.**—*Prerequisite:* Geog. 1. Lectures and discussion.

5[1]	A	8	MTWTF	434 N.H.	BLANCHARD
[1]Seniors will receive only 4 hours credit.	B	9	MTWTF	434 N.H.	POGGI

Geog. 5. **Geography of South America.**—Lectures and discussions; two or three field trips. *Prerequisite:* Geog. 2. (3). 1 MWF; 434 N.H. Dr. BURGY.

Geog. 15. **Physiography.**—*Prerequisite:* Geog. 1. (3). 11 MWF; 422 N.H. Professor BLANCHARD.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Courses for Advanced Undergraduates and Graduates

Geog. 11. Geography of Asia.—*Prerequisite:* One regional course. (3). 2 MWF; 434 N.H. Dr. Poggi.

Geog. 14a. Climates of the Continents.—*Prerequisite:* Geog. 14. (3). 9 MWF; 422 N.H. Assistant Professor Page.

Geog. 53b. Advanced Commercial Geography.—*Prerequisite:* One regional course and senior standing. (3). 10 MWF; 422 N.H. Professor Blanchard.

Geog. 60b. Introduction to Research.—Limited to seniors majoring in Geography. (2). Time to be arranged. Members of the staff.

Course for Graduates

Geog. 135. Research.—(½ to 4 units).* Once a week. Hours to be arranged. Members of the department.

GERMAN

Major: 20 hours in German, excluding courses 1 and 2, and including 6 hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list, with not less than eight hours in each subject: Education, English (excluding Rhetoric 1, 2, and 12), French (excluding 1a), Greek, history, Italian, Latin, philosophy, Spanish (excluding 1a).

Note: Seniors receive reduced credit in German 1 and 2.

Elementary and Intermediate Courses

German 1. Elementary Course.—

Credits	Section	Hours	Days	Room	Instructor
4[1]	A	8	MTWT	219 L.H.	Schreiber
[1]Seniors will receive only 3 hours credit.	B	9	MTWT	306 L.H.	Mueller
	C	10	MTWT	238 L.H.	Robinson
	D	1	MTWT	306 L.H.	Moore
	E	4	MTWT	306 L.H.	Bald

German 2. Elementary Course (continued).—*Prerequisite:* German 1, German S1, or one year of high-school German.

4[1]	A1	8	MTWT	224 L.H.	Genschmer
[1]Seniors will receive only 3 hours credit.	A2	8	MTWT	205 L.H.	Munro
	A3	8	MTWT	206 L.H.	Mueller
	B1	9	MTWT	205 L.H.	Brooks
	B2	9	MTWT	240 L.H.	Schreiber
	C	10	MTWT	233 L.H.	Munro
	D1	11	MTWT	233 L.H.	Robinson
	D2	11	MTWT	213 U.H.	Bald
	E1	1	MTWT	224 L.H.	Genschmer
	E2	1	MTWT	205 L.H.	Krauss
	F	2	MTWT	205 L.H.	Jehle
	G	3	MTWT	206 L.H.	Moore
	H	4	MTWT	205 L.H.	Krauss

German 4. Intermediate Course.—*Prerequisite:* German 2, S2, or two years of high-school German or equivalent.

4	A	8	MTWT	233 L.H.	Robinson
	B	10	MTWT	205 L.H.	Jehle
	C	4	MTWT	213 U.H.	Koller

German 5. Intermediate Course (continued).—Literary reading. *Prerequisite:* German 4, S4, or three years of high-school German or equivalent.

4	A	8	MTWT	238 L.H.	Geissendoerfer
	B	9	MTWT	302 L.H.	Geissendoerfer
	C	11	MTWT	404 U.H.	Koller
	D	1	MTWT	211 L.H.	Schreiber
	E	3	MTWT	205 L.H.	Jehle
	F	4	MTWT	206 L.H.	Munro

German 6. Scientific Reading.—(Students may not take both 5 and 6 for more than a total of 4 hours credit without permission of department). *Prerequisite:* German 4, S4, or three years of high-school German or equivalent.

4	A	11	MTWT	203 L.H.	Williams
	B	4	MTWT	211 L.H.	Moore

Courses for Advanced Undergraduates

German 7. Modern Fiction.—*Prerequisite:* German 5 or equivalent. (3). 2 MWF; 235 L.H. Assistant Professor Koller.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

German 10. Introductory Goethe Course.—*Prerequisite:* German 5 or equivalent. (3). 11 MWF; 205 L.H. Professor ARON.

German 16b. Conversation and Writing.—*Prerequisite:* German 16a or equivalent. (2). 2 TT; 204a L.H. Assistant Professor KOLLER.

German 24b. Nineteenth Century Drama.—*Prerequisite:* German 24a or equivalent. (2). 3 TT; 204a L.H. Assistant Professor GEISSENDOERFER.

German 25. Teachers' Course.—*Prerequisite:* Three years of college German or equivalent. (2). Arrange. Assistant Professor GEISSENDOERFER.

German 28b. Lyrics and Ballads.—*Prerequisite:* German 28a or equivalent. (2). 9 TT; 204a L.H. Associate Professor WILLIAMS.

German 29b. Advanced Conversation and Writing.—*Prerequisite:* 29a or equivalent. (2). 2 TT; 211 L.H. Assistant Professor GEISSENDOERFER.

German 30b. Senior Thesis and Honors Course.—*Prerequisite:* Senior standing; three years of college German or equivalent. (2). Arrange. Professor ARON and others.

Courses for Advanced Undergraduates and Graduates

German 19b. Goethe's Faust II.—*Prerequisite:* German 19a or equivalent. (2). 11 TT; 206 L.H. Professor BROOKS.

German 26b. German Literature in the Nineteenth Century.—*Prerequisite:* German 26a or equivalent. (3). 9 MWF; 233 L.H. Professor ARON.

German 32. History of German Civilization.—*Prerequisite:* Three years of college German or equivalent. (3). Arrange. Professor BROOKS.

German 54. Introduction to Comparative Literature.—See English 54.

Courses for Graduates

German 101. Seminar in Goethe and Schiller.—(1 unit). Twice a week. Arrange. Professor ARON.

German 102. Thesis.—(½ to 2 units).* Arrange. Professors ARON, BROOKS; Associate Professor WILLIAMS, Assistant Professor GEISSENDOERFER.

German 105. Old High German.—(1 unit). Twice a week. Arrange. Associate Professor WILLIAMS.

German 117. German Literature of the Seventeenth and Eighteenth Centuries.—(1 unit). Twice a week. Arrange. Professor ARON.

German 121a. The Nibelungenlied.—(1 unit). Twice a week. Arrange. Associate Professor WILLIAMS.

GREEK

(See Classics, A.)

HISTORY

Major: 20 hours, including (a) ten hours in courses having junior standing as a prerequisite, and (b) any other courses offered by the department (except courses taken in the freshman year).

Minors: 20 hours selected from one or two of the following subjects: economics, political science, geography, philosophy, law, sociology, and English and American literature (except such courses as are taken in the freshman year). Courses in one modern language (except such as are primarily designed for freshmen) will be accepted as one of two minor subjects.

Note: Seniors receive reduced credit in History 1 and 2.

Courses for Undergraduates

Hist. 1b. Continental European History.—

Credits	Section	Hours	Days	Room	Instructor
4[1]	[2]Lect. 1	10	TT	Morrow Hall	JONES
[1]Seniors will receive	A Disc.	8	WF	211 U.H.	TOLO
only 3 hours credit.	B Disc.	8	WF	335 L.H.	SHAY
	C Disc.	9	WF	334 L.H.	SHAY
[2]Students in Lecture 1	D Disc.	10	WF	335 L.H.	JONES
must elect a discussion	E Disc.	10	WF	211 L.H.	SHAY
in the A-I group. Stu-	F Disc.	10	WF	214 U.H.	TOLO
dents in Lecture 2	G Disc.	11	WF	238 L.H.	KING
must elect a discussion	H Disc.	1	WF	303a L.H.	KING
in the J-O group.	I Disc.	2	WF	211 U.H.	

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Hist. 1b. Continental European History (Concluded)

Credits	Section	Hours	Days	Room	Instructor
4[1]	[2]Lect. 2	2	MW	228 N.H.	RONALDS
[1]Seniors will receive only 3 hours credit.	J Disc.	10	TT	329 L.H.	RONALDS
	K Disc.	11	TT	321 L.H.	RONALDS
	L Disc.	1	TT	305 L.H.	RONALDS
[2]Students in Lecture 2 must elect a discussion in the J-O group.	M Disc.	2	TT	335 L.H.	TOLO
	N Disc.	2	TT	321 L.H.	SHAY
	O Disc.	2	TT	238 L.H.	

Hist. 2b. English History.—

3[1]	Lect. 1	11	M	Morrow Hall	DIETZ
	Lect. 2	2	M	Morrow Hall	DIETZ
[1]Seniors will receive only 2 hours credit.	A Disc.	11	TT	300 L.H.	ERICKSON
	B Disc.	10	WF	321 L.H.	ERICKSON
	C Disc.	11	WF	329 L.H.	MARTIG
	D Disc.	11	WF	224 L.H.	LAFUZE
	E Disc.	11	WF	335 L.H.	WERNER
	F Disc.	11	WF	321 L.H.	DIETZ
	G Disc.	1	WF	305 L.H.	LAFUZE
	H Disc.	2	WF	340 L.H.	ERICKSON
	I Disc.	2	WF	311 L.H.	MARTIG
	J Disc.	2	WF	329 L.H.	SHAY
	K Disc.	2	TT	203 L.H.	MARTIG
	L Disc.	3	TT	305 L.H.	SHAY

Hist. 3b. History of the United States since 1828.—*Prerequisite:* One year of college work.

3	[1]Lect. 1	8	MF	218 U.H.	WERNER
	A Disc.	8	Tu	305 L.H.	WERNER
[1]Students in Lecture 1 must elect a discussion in the A-E group. Students in Lecture 2 must elect a discussion in the F-J group. Students in Lecture 3 must elect a discussion in the K-O group.	B Disc.	8	W	305 L.H.	WERNER
	C Disc.	8	W	303a L.H.	LAFUZE
	D Disc.	8	W	311 L.H.	KING
	E Disc.	8	Th	305 L.H.	WERNER
	[1]Lect. 2	11	MF	L.H. Theatre	DUNBAR
	F Disc.	10	Tu	305 L.H.	DUNBAR
	G Disc.	11	Tu	334 L.H.	DUNBAR
	H Disc.	11	W	334 L.H.	DUNBAR
	I Disc.	11	W	211 U.H.	
	J Disc.	10	Th	321 L.H.	DUNBAR
	[1]Lect. 3	2	MF	218 U.H.	HANSEN
	K Disc.	2	Tu	235 L.H.	HANSEN
	L Disc.	2	W	321 L.H.	HANSEN
	M Disc.	2	W	304 L.H.	KING
	N Disc.	2	W	335 L.H.	LAFUZE
	O Disc.	2	Th	311 L.H.	HANSEN

Hist. 5b. The Ancient World: Greece and Rome.—*Prerequisite:* Sophomore standing.

3	Lect.	2	MF	303 L.H.	SWAIN
	A Disc.	2	Tu	240 L.H.	WRIGHT
	B Disc.	2	W	240 L.H.	WRIGHT
	C Disc.	2	W	105 L.H.	SWAIN
	D Disc.	2	Th	240 L.H.	WRIGHT

Hist. 18. The Teaching of History.—*Prerequisite:* One year of college history and senior standing. (2). 3 TT; 303 L.H. Assistant Professor WERNER.

Hist. 30b. The Mohammedan World: The Ottoman Empire and the Question of the Near East.—*Prerequisite:* One year of college history. (3). 10 MWF; 305 L.H. Professor LYBYER.

Hist. 33b. History of Russia in the Nineteenth and Twentieth Centuries.—*Prerequisite:* Junior standing and one year of college history. (3). 8 MWF; 109 L.H. Associate Professor RODKEY.

Hist. 34b. Development of Modern Europe, 1789-1848.—*Prerequisite:* Junior standing and one year of college history. (3). 11 MWF; 311 L.H. Dr. ERICKSON.

Hist. 42. Medieval Civilization.—*Prerequisite:* One year of college history. (3). 3 TT; 329 L.H. Professor LARSON.

Hist. 43. The British People in the Victorian Age.—*Prerequisite:* One year of college history. (2). 8 TT; 303 L.H. Dr. ERICKSON.

Hist. 45b. History of England in the Eighteenth and Early Nineteenth Centuries (1760-1837).—*Prerequisite:* Junior standing and one year of college history. (2). 2 TT; 303 L.H. Assistant Professor RONALDS.

Hist. 51b. Hebrew History.—*Prerequisite:* Junior standing. (2). 2 TT; 305 L.H. Associate Professor SWAIN.

Hist. 90b. Thesis.—*Prerequisite:* Senior standing. (2). Arrange. Associate Professor RODKEY.

Hist. 91b. Honors Course: Pro-seminar in Recent History.—*Prerequisite:* Senior standing. (2). Arrange. Professor LYBYER.

Courses for Advanced Undergraduates and Graduates

(Open to seniors and juniors of high standing)

Hist. 16b. Foundations of American Society: Beginnings of National Life and Organization, 1763-1789.—*Prerequisite:* History 3a. (3). 10 MWF; 311 L.H. Assistant Professor DUNBAR.

Hist. 17b. Social and Economic Forces in the Nineteenth Century (after 1860).—*Prerequisite:* History 3b. (3). 9 MWF; 303 L.H. Professor HANSEN.

Hist. 19b. History of American Immigration.—*Prerequisite:* History 3b. (2). 9 TT; 203 L.H. Professor HANSEN.

Hist. 20b. History of the South since 1850.—*Prerequisite:* History 3b. (2). 8 TT; 335 L.H. Professor RANDALL.

Hist. 27. History of Latin America from the Wars of Independence to the Present Time.—*Prerequisite:* One year of college history. (3). 2 MWF; 305 L.H. Professor ROBERTSON.

Hist. 29. America and Europe, Selected Topics, 1776-1870.—*Prerequisite:* One year of college history. (3). 8 MWF; 308 L.H. Professor ROBERTSON.

Hist. 32b. History of Europe, 1914-1933.—*Prerequisite:* One year of college history, economics, or political science. (3). 8 MWF; 203 L.H. Professor LYBYER.

Hist. 36b. Development of Modern Germany.—*Prerequisite:* One year of college history. (3). 9 MWF; 308 L.H. Associate Professor RODKEY.

Hist. 38b. Development of the French Monarchy in Early Modern Times, 1453-1648.—*Prerequisite:* History 1a. (3). 9 MWF; 329 L.H. Professor JONES.

Hist. 44b. Constitutional History of England.—*Prerequisite:* One year of college history. (3). 3 MWF; 303 L.H. Professor LARSON.

Hist. 46b. The Industrial Revolution and English Social Politics, 1832-1933.—*Prerequisite:* One year of college history. (3). 9 MWF; 335 L.H. Professor DIETZ.

Hist. 56. History of the Roman Republic.—*Prerequisite:* One year of college history. (3). 1 MWF; 202 L.H. Professor OLDFATHER.

Hist. 57b. Ancient Imperialism.—*Prerequisite:* One year of college history. (3). 11 MWF; 240 L.H. Associate Professor SWAIN.

Hist. 60. The United States in the World War.—*Prerequisite:* One year of college history. (3). 11 MWF; 304 L.H. Professor RANDALL.

Hist. 62b. Political and Constitutional Development of the United States.—*Prerequisite:* One year of college history. (3). 10 MWF; 329 L.H. Professor RANDALL.

Courses for Graduates

Hist. 101b. Seminar in American History: Investigation of Selected Topics.—(1 unit). 4-6 Tu. Professor RANDALL.

Hist. 102b. Seminar in English History.—(1 unit). 4-6 Th. Professor DIETZ.

Hist. 104b. Seminar in Modern History: The Rise of Nationalism in Asia.—(1 unit). 4-6 W. Professor LYBYER.

Hist. 105. Research in Special Topics (Thesis Course).—(1 to 2 units).* Professors LARSON, LYBYER, ROBERTSON, JONES, RANDALL, DIETZ, HANSEN; Associate Professors SWAIN, RODKEY; Assistant Professors DUNBAR, RONALDS, WERNER.

Hist. 106b. Seminar in the History of the Later Middle Ages.—(1 unit). Arrange. Professor LARSON.

Hist. 127. Inter-American Relations: Relations of the Latin-American Nations with each other and with the United States.—(1 unit). Arrange. Professor ROBERTSON.

Hist. 133b. Studies in the History of Europe in the Nineteenth Century.—(1 unit). 9-11 S. Associate Professor RODKEY.

Hist. 138b. History of France in the Sixteenth and Seventeenth Centuries.—(1 unit). Arrange. Professor JONES.

Hist. 150b. Seminar in Ancient History.—(1 unit). Arrange. Associate Professor SWAIN.

HOME ECONOMICS

Note: Certain courses in this department require laboratory fees varying from $1 to $16.

College of Agriculture

Curriculum in General Home Economics. (See *Directions for Registration*, page 46.)

Curriculum in Nutrition and Dietetics. (See *Directions for Registration*, page 47.)

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

College of Education

Requirements in Home Economics Education. (See *Directions for Registration*, page 53.)

College of Liberal Arts and Sciences

Major A.—General Home Economics: 20 hours from courses offered by the department, excluding Home Economics 7 and 58, and including Home Economics 2, 5, 10, 29, 59, and two or more of the following: Home Economics 14, 20, 28, 31, 33, 35, 41, 43a, 43b, 48, 55, 57a, 57b.

Major B.—Nutrition: 20 hours excluding Home Economics 58, and including Home Economics 5, 39a, 39b, 41, 59, and two or more of the following: Home Economics 20, 33, 35, 45, 47.

Minor A.—20 hours chosen from one or two of the following subjects and taken after the freshman year: chemistry, bacteriology. At least eight hours must be offered in each subject, if two are chosen.

Minor B.—20 hours chosen from one or two of the following subjects and taken after the freshman year: economics, sociology. At least eight hours must be offered in each subject, if two are chosen.

Transfer Students: To satisfy the requirements for graduation, students transferring home economics credits from other institutions must take five hours in residence from the following: Home Economics 20, 28, 31, 33, 35, 39a, 39b, 41, 43a, 43b, 47, 48, 50, 51, 55, 57a, 57b.

Electives: In addition to the required subjects in each college, it is expected that students will choose electives in accord with their special interests, as follows:

1. Textiles, clothing and costume design: Home Economics 19, 30, 31, 42, 43a, 43b, 50, 51.
2. Institution management and hospital dietetics: Home Economics 20, 33, 35, 46, 47, 48, 55.
3. Household management: Home Economics 14, 28, 57a, 57b, and additional courses in economics.
4. House planning and furnishing: Art 16a, 16b; Architecture 11, 12; Home Economics 3, 43a, 43b, and additional courses in art and history.
5. Nutrition: Chemistry 24, 50a; Zoology 1; Home Economics 20, 33, 35, 39a, 39b, 41, 45.
6. Teaching of home economics: Home Economics 11, 13, 34, 45; Education 6, 10, 25.

Courses for Undergraduates

Home Econ. 2. Home Architecture.—*Prerequisite:* Art 13a and sophomore standing. *Prerequisite or concurrent:* Art 13b.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	9	TT	117 W.B.	Foster
	Quiz	11	F	117 W.B.	Weaver
	E Conf.	1	F	300 Arch.	
	F Conf.	2	F	300 Arch.	
	G Conf.	3	F	300 Arch.	
	H Conf.	4	F	300 Arch.	

Home Econ. 3. Home Decoration.—*Prerequisite:* Art 13a, 13b.

3	Lect.	3	W	117 W.B.	Weaver
	L Lab.	10–12	TT	309 W.B.	
	N Lab.	1–3	TT	309 W.B.	

Home Econ. 5. Dietetics.—*Prerequisite:* Chem. 33; Home Econ. 58 (or 6 or 44); Physiology 4. *Prerequisite or concurrent:* Home Economics 59.

4	Lect.	9	M	210 W.B.	Barto
	B1 Quiz	9	W	117 W.B.	Barto
	B2 Quiz	9	F	117 W.B.	Barto
	C Lab.	10–12	MW	229 W.B.	Munger
	L Lab.	10–12	TT	229 W.B.	Barto

Home Econ. 7. Textiles.

3[1]	Lect.	10	M	210 W.B.	Jacobsen
[1]Seniors will receive only 2 hours credit.	C1 Quiz	10	W	117 W.B.	
	C2 Quiz	10	F	117 W.B.	
	E1 Lab.	1–3	M	304 W.B.	
	E2 Lab.	1–3	W	304 W.B.	
	N Lab.	1–3	Th	304 W.B.	

Home Econ. 9. Home Economics Extension.—*Prerequisite:* Senior standing in home economics; consent of the instructor.

3	Lect.	3–5	M	210 W.B.	Burns
		3	W	210 W.B.	

Home Econ. 10. Organization and Management of the Home.—*Prerequisite:* Econ. 1 or 2; Home Econ. 7, 59 (or 6 or 44). *Prerequisite or concurrent:* Home Econ. 2.

3	Lect.	1	F	121 W.B.	Nickell
	A Quiz	8	MW	121 W.B.	
	E Quiz	1	MW	121 W.B.	

Home Econ. 11. The Teaching of Home Economics.—*Prerequisite:* Home Econ. 6, 29. *Prerequisite or concurrent:* Education 10; Home Econ. 5, 10, 19. *Recommended:* Home Econ. 34. One inspection trip (approximate cost $3). Required of all who wish to be recommended to teach home economics. (3). Lecture and discussion, 2 TT; 121 W.B. Miss Robinson.

Home Econ. 11a. Supervised Teaching.—*Prerequisite or concurrent:* Home Econ. 11. (2). Time to be arranged, daily for twenty lessons. University High School, Urbana High School. Miss Robinson, Miss Todd, Miss King.

Note: Students wishing a five-hour course in supervised teaching in home economics should take Educational Practice 14 (see Education). Credit is not allowed for supervised teaching in the College of Liberal Arts and Sciences.

Home Econ. 13. Home Economics in Education.—*Prerequisite or concurrent:* Home Econ. 10, 29. Recommended for all seniors in Home Economics. (3). 3 TT; 117 W.B. Miss Todd.

Home Econ. 14. Home Management House.—Conferences and laboratory work in practice apartment and laundry. The students reside in the apartment four weeks during the semester. This course is required of all students expecting to meet the Smith-Hughes requirements. *Prerequisite:* Home Econ. 5, 10; consent of instructor. (3). Conference, 4 Th, 117 W.B.; laboratory to be arranged with instructor, 317-319 W.B. Assistant Professor Nickell.

Home Econ. 19. Costume Design.—*Prerequisite:* Art 13a, 13b; Home Econ. 29.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	3	F	210 W.B.	Barnes
	C Lab.	10–12	MW	309 W.B.	
	E Lab.	1–3	MW	309 W.B.	

Home Econ. 29. Clothing.—*Prerequisite:* Art 13a or 13b; Home Econ. 7.

4	Lect.	9	F	210 W.B.	Whitlock
	B Quiz	9	W	210 W.B.	Beam
	D Quiz	11	W	121 W.B.	Beam
	E Lab.	1–3	MW	327 W.B.	Beam
	N Lab.	1–3	TT	327 W.B.	Beam
	L Lab.	10–12	TT	327 W.B.	Beam

Home Econ. 30. Clothing.—*Prerequisite or concurrent:* Home Econ. 19.

3	Lect.	2	F	117 W.B.	Whitlock
	E Lab.	1–3	MW	203-5 W.B.	
	N Lab.	1–3	TT	203-5 W.B.	

Home Econ. 38. Elementary Nutrition.—*Prerequisite:* Senior standing. (Open only to students not majoring in home economics.)

2	F Lect. for women	2	MW	231 W.B.	Barto
	K Lect. for men	9	TT	231 W.B.	

Home Econ. 40. Home Care of the Sick.—*Prerequisite:* Senior standing in home economics. (1). Lect. 1 M, 210 W.B. Assistant Professor Brooks.

Home Econ. 46. Quantity Cookery.—*Prerequisite:* Home Economics 59 (or 6 or 44).

3	Quiz	4	W	117 W.B.	Smith
	Lab.	8–11	Two mornings a week, to be arranged with instructor; students advised not to have eleven o'clock classes as they are required to serve at noon two days a week.		Smith, Bennett

Home Econ. 47. Institution Management.—*Prerequisite:* Econ. 1 or 2. *Prerequisite or concurrent:* Home Econ. 46.

3	Lect. and Disc.	2	MWF	121 W.B.	Smith

Home Econ. 56a. Child Development.—(For students not majoring in home economics.) *Prerequisite:* Senior standing or consent of the instructor.

2	Lect.	10	MW	121 W.B.	Walls

Home Econ. 58. Foods.—*Prerequisite:* Chemistry 1 and 5.

5	Lect.	9	MW	121 W.B.	Woodruff
	B1 Quiz	9	F	208 W.B.	Pickens
	B2 Quiz	9	F	121 W.B.	Munger
	C Lab.	10–12	MWF	235 W.B.	Pickens
	E Lab.	1–3	MWF	235 W.B.	Pickens
	N Lab.	1–3 10–12	TT S	235 W.B.	Munger

Home Econ. 59. Food Economics.—Food buying and utilization; retail cost, brands, and grades; preservation; legislation. *Prerequisite:* Home Econ. 58.

2	Lect.	11	Th	210 W.B.	Woodruff
	P1 Lab.	3–5	Tu	229 W.B.	Pickens
	G Lab.	3–5	W	229 W.B.	Munger
	P2 Lab.	3–5	Th	229 W.B.	Munger

Courses for Advanced Undergraduates and Graduates

Home Econ. 31. Clothing.—*Prerequisite:* Home Econ. 30.

Credits	Section	Hours	Days	Room	Instructor
3	Quiz	11	F	121 W.B.	WHITLOCK
	Lab.	10–12	MW	203-5 W.B.	

Home Econ. 33. Diet in Disease.—*Prerequisite:* Home Econ. 5.

3	Lect.	3	F	121 W.B.	BARTO
	Quiz	3	W	121 W.B.	
	Lab.	3–5	M	229 W.B.	

Home Econ. 35. Problems in Foods.—*Prerequisite:* Home Econ. 5; consent of the instructor; (Chemistry 24 is advised).

3	Conf.	8	F	210 W.B.	WOODRUFF
	Lab.	1–4	TT	113 W.B.	

Home Econ. 39b. Readings in Foods and Nutrition.—*Prerequisite:* Home Econ. 5; senior standing. *Prerequisite or concurrent:* Chemistry 50a, or Home Economics 20, 33, 41 or 55. (1). Seminar, 4:00-5:30 Th, 203-5 W.B. Associate Professor WOODRUFF, Assistant Professors OUTHOUSE and BARTO.

Home Econ. 41. Problems in Nutrition.—*Prerequisite:* Chem. 50a; Physiol. 4; senior standing. (3 to 5).* Lab. and Conference, 9-12 MWFS; 215 W.B. Assistant Professor OUTHOUSE, Mrs. MEYER.

Home Econ. 43b. Problems in Textiles and Clothing.—*Prerequisite:* Econ. 1 or 2; Home Econ. 30 or 51. Individual problems may involve prerequisites of chemistry and physics.

3	Quiz	3	Tu	304 W.B.	JACOBSEN, WEAVER,
	Lab.	to be arranged			WHITLOCK, BARNES

Home Econ. 48. Institution Dietaries and Administration.—*Prerequisite:* Home Econ. 5, 47. Three and one-half day field trip to Chicago (approximate cost $25).

4	Lect.	9	TT	121 W.B.	SMITH
	Lab.	8–12	S	207 W.B.	

Home Econ. 50. Costume Design.—*Prerequisite:* Home Economics 30, 42.

3	Lab.	1–4	MW	309 W.B.	BARNES

Home Econ. 51. Textiles.—*Prerequisite:* Chem. 5; Econ. 1 or 2; Home Econ. 7; junior standing.

3	Lect.	9	Tu	304 W.B.	JACOBSEN
	Lab.	10-12	TT	304 W.B.	

Home Econ. 56. Child Development.—*Prerequisite:* Home Econ. 10; Psych. 1.

2	Lect.	1	MW	210 W.B.	WALLS

Home Econ. 57b. Problems in Household Management.—*Prerequisite:* Home Econ. 10. (3). Time to be arranged, 313 W.B. Assistant Professor NICKELL.

Courses for Graduates

Home Econ. 101. Home Economics.—(1 unit). Professor WARDALL.

Home Econ. 102. Research in Nutrition.—(½ to 3 units).* Assistant Professor OUTHOUSE.

Home Econ. 103. Seminar in Nutrition.—(½ unit). To be arranged. Assistant Professor OUTHOUSE.

Home Econ. 104. Research in Foods.—(½ to 3 units).* Associate Professor WOODRUFF.

Home Econ. 105. Seminar in Foods.—(½ unit). Associate Professor WOODRUFF.

HORTICULTURE

Note: Certain courses in this department require laboratory fees varying from $0.50 to $3.50.

Courses for Undergraduates

Hort. 1b. Elements of Horticulture.—(No credit in this course allowed to juniors and seniors.) A student is required to register in the same section for both laboratory and quiz.

2	E Quiz	1	MF	111 New Agr.	WEAVER
	Lab.	1–3	W	111 New Agr.	MCCOLLUM
	G Quiz	3	MF	203 V.G.	
	Lab.	3–5	W	203 V.G.	
	A Quiz	8	MF	203 V.G.	
	Lab.	8–10	W	203 V.G.	
	C Quiz	10	MF	203 V.G.	
	Lab.	10–12	W	203 V.G.	

Hort. 2. Small Fruit Culture.—*Prerequisite:* Hort. 1a and 1b. (2). 1-3 TT; 106 H.F.L. Professor COLBY.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Hort. 3. Commercial Vegetable Gardening.—*Prerequisite:* Hort. 1b or junior standing. (3). 1-3 MWF; 203 V.G. Professor LLOYD, Mr. WEAVER.

Hort. 4. Plant Houses.—(3). 3 MWF; F.G. Professor DORNER.

Hort. 7. Spraying.—*Prerequisite:* Hort. 1a and 1b; Chem. 1. (3). Lect. and quiz, 3-5 W; 111 New Agr. Lab. 3-5 MF; 503 Agr. Professor RUTH.

Hort. 8b. Orcharding.—*Prerequisite:* Hort. 8a. (3). 1-3 MW; 1 F; H.F.L. Inspection trip required; expenses not to exceed $15. Mr. MCMUNN.

Hort. 15a. Greenhouse Management.—*Prerequisite:* Hort. 5, Bot. 5. (3). 10-12 MWF; F.G. Professor DORNER, Associate Professor HALL.

Hort. 15c. Commercial Floricultural Crops.—*Prerequisite:* Hort. 15b. (3). 8-10 TTS; F.G. Associate Professor HALL.

Hort. 22b-h. Investigation with Thesis.—*Prerequisite:* Senior standing; not less than 20 hours pertinent to the thesis problem, and the approval of the head of the department. Continuous throughout the year. Credit is not given for either semester separately. (5). Arrange.

- (b) **Pomology.**—*Prerequisite:* Hort. 22a. Professors DORSEY, RUTH, COLBY, ANDERSON; Assistant Professor KELLEY.
- (d) **Olericulture.**—*Prerequisite:* Hort. 22c. Professor LLOYD.
- (f) **Floriculture.**—*Prerequisite:* Hort. 22e. Professor DORNER, Associate Professor WEINARD.
- (h) **Plant Breeding.**—*Prerequisite:* Hort. 22g. Professor DORSEY.

Hort. 30. Tender Bedding Plants.—*Prerequisite:* Hort. 15a. (3). 8-10 MWF; F.G. Associate Professor HALL.

Hort. 31. Garden Flowers.—*Prerequisite:* Bot. 5. (3). Lect., 1 MWF; Lab., arrange; F.G. Professor DORNER.

Hort. 32b. Floral Decoration.—*Prerequisite:* Hort. 32a. (3). 8-10 TTS; F.G. Professor DORNER.

Hort. 50. Vegetable Seed Production.—*Prerequisite:* Hort. 3 and Hort. 49; Zool. 15. (3). 8 MWF; 206 V.G. Associate Professor HUELSEN.

Hort. 52. Special Vegetable Crops.—*Prerequisite:* Hort. 3 and Hort. 49. (3). 10-12 TTS; 203 V.G. Professor LLOYD.

Courses for Advanced Undergraduates and Graduates

Hort. 44. Current Pomological Literature.—*Prerequisite:* Senior standing. (1). 4 Tu; 211 New Agr. Professor RUTH.

Hort. 45. Plant Nutrition.—*Prerequisite:* Bot. 3; Agron. 9 or 28; Hort. 3 or 15a; senior standing. (3). 2 MWF; F.G. Associate Professor WEINARD.

Hort. 51. Fruit Diseases.—*Prerequisite:* Senior standing; Botany 7a. (3). Lect., 3 Tu; 302 Agr. Lab., 10-12 TT; H.F.L. Professor ANDERSON.

Courses for Graduates

Hort. 103. Olericulture.—(1 to 2 units).* Time to be arranged. Professor LLOYD.

Hort. 105. Marketing Fruits and Vegetables.—See Agricultural Economics 135. (1 to 2 units).* Arrange. Professor LLOYD.

Hort. 106. Olericulture Seminar.—(¼ unit). Arrange. Professor LLOYD.

Hort. 108. Pomology.—(1 to 4 units).* Time to be arranged.

- (a) **Pomological Problems.**—Professor BLAIR.
- (b) **Pomology and Fruit Breeding.**—Professor DORSEY.
- (c) **Pomological Physiology.**—Professor RUTH, Assistant Professor KELLEY.
- (d) **Small Fruits.**—Professor COLBY.
- (e) **Pomological Pathology.**—Professor ANDERSON.

Hort. 115. Floriculture.—(1 to 2 units).* Time to be arranged.

- (a) **Floricultural Problems.**—Professor DORNER.
- (b) **Floricultural Physiology and Pathology.**—Associate Professor WEINARD.

Hort. 120. Pomology Seminar.—(¼ unit). Time to be arranged. Professors DORSEY, RUTH, ANDERSON.

Hort. 140. Advanced Small Fruit Culture.—(1 unit). Time to be arranged. Professor COLBY.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

HYGIENE

Courses for Undergraduates

Hygiene 2. Essentials of Hygiene and Sanitation.—Required of all freshman women. Students whose names begin with the letters M through Z are to register the second semester.

Credits	Section	Hours	Days	Room	Instructor
2	A1	8	WF	106 L.H.	Millbrook
	B1	9	TT	106 L.H.	Etheredge
	B2	9	WF	106 L.H.	Etheredge
	C1	10	TT	106 L.H.	Wheeler
	C2	10	WF	106 L.H.	Wheeler
	F1	2	TT	106 L.H.	Millbrook

Hygiene 5. Elementary Hygiene and Sanitation.—Required of all undergraduate men during their first year of residence. Students who did not complete the course during the first semester should register in the second semester.

2	A2	8	WF	128 New Agr.	Judah
	A3	8	ThS	128 New Agr.	Judah
	B1	9	TT	128 New Agr.	Beard
	B2	9	WF	128 New Agr.	Beard
	B4	9	TT	127 New Agr.	Ross
	B5	9	MW	127 New Agr.	Ross
	C1 (Eng.)	10	TT	305 E.H.	Cain
	C2	10	WF	128 New Agr.	Cain
	C3	10	ThS	127 New Agr.	Blackstone
	C4	10	MW	127 New Agr.	Blackstone
	D1 (Eng.)	11	TT	305 E.H.	Lewis
	D3	11	MW	128 New Agr.	Lewis
	F1	2	TT	128 New Agr.	Judah
	F2	2	MW	128 New Agr.	Beard
	F3	2	WF	127 New Agr.	Ross
	G1 (Eng.)	3	TT	305 E.H.	Blackstone
	G2	3	WF	127 New Agr.	Lewis
	G4	3	MW	128 New Agr.	Cain

Hygiene 10. Advanced Hygiene.—Open to men and women. *Prerequisite:* Three semesters of university work and consent of instructor.

3	Lect.	2	M	127 New Agr.	Gebhart and others
	Quiz	2	WF	127 New Agr.	

INDUSTRIAL EDUCATION

(See Education, E.)

ITALIAN

(See Romance Languages and Literature, B.)

JOURNALISM

Note: Certain courses in this department require laboratory fees varying from $1 to $2.

Credit in journalism will be given for Rhet. 6, Engl. 45, Pol. Sci. 22, 27, 28, Law 2, 5, Hist. 21.

Courses for Undergraduates

Journ. 2. Introduction to Journalism.—Open to pre-journalism freshmen only.

1	N	1	Th	112 U.H.	Barlow
	O	2	Th	112 U.H.	Barlow

Journ. 3. The Newspaper and the News.—A non-professional course for students in other colleges. Not open to students with credit in Journ. 1-2, or to students registered in Journ. 6. *Prerequisite:* 30 hours of university work.

2	L	10	TT	410 U.H.	Dickinson
	O	1	TT	410 U.H.	Leiter

Journ. 4. Newspaper Reference Service.—*Prerequisite:* Sophomore standing. (2). 9 TT; two hours laboratory to be arranged; 112 U.H. Dr. Dickinson.

Journ. 5. Reporting.—*Prerequisite:* Sophomore standing. (3). 9 MWF; 214 U.H. Mr. Davis.

Journ. 6. Reporting.—*Prerequisite:* Sophomore standing and Journ. 5. (Make out class cards for one lecture, one discussion, and one laboratory period.)

Credits	Section	Hours	Days	Room	Instructor
3	O1 Lect.	2	Tu	315 U.H.	Davis
	[1]O2 Disc.	2	Th	113 U.H.	Davis
	A1 Lab.	8–10	M	118 U.H.	Leiter
[1]O2 discussion is for	C1 Lab.	10–12	M	118 U.H.	Leiter
students on the news	P2 Disc.	3	Th	113 U.H.	Davis
staff of The Daily Il-	E Lab.	1–3	M	118 U.H.	Leiter
lini. These students	K Lab.	9–11	Tu	118 U.H.	Leiter
may also register for	M1 Lect.	11	Tu	315 U.H.	Davis
any of the other dis-	L2 Disc.	10	Th	112 U.H.	Davis
cussions.	C2 Lab.	10–12	W	118 U.H.	Leiter
	C3 Lab.	10–12	F	118 U.H.	Leiter

Journ. 8. Sports Writing.—(For students in Athletic Coaching.) *Prerequisite:* Journ. 7. (3). 9 MWF; 112 U.H. Mr. Schooley.

Journ. 9b. History and Practice of Printing and Publishing.—*Prerequisite:* Sophomore standing and Journalism 9a. (See also Ind. Ed. 8.)

2 or 3[2]	Lect.	11	Th	315 U.H.	Allen
	Lab. A1	8–10	M	126 U.H.	Allen
[2]Sign for 2 if taking for	Lab. J1	8–10	Tu	126 U.H.	Allen
2 credits; 3 if taking	Lab. A2	8–10	W	126 U.H.	Allen
for 3 credits.	Lab. J2	8–10	Th	126 U.H.	Allen
	Lab. C1	10–12	M	126 U.H.	Allen

Courses for Advanced Undergraduates

Journ. 11. The Press, the Courts, and the Law.—*Prerequisite:* Junior standing. (2). 9 TT; 113 U.H. Assistant Professor Siebert.

Journ. 14. Copyreading.—*Prerequisite:* Journ. 13 and junior standing.

3	Lect.	3	M	315 U.H.	Siebert
[3]For students with	Lab. N	1–3	TT	118 U.H.	Siebert
desk experience. Con-	Lab. E	1–3	WF	118 U.H.	Siebert
sult adviser before	Lab. P	3–5	TT	118 U.H.	Siebert
registering.	[3]Lab. G	3–5	WF	118 U.H.	Siebert

Journ. 16. Special and Feature Articles.—*Prerequisite:* Junior standing. (2). 9 TT; 203 U.H. Mr. Davis.

Journ. 18. Ethics of Journalism.—*Prerequisite:* Junior standing. (3). 10 MWF; 315 U.H. Professor Murphy.

Journ. 22. Newspaper Administration.—*Prerequisite:* Junior standing. (3). Lecture and discussion, 10 TT; 2 hours laboratory to be arranged; 126 U.H. Assistant Professor Allen.

Journ. 28. Financial and Labor Journalism.—*Prerequisite:* Junior standing, and 6 hours of journalism or consent of the instructor. (3). 1 MWF; 113 U.H. Dr. Dickinson.

Journ. 34. Newspaper Advertising Copy and Layouts.—*Prerequisite:* Junior standing and Journ. 10 or 33.

2	Lect.	1	Tu	126 U.H.	Allen
	Lab. N	1–3	Th	126 U.H.	Allen

Journ. 36. Contemporary Affairs.—*Prerequisite:* Junior standing and 6 hours of journalism. (2). 11 TT; 113 U.H. Assistant Professor Siebert.

Journ. 41. Business Problems of the Newspaper.—*Prerequisite:* Junior standing. (3). 9 MWF; 113 U.H. Associate Professor Barlow.

Journ. 46. Governmental and Political Journalism.—*Prerequisite:* Junior standing and 6 hours of journalism. (3). 2 MWF; 113 U.H. Associate Professor Barlow.

Journ. 50. Critical Writing and Reviewing.—*Prerequisite:* Junior standing and 6 hours of journalism. (2). 11 MW; 113 U.H. Professor Murphy.

Journ. 52. Practice Problems.—(For seniors not writing theses in journalism.) (2). Hours to be arranged. Associate Professor Leiter, Mr. Krannert.

Journ. 56. Advanced Sports Writing.—*Prerequisite:* Junior standing and Journ. 5 or 8. (3). 11 MWF; 112 U.H. Dr. Dickinson.

Journ. 58. Comparative Journalism.—*Prerequisite:* Junior standing and 6 hours of journalism. (2). 10 TT; 113 U.H. Associate Professor Barlow.

Journ. 60b. Thesis Course.—Open to seniors with consent of Director. (2). Time to be arranged. Professor Murphy.

LANDSCAPE ARCHITECTURE

Note: Certain courses in this department require laboratory fees varying from $0.50 to $2.00.

Courses for Undergraduates

L.A. 32. Landscape Design.—*Prerequisite:* L.A. 31. (4). Lab., 9-12 TT, 10-12 MF; 200 New Agr. Professor White.

L.A. 34. Landscape Design.—*Prerequisite:* L.A. 33. (4). Lect., 2 W; 211 New Agr. Lab., 2-4 MF, 211 New Agr.; 1-5 TT, 200 New Agr. Professor WHITE.

L.A. 36N. Advanced Landscape Design.—*Prerequisite:* L.A. 35. (5). Lect., 9 M; 211 New Agr. Lab., 10-12 M, 9-12 WF, 8-12 S; 203 New Agr. Professor LOHMANN.

L.A. 38. Civic Design.—*Prerequisite:* Senior standing in the City Planning Option. (4). Lect., 9 M; 211 New Agr. Lab., 10-12 M, 9-12 WF; 203 New Agr. Professor LOHMANN.

L.A. 44. Landscape Construction.—*Prerequisite:* L.A. 43. (3). Lect., 10 M, 9 F; 214 New Agr. Lab., 11 M, 10-12 WF; 200 New Agr. Professor SCHAFFER.

L.A. 46. Office Practice in Landscape Architecture.—*Prerequisite:* L.A. 35. (1). 9 Tu; 211 New Agr. Professor SCHAFFER.

L.A. 52. Trees and Shrubs.—*Prerequisite:* L.A. 51. Open only to landscape architecture and floriculture students. (3). Lect., 3 W; 211 New Agr. Lab., landscape architecture students, 10-12 TT; floriculture students, 3-5 MF; 211 New Agr. Assistant Professor ROBINSON.

L.A. 54. Planting Design.—*Prerequisite:* L.A. 53. (3). Lect., 1 M; 211 New Agr. Lab.; 2 M, 1-3 WF; 203 New Agr. Assistant Professor ROBINSON.

L.A. 62. Rural Improvement.—*Prerequisite:* 30 hours of university work. (2). 11 TT; 103 New Agr. (Credit not allowed for both 62 and 64.) Assistant Professor PETERSON.

L.A. 64. Landscape Architecture.—For students not in the professional course. *Prerequisite:* 30 hours of university work. (3). Lect., 11 MWF; 214 New Agr. (Credit not allowed for both 64 and 62.) Professor WHITE and others.

L.A. 72. City Planning.—*Prerequisite:* 90 hours of university work. (2). 10 TT; other hours arrange; 214 New Agr. Professors BARTHOLOMEW and LOHMANN.

L.A. 74. Regional Planning.—*Prerequisite:* 30 hours of university work. (3). 8 MWF; 214 New Agr. Professor LOHMANN.

LATIN

(See Classics, B.)

LAW

Note: Students other than those registered in the College of Law are required to pay fees at the rate of $1 per semester hour for courses in law.

First Year Courses

Law 1b. Contracts.—Corbin: *Cases on Contracts.*

Credits	Section	Hours	Days	Room	Instructor
3	A	10	MThF	103 Law	GOBLE
	B	11	MThF	103 Law	GOBLE

Law 2b. Torts.—Bohlen: *Cases on Torts* (3d ed.).

2	A	2	MTu	106 Law	WEISIGER
	B	3	MTu	106 Law	WEISIGER

Law 10. Real Property I. Titles.—Aigler: *Cases on Property.*

4	A	8	TWTF	103 Law	SUMMERS
	B	9	TWTF	103 Law	SUMMERS

Law 11. Agency.—Mechem: *Cases on Agency* (2d ed.).

3	A	9	MTW	106 Law	GREEN
	B	10	MTW	106 Law	GREEN

Law 12. Equity Jurisdiction I.—Cook: *Cases on Equity* (2d ed., in one volume).

3	A	2	WTF	106 Law	HOLT
	B	3	WTF	106 Law	HOLT

Second Year Courses

Law 6b. International Law.—Law of War and Neutrality. (3). 2 MWF; 202 L.H. Professor GARNER.

Law 8. Evidence.—Hinton: *Cases on Evidence* (2d ed.). (3). 11 MWF; 106 Law. Professor HARNO.

Law 15. Bills and Notes.—Britton: *Cases on Bills and Notes* (2d ed.).

3	A	9	WTF	303 Law	BRITTON
	B	10	WTF	303 Law	BRITTON

Law 16. Trusts.—Scott: *Cases on Trusts* (2d ed.). (3). 8 MTW; 303 Law. Professor SCHNEBLY.

Law 17. Business Organizations I.—Crane and Magruder: *Cases on Partnership* (shorter selection). (2). 8 ThF; 303 Law. Professor HOLT.

Law 20. Procedure II.—Sunderland: *Cases on Common Law Pleading;* Hinton: *Cases on Equity Pleading,* and selected cases and readings. (4). 3 MTWT; 103 Law. Professor MCCASKILL.

Law 22b. Constitutional Law. The State and the Nation.—Hall: *Cases on Constitutional Law* with Supplement. (2). 10 ThF; 106 Law. Professor GREEN.

Law 32. Equity Jurisdiction III.—Cook: *Cases on Equity* (2d ed.). (Vol. III). (3). 2 TTF; 303 Law. Professor GOBLE.

Law 45. Use of Law Books.—Weisiger: *Manual on the Use of Law Books.* (1). 4 Tu; 303 Law. Professor WEISIGER.

Law 55. Legal Problems II.—Comments on recent decisions. *Prerequisite:* One year of law work and at least an average grade of B (4.) in all law courses. (1). Professor HOLT.

Third Year Courses

Law 21b. Credit Transactions II.—Mortgages, Pledges and Conditional Sales. Sturges: *Cases on Credit Transactions.* (3). 10 MTW; 300 Law. Assistant Professor MCDOUGAL.

Law 36. Procedure IV.—Practice Court. (3). 1:30-3 MW; 300 Law. Professor MCCASKILL.

Law 39b. Thesis Course.—This course is open to students who are candidates for the J.D. degree during the academic year next preceding their graduation. (1). Members of the staff.

Law 48. Legal Method and Legal Institutions.—Mimeographed materials and assigned readings. (2). 9 MTu; 303 Law. Assistant Professor MCDOUGAL.

Law 50. Industrial Relations II.—Labor Law. (2). 4 MW; 303 Law. Professor WEISIGER.

Law 57. Legal Problems IV.—Comments on recent decisions. *Prerequisite:* Legal Problems I or II, two years of law work, and at least an average grade of B (4.) in law courses. (1). Professor HOLT.

Law 58. Perpetuities and Restraints.—Selected cases. (2). 9 WTh; 306 Law. Professor SCHNEBLY.

Law 59. Banks and Banking.—A study of selected legal problems in the organization, operation and liquidation of banks. (2). 11 WF; 306 Law. Professor BRITTON.

Law 62. Corporation Organization and Finance.—The types of corporate securities and the rights of the holders; reorganization of corporations and the rights of various types of creditors and security holders upon reorganization. (2). 8 MTu; 306 Law. Professor JOHNSON.

Law 63. Problems in Procedure.—A seminar upon some of the problems for relief against inefficiency and delay. (2). 2-4 F; 306 Law. Professor MCCASKILL.

Law 64. Taxation.—Magill and Maguire: *Cases on Taxation.* (2). 4 ThF; 303 Law. Assistant Professor MCDOUGAL.

Law 65. Landlord and Tenant.—Jacobs: *Cases and Materials on Landlord and Tenant.* (2). 11 TT; 303 Law. Professor SUMMERS.

Law 66. Problems in Trusts.—Selected cases. (2). 3 WTh; 306 Law. Professor SCHNEBLY.

LIBRARY SCIENCE

Courses for Freshmen and Sophomores

Lib. Sci. 12. General Reference.—

Credits	Section	Hours	Days	Room	Instructor
2	A	9	TT	118 Lib.	PHELPS
	B	10	TT	118 Lib.	BLACK
	C	10	WF	106 Lib.	SIGNOR
	D	11	WF	118 Lib.	FRANCIS
	E	2	TT	118 Lib.	HOSTETTER

Courses for First-Year Library School Students

Lib. Sci. 2b. Reference.—

3	A	11	MWF	227 Lib.	SINGLETON
	B	9	MWF	227 Lib.	SINGLETON

Lib. Sci. 21. Printing, Binding, and Indexing.—(2). 2 TT; 314 Lib. Assistant Professor BOND, Miss SINGLETON, Miss HOUCHENS.

Lib. Sci. 33b. Library Administration and Extension.—Continuation of Lib. Sci. 34.

3	A	9	TTS	227 Lib.	GRAMESLY
	B	11	MWF	314 Lib.	GRAMESLY

Lib. Sci. 37. Cataloging.—Continuation of Lib. Sci. 31a.

3	A	8–11	MWF	314-306 Lib.	BOND
	B	8–11	TTS	314-306 Lib.	FRANCIS

Lib. Sci. 38. Selection of Books.—Continuation of Lib. Sci. 3a.

3	A	10	TTS	314 Lib.	BOYD
	B	10	MWF	314 Lib.	BOYD

Lib. Sci. 47. Subject Bibliography.—*Prerequisite:* Lib. Sci. 2a and consent of instructor. (2). 11 TT; 314 Lib. Miss PHELPS.

Courses for Advanced Library School Students and Graduate Students

Lib. Sci. 7. History of Libraries.—(2 hours or ½ unit). 3 TT; 314 Lib. Miss Francis.

Lib. Sci. 24b. Selection of Books.—*Prerequisite:* Lib. Sci. 24a. (2 hours or ½ unit). 11 TT; 328 Lib. Miss Hostetter.

Lib. Sci. 26b. Library Administration.—(3 hours or ½ unit). 10 MWF; 328 Lib. Miss Gramesly.

Lib. Sci. 42. State, Municipal, and Foreign Documents.—*Prerequisite:* Lib. Sci. 13a. (3 hours or ½ unit). 11 MWF; 328 Lib. Miss Phelps.

Lib. Sci. 46. High School Library Administration.—*Prerequisite:* Fifteen hours of Library Science and consent of instructor. (3 hours or ½ unit). 2 MWF; 314 Lib. Miss Hostetter.

Courses for Graduates

Lib. Sci. 101. Thesis.—(1 to 2 units).* Professor Windsor and others.

Lib. Sci. 102. Seminar.—(1 unit). 3-5 M; 328 Lib. Professor Windsor.

Lib. Sci. 104. Advanced Cataloging and Classification.—*Prerequisite:* Lib. Sci. 36. (½ unit). 3-5 W; 328 Lib. Assistant Professor Bond.

MATHEMATICS

Major: 20 hours, exclusive of Math. 1a, 1b, 2, 3, 4, 5, 6, 6a, 8a, and 8b (and all courses taken during the freshman year); inclusive of Math. 7 and 9, and two semesters of 70, 71, 72.

For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: first semester, Math. 2 (or 3) and 4; second semester, Math. 6. Sophomore year: first semester, Math. 7 (Section T); second semester, Math. 9 (Section T) and 19.

Minors: 20 hours exclusive of courses taken during the freshman year selected from one or two of the following subjects: astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), philosophy, theoretical and applied mechanics, surveying. If two subjects are chosen, at least eight hours must be offered in each.

Note: Credit for seniors who take Math. 2, 3, 4, 5, 6, or 6a will be reduced one hour.

Courses for Undergraduates

Math. 2. College Algebra.—*Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit.

Credits	Section	Hours	Days	Room	Instructor
3[1]	R	8	MWF	202 U.H.	Rumsey
[1]Seniors will receive only 2 hours credit.	S	9	MWF	155 Math.	Emch
	T	10	MWF	154 Math.	Lang
[2]Sections D and H are for freshman engineers.	[2]D	11	MWF	103 Entom.	Peters
	W	1	MWF	103 Entom.	Walden
	X	2	MWF	105 Entom.	Brown
	Y	3	MWF	156 Math.	Bristow
	[2]H	4	MWF	155 Math.	Martin

Math. 3. Algebra.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit.

5[1]	R	8	MTWTF	158 Math.	Lang
[1]Students having 1½ entrance units in algebra will receive only 3 hours credit for this course. Seniors will receive only 4 hours credit.	S	9	MTWTF	110 L.H.	Shaw
	U	11	MTWTF	105 Entom.	Walden
	W	1	MTWTF	206 U.H.	Rumsey
	X	2	MTWTF	202 U.H.	Jacokes
	Y	3	MTWTF	155 Math.	Martin

Math. 4. Plane Trigonometry.—*Prerequisite:* Entrance algebra, 1½ units, or registration in Math. 3; plane geometry, 1 unit.

2[1]	R1	8	TT	159 Math.	Bailey
[1]Seniors will receive only 1 hour credit.	R2	8	TT	202 U.H.	Moore
	[2]B	9	TT	154 Math.	Bailey
[2]Sections B, C, and F are for freshman engineers.	S1	9	TT	155 Math.	Hazlett
	S2	9	TT	206 U.H.	Pepper
	[2]C	10	TT	155 Math.	Schilling
	T	10	TT	158 Math.	Miles
	U	11	TT	206 U.H.	Pepper
	W1	1	TT	155 Math.	Bourgin
	W2	1	TT	154 Math.	Moore
	[2]F	2	TT	158 Math.	Hoersch
	X1	2	TT	156 Math.	Wilson
	X2	2	TT	105 Entom.	Huff
	Y1	3	TT	156 Math.	Jacokes
	Y2	3	TT	206 U.H.	Chanler
	Y3	3	TT	158 Math.	Burdette

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Math. 6. Analytic Geometry.—*Prerequisite:* Math. 2 (or 3) and Math. 4.

Credits	Section	Hours	Days	Room	Instructor
5[1]	R	8	MTWTF	206 U.H.	WOLEVER
[1]Seniors will receive only 4 hours credit.	S	9	MTWTF	158 Math.	SCHILLING
	W	1	MTWTF	105 Entom.	BROWN
	X1	2	MTWTF	206 U.H.	CHANLER
	X2	2	MTWTF	159 Math.	BURDETTE
	Y	3	MTWTF	154 Math.	HUFF

Math. 6a. Analytic Geometry.—(For chemists, architects, and engineers.) *Prerequisite:* Math 2. (or 3) and Math. 4.

4[1]	A1	8	MTWT	154 Math.	KETCHUM
[1]Seniors will receive only 3 hours credit.	A2	8	MTWT	105 Entom.	BIRD
	R1	8	MTWT	155 Math.	WILSON
	R2	8	MTWT	156 Math.	BRAHANA
	B	9	MTWT	103 Entom.	BOWER
	S	9	MTWT	156 Math.	
	D1	11	MTWT	159 Math.	ARMSTRONG
	U1	11	MTWT	155 Math.	ROGERS
	U2	11	MTWT	154 Math.	COOLEY
	E1	1	MTWT	159 Math.	ROGERS
	E2	1	MTWT	202 U.H.	SIGLEY
	W	1	MTWT	158 Math.	DENNIS
	F	2	MTWT	154 Math.	HOPKINS
	G	3	MTWT	159 Math.	LEVY

Math. 7. Calculus.—First course for students of mathematics and engineering. *Prerequisite:* Math. 6 (or 6a).

5	B	9	MTWTF	159 Math.	ARMSTRONG
	C1	10	MTWTF	159 Math.	HAZLETT
	C2	10	MTWTF	206 U.H.	PEPPER
	D	11	MTWTF	202 U.H.	HOPKINS
	E	1	MTWTF	156 Math.	WILSON
	F	2	MTWTF	155 Math.	BOURGIN

Math. 8b. Calculus.—For students of chemistry, chemical engineering, and insurance. *Prerequisite:* Math. 8a.

3	A1	8	MWF	208 U.H.	MOORE
	A2	8	MWF	103 Entom.	BOWER
	C1	10	MWF	155 Math.	EMCH
	C2	10	MWF	202 U.H.	MOORE
	C3	10	MWF	102 Entom.	BRISTOW

Math. 9. Calculus.—Second course for students of mathematics and engineering. *Prerequisite:* Math. 7.

3	A1	8	MWF	159 Math.	ARMSTRONG
	A2	8	MWF	102 Entom.	PETERS
[1]Section T is for students with special interest in mathematics.	B1	9	MWF	206 U.H.	PEPPER
	B2	9	MWF	154 Math.	KETCHUM
	C1	10	MWF	103 Entom.	BOWER
	C2	10	MWF	158 Math.	MILES
	C3	10	TTS	156 Math.	MOORE
	[1]T	10	MWF	156 Math.	BRAHANA
	E1	1	MWF	155 Math.	LEVY
	E2	1	MWF	154 Math.	HOPKINS

Math. 9a. Calculus.—Special topics. *Prerequisite:* Math. 7 and 9 (or 8a-8b).

2	D1	11	TT	156 Math.	CRATHORNE
	D2	11	TT	158 Math.	BOWER
	D3	11	MF	158 Math.	MILES
	F	2	MF	158 Math.	HOERSCH

Math. 19. Solid Analytic Geometry.—*Prerequisite:* Math. 7 or 8a. (3). 1 MWF; 254 Math. Dr. HOERSCH.

Courses for Advanced Undergraduates and Graduates

Math. 17. Differential Equations and Advanced Calculus.—*Prerequisite:* Math. 16.

3	A1	8	MWF	254 Math.	BAILEY
	A2	8	MWF	110 L.H.	MILES
	E	1	MWF	110 L.H.	STEIMLEY

Math. 21. Theory of Probability.—*Prerequisite:* Math. 7 and 9 (or 8). (3). 11 MWF; 156 Math. Associate Professor CRATHORNE.

Math. 23. Mathematics of Finance.—*Prerequisite:* Math. 2, junior standing.

3	A	8	TTS	102 Entom.	PETERS
	B	9	TTS	102 Entom.	PETERS
	C1	10	TTS	154 Math.	COOLEY
	C2	10	MWF	110 L.H.	BIRD
	D	11	MWF	102 Entom.	BRISTOW
	E	1	MWF	102 Entom.	BRISTOW
	F	2	MWF	156 Math.	DENNIS
	G	3	MWF	158 Math.	HOERSCH
	H	4	MWF	158 Math.	SIGLEY

Math. 32. History of Mathematics.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 9 MWF; 105 Entom. Associate Professor LYTLE.

Math. 35. Teachers' Course.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 10 MWF; 105 Entom. Associate Professor LYTLE.

Math. 53b. Integral and Operational Equations in Mathematical Physics.—*Prerequisite:* Math. 53a. (3). 1 MWF; 366 Math. Dr. BOURGIN.

Math. 70b. Introduction to Higher Algebra.—*Prerequisite:* Math. 70a. (3). 11 TTS; 254 Math. Associate Professor HAZLETT.

Math. 71b. Introduction to Higher Analysis.—*Prerequisite:* Math. 71a.

Credits	Section	Hours	Days	Room	Instructor
3	D1	11	MWF	206 U.H.	KETCHUM
	D2	11	MWF	110 L.H.	STEIMLEY

Math. 72b. Introduction to Higher Geometry.—*Prerequisite:* Math. 72a. (3). 10 TTS; 254 Math. Professor COBLE.

Math. 90b. Undergraduate Thesis.—*Prerequisite:* 24 hours of college mathematics. (2). Arrange.

Courses for Graduates

Math. 100. Seminar and Thesis.—(1 to 2 units).* Arrange.

Math. 101. Functions of Real Variables.—(1 unit). 11 MWF; 254 Math. Professor CARMICHAEL.

Math. 129. Theory of Statistics.—(1 unit). 10 MWF; 366 Math. Associate Professor CRATHORNE.

Math. 130. Selected Topics in Higher Algebraic Geometry.—(1 unit). 8 MWF; 366 Math. Professor EMCH.

Math. 131. Algebraic Geometry.—(1 unit). 9 TTS; 254 Math. Professor COBLE.

Math. 170. Algebra.—(1 unit). 10 MWF; 254 Math. Professor SHAW.

Math. 171. Analysis.—(1 unit). 9 MWF; 254 Math. Assistant Professor BRAHANA.

Math. 172. Geometry.—(1 unit). 2 MWF; 254 Math. Assistant Professor LEVY.

MECHANICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $4.50.

Courses for Undergraduates

M.E. 2. Steam Engineering.—*Prerequisite:* Math. 9, Physics 1 and 3.

3	Z1	8	MWF	216 M.E.L.
	Z2	11	MWF	217 M.E.L.

M.E. 6. Steam Engineering.—*Prerequisite:* Registration in M.E. 16.

4	P	1	MTTF	208 M.E.L.
	Q	8	TWTS	208 M.E.L.

M.E. 10. Thermodynamics.—*Prerequisite:* Math. 9, Physics 1 and 3.

3	JKVY	8	MWF	202 T.B.
	LMN	9	TTS	202 T.B.

M.E. 15. Heat Engineering.—*Prerequisite:* M.E. 16.

3	PQ	11	MWF	202 T.B.

M.E. 16. Thermodynamics.—*Prerequisite:* M.E. 13.

2	P	2	Th	202 T.B., 217 M.E.L.
		2–4	Tu	202 T.B., 217 M.E.L.
	Q	10	Tu	202 T.B., 217 M.E.L.
		10–12	Th	202 T.B., 217 M.E.L.

M.E. 17. Refrigeration Engineering.—*Prerequisite:* M.E. 16.

3	PQ	11	MW	208 M.E.L.
		8–10	S	112 T.B.

M.E. 28. Heating and Ventilation.—*Prerequisite:* M.E. 16 and 65.

4	P	8	TT	M.E.L.
		9–11	Tu	112, 114 T.B.
		10–12	S	112, 114 T.B.
	Q	8	TT	M.E.L.
		9–11	Th	112, 114 T.B.
		10–12	S	112, 114 T.B.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

M.E. 34. Aeronautical Engineering.—*Prerequisite:* M.E. 33.

Credits	Section	Hours	Days	Room	Instructor
3	PQ	11	MWF	216 M.E.L.	

M.E. 40. Mechanical Engineering Design.—*Prerequisite:* M.E. 31 and T.A.M. 3 and 63.

3	P	8–11	MWF	216, 201 T.B.
	Q	1–4	MWF	216, 201 T.B.

M.E. 52. Power Plant Design.—*Prerequisite:* M.E. 65.

3	P	8–11	MWF	112, 114 T.B.
	Q	1–4	MWF	112, 114 T.B.

M.E. 62. Mechanical Engineering Laboratory.—*Prerequisite:* Junior standing.

3	OX	1	WF	216 M.E.L.
		1–4	M	M.E.L.

M.E. 64. Mechanical Engineering Laboratory.—*Prerequisite:* Registration in M.E. 6 and 16.

3	P	8–12	S	M.E.L.
		1–5	W	M.E.L.
	Q	8–12	MF	M.E.L.
	J	8–12	TT	M.E.L.

M.E. 85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing.

3	PK	8–11	TT	Pattern Lab.
	Q	8–11	MF	Pattern Lab.
	JMR	1–4	TT	Pattern Lab.
	NSVW	1–4	MF	Pattern Lab.

M.E. 87. Machine Laboratory.—*Prerequisite:* M.E. 85 or junior standing.

3	L	8–11	MF	Machine Lab.
	N	1–4	MF	Machine Lab.

M.E. 88. Machine and Forge Laboratory.—*Prerequisite:* M.E. 87.

3	P	8–11	TT	Machine Lab.
	Q	1–4	TT	Machine Lab.

M.E. 89. Heat Treatment of Metals.—*Prerequisite:* Senior standing in Mechanical or Railway Mechanical Engineering.

3	P	2–4	MWF	Forge Lab.
	Q	8–10	MWF	Forge Lab.

M.E. 98. Thesis.—*Prerequisite:* Senior standing. (3). Time to be arranged.

Courses for Graduates

Entrance on graduate work in Mechanical Engineering presupposes the full undergraduate course in that subject.

M.E. 107. Thermodynamics.—Application of thermodynamics to the solution of physical and engineering problems. (1 unit). Twice a week; time to be arranged. Associate Professor Goff.

M.E. 108. The Flow of Fluids and Heat Transfer.—The application of dimensional analysis and other rational formulas. Special problems. (1 unit). Twice a week; time to be arranged. Professor Macintire.

M.E. 109. Machine Design.—Rational design; the application of mechanics of materials. Individual problems. (1 unit). Twice a week; time to be arranged. Professor Leutwiler.

M.E. 112. Laboratory Investigation.—Combustion of fuel, boiler economy; steam engines and turbines; gas engines and producers; explosive mixtures; mechanical refrigeration. Original work. (1½ units). Three times a week; time to be arranged. Professors Willard, Polson, Kratz, Ham, and Macintire.

MECHANICS

(See Theoretical and Applied Mechanics.)

MILITARY BANDS

Note: The following courses are open only to those who have passed the examination for admittance to one of the bands. All new students who play band instruments and who desire to try for places in the bands should make application at the Band Office, in the Band Building, at the earliest possible time. Those who are accepted for membership will be given a slip indicating the band to which they have been assigned, together with their rehearsal days and hours. Assignments are made according to proficiency. Service in the bands takes the place of the required military courses.

Mil. Bands 2. Freshman Band.—(1). Twice a week, by assignment. Director Harding, Assistant Director Dvorak, Mr. Overgard.

Mil. Bands 4. Sophomore Band.—(1). Twice a week, by assignment. Director Harding, Assistant Director Dvorak, Mr. Overgard.

Mil. Bands 6. Junior Band.—Twice a week, by assignment. Director Harding, Assistant Director Dvorak.

Mil. Bands 8. Senior Band.—Twice a week, by assignment. Director HARDING, Assistant Director DVORAK.

MILITARY SCIENCE

All military courses consist of two parts designated by the same number: a practical course lettered with "a" and a theoretical course lettered with "b". Students who have had training in a senior R. O. T. C. unit are permitted to register for work one year advanced for each year they have had in the senior unit. All students who register for junior and senior courses are required to sign a contract with the Government to take five hours of military per week during two years in the University and to attend one summer camp of six weeks.

INFANTRY

Mil. Sci. 2a. Freshman Infantry.

Credits	Section	Hours	Days	Room	Instructor
½	1st Bn.	8–10	M	Arm.	STEVENS
		10–12	W	Arm.	TABACHNIK
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 2b. Freshman Infantry.

½	1	10	M	150 Arm.	STEVENS
	2	11	M	150 Arm.	TABACHNIK
	3	1	Tu	150 Arm.	
	4	2	Tu	150 Arm.	
	5	9	W	150 Arm.	
	6	9	Th	150 Arm.	
	7	10	Th	150 Arm.	
	8	11	Th	150 Arm.	
	9	9	F	150 Arm.	
	10	10	F	150 Arm.	

Mil. Sci. 4a. Sophomore Infantry.

½	Hdqrs. Co.	1–3	M	Arm.	LUMMIS
	Co. D	10–12	W	Arm.	
	Howitzer Co.	1–3	Th	Arm.	
	Co. H	1–3	Th	Arm.	
	Service Co.	10–12	S	Arm.	
	Co. M	10–12	S	Arm.	

Mil. Sci. 4b. Sophomore Infantry.

½	50	10	M	151 Arm.	LUMMIS
	51	11	M	151 Arm.	
	52	3	M	151 Arm.	
	53	10	Tu	151 Arm.	
	54	11	Tu	151 Arm.	
	55	9	W	151 Arm.	
	56	11	Th	151 Arm.	
	57	3	Th	151 Arm.	
	58	9	S	151 Arm.	

Mil. Sci. 6a. Junior Infantry.—*Prerequisite:* First and second year basic credits.

½	Group I	10–12	W	Arm.	MILAN
		4	F	Arm.	
	Group II	1–3	Th	Arm.	
		4	F	Arm.	

Mil. Sci. 6b. Junior Infantry.—*Prerequisite:* First and second year basic credits.

1	80	10–12	M	148 Arm.	MILAN
	81	1–3	Tu	148 Arm.	
	82	1–3	W	148 Arm.	
	83	10–12	Th	148 Arm.	
	84	10–12	F	148 Arm.	

Mil. Sci. 8a. Senior Infantry.—(Cadet Officers only.)

½	Co.'s A-M	(See 2a and 4a for hours.)			STEVENS
		4	F	Arm.	TABACHNIK
					LUMMIS

Mil. Sci. 8b. Senior Infantry.—(Cadet Officers only.)

1	90	9	TT	151 Arm.	STEVENS
	91	2	TT	151 Arm.	TABACHNIK
	92	2	WF	151 Arm.	

FIELD ARTILLERY

Mil. Sci. 12a. Freshman Field Artillery.

½	1st Bn.	3–5	M	Arm.	BUSCH
	2nd Bn.	1–3	Tu	Arm.	
	3rd Bn.	3–5	Th	Arm.	
	4th Bn.	1–3	F	Arm.	

Mil. Sci. 12b. Freshman Field Artillery.

Credits	Section	Hours	Days	Room	Instructor
½	100	9	M	155 Arm.	Busch
	101	10	M	155 Arm.	Clay
	102	11	M	155 Arm.	
	103	2	M	155 Arm.	
	104	9	Tu	155 Arm.	
	105	10	Tu	155 Arm.	
	106	10	W	155 Arm.	
	107	11	W	155 Arm.	
	108	10	Th	155 Arm.	
	109	2	Th	155 Arm.	
	110	9	F	155 Arm.	
	111	10	F	155 Arm.	
	112	11	F	155 Arm.	

Mil. Sci. 14a. Sophomore Field Artillery.

½	1st Bn.	3–5	M	Arm.	Weiland
	2nd Bn.	1–3	Tu	Arm.	Clay
	3rd Bn.	3–5	Th	Arm.	
	4th Bn.	1–3	F	Arm.	

Mil. Sci. 14b. Sophomore Field Artillery.

½	130	9	M	154 Arm.	Weiland
	131	10	M	154 Arm.	Clay
	132	11	M	154 Arm.	
	133	11	Tu	154 Arm.	
	134	11	Th	154 Arm.	
	135	9	F	154 Arm.	
	136	10	F	154 Arm.	
	137	11	F	154 Arm.	

Mil. Sci. 16a. Junior Field Artillery.—*Prerequisite:* Mil. Sci. 15a.

½	1st Bn.	3–5	M	Arm.	Dalferes
	2nd Bn.	1–3	Tu	Arm.	
	3rd Bn.	3–5	Th	Arm.	
	4th Bn.	1–3	F	Arm.	

Mil. Sci. 16b. Junior Field Artillery.—*Prerequisite:* Mil. Sci. 15b.

1	160	9	M	152 Arm.	Dalferes
		9	W	152 Arm.	
		4	F	151 Arm.	
	161	11	M	152 Arm.	
		11	W	152 Arm.	
		4	F	151 Arm.	
	162	9	Tu	152 Arm.	
		9	Th	152 Arm.	
		4	F	151 Arm.	
	163	10	Tu	152 Arm.	
		10	Th	152 Arm.	
		4	F	151 Arm.	

Mil. Sci. 18a. Senior Field Artillery.—*Prerequisite:* Mil. Sci. 17a.

½	1st Bn.	3–5	M	Arm.	McCleave
	2nd Bn.	1–3	Tu	Arm.	
	3rd Bn.	3–5	Th	Arm.	
	4th Bn.	1–3	F	Arm.	

Mil. Sci. 18b. Senior Field Artillery.—*Prerequisite:* Mil. Sci. 17b.

1	190	10	M	153 Arm.	McCleave
		10	W	153 Arm.	
		4	F	153 Arm.	
	191	9	Tu	153 Arm.	
		9	Th	153 Arm.	
		4	F	153 Arm.	
	192	11	Tu	153 Arm.	
		11	Th	153 Arm.	
		4	F	153 Arm.	

CAVALRY

Mil. Sci. 22a. Freshman Cavalry.

½	1A	10–12	M	Arm.	Rogers
	1B	10–12	T	Arm.	Bryan
	1C	8–10	W	Arm.	
	1D	10–12	Th	Arm.	
	1E	8–10	F	Arm.	

Mil. Sci. 22b. Freshman Cavalry.

½	201	3	M	147 Arm.	Bryan
	202	8	Tu	147 Arm.	
	203	9	Tu	147 Arm.	

Mil. Sci. 22b Freshman Cavalry (Concluded)

Credits	Section	Hours	Days	Room	Instructor
½	204	4	Tu	147 Arm.	BRYAN
	205	11	W	147 Arm.	
	206	2	Th	147 Arm.	
	207	10	F	147 Arm.	
	208	1	F	147 Arm.	
	209	2	F	147 Arm.	
	210	9	S	147 Arm.	

Mil. Sci. 24a. Sophomore Cavalry.

½	2A	8–10	M	Arm.	STRAWN
	2B	8–10	Tu	Arm.	
	2C	10–12	W	Arm.	
	2D	10–12	F	Arm.	

Mil. Sci. 24b. Sophomore Cavalry.

½	221	10	M	146 Arm.	ROGERS
	222	11	M	146 Arm.	
	223	8	Tu	146 Arm.	
	224	9	W	146 Arm.	
	225	3	Th	146 Arm.	
	226	4	Th	146 Arm.	
	227	2	F	146 Arm.	

Mil. Sci. 26a. Junior Cavalry.—*Prerequisite:* Mil. Sci. 25a.

½	3A	8–10	Th	Arm.	FEATHERSTONE
	3B	8–10	S	Arm.	

Mil. Sci. 26b. Junior Cavalry.—*Prerequisite:* Mil. Sci. 25b.

1	241	1–3	M	147 Arm.	FEATHERSTONE
		4	F	147 Arm.	
	242	1–3	Tu	147 Arm.	
		4	F	147 Arm.	
	243	3–5	Th	147 Arm.	
		4	F	147 Arm.	

Mil. Sci. 28a. Senior Cavalry.—*Prerequisite:* Mil. Sci. 27a.

½	1A-1E incl. 2A-2D incl.	(See 22a and 24a for hours.)	CONARD ROGERS STRAWN BRYAN

Mil. Sci. 28b. Senior Cavalry.—*Prerequisite:* Mil. Sci. 27b.

1	251	3–5	M	146 Arm.	CONARD
		4	F	146 Arm.	
	252	3–5	W	146 Arm.	
		4	F	146 Arm.	
	253	1–3	Th	146 Arm.	
		4	F	146 Arm.	

ENGINEERS

Mil. Sci. 32a. Freshman Engineers.

½	1st Bn.	3–5	Th	Arm.	MATTHEWS
	2nd Bn.	8–10	F	Arm.	MCDONOUGH
	3rd Bn.	10–12	S	Arm.	MOUNT

Mil. Sci. 32b. Freshman Engineers.

½	301	3	Tu	143 Arm.	MATTHEWS
	302	10	W	143 Arm.	MCDONOUGH
	303	11	W	143 Arm.	MOUNT
	304	1	F	143 Arm.	
	305	3	F	143 Arm.	

Mil. Sci. 34a. Sophomore Engineers.

½	1st, 2nd, and 3rd Bns.	(See 32a for hours.) Arm.	MATTHEWS MCDONOUGH MOUNT

Mil. Sci. 34b. Sophomore Engineers.

½	321	4	Tu	145 Arm.	MATTHEWS
	322	8	Th	145 Arm.	MCDONOUGH
	323	11	Th	143 Arm.	MOUNT
	324	11	F	145 Arm.	

Mil. Sci. 36a. Junior Engineers.—*Prerequisite:* Mil. Sci. 35a.

½	1st, 2nd, and 3rd Bns.	(See 32a for hours.) Arm.	MATTHEWS MCDONOUGH MOUNT

Mil. Sci. 36b. Junior Engineers.—*Prerequisite:* Mil. Sci. 35b.

Credits	Section	Hours	Days	Room	Instructor
1	341	11	TT	145 Arm.	MATTHEWS
		4	F	145 Arm.	McDONOUGH
	342	4	F	145 Arm.	MOUNT
		8–10	S	145 Arm.	

Mil. Sci. 38a. Senior Engineers.—*Prerequisite:* Mil. Sci. 37a.

½	1st, 2nd, and 3rd Bns.	(See 32a for hours.)		Arm.	MATTHEWS McDONOUGH MOUNT

Mil. Sci. 38b. Senior Engineers.—*Prerequisite:* Mil. Sci. 37b.

1	351	4	Tu	143 Arm.	MATTHEWS
		10	F	143 Arm.	McDONOUGH
		4	F	143 Arm.	MOUNT
	352	4	F	143 Arm.	
		8–10	S	143 Arm.	

SIGNAL CORPS

Mil. Sci. 42a. Freshman Signal Corps.

½	A	3–5	Tu	Arm.	JAMES
	B	3–5	W	Arm.	ENGERUD
	C	3–5	Th	Arm.	
	D	2–4	F	Arm.	

Mil. Sci. 42b. Freshman Signal Corps.

½	400	10	M	222 Arm.	ENGERUD
	401	10	T	222 Arm.	
	402	1	W	222 Arm.	
	403	1	Th	222 Arm.	
	404	10	F	222 Arm.	

Mil. Sci. 44a. Sophomore Signal Corps.

½	A-D incl.	(See 42a for hours.)			JAMES ENGERUD

Mil. Sci. 44b. Sophomore Signal Corps.

½	410	9	Tu	222 Arm.	JAMES
	411	11	Tu	222 Arm.	
	412	10	Th	222 Arm.	
	413	9	F	222 Arm.	
	414	11	F	222 Arm.	

Mil. Sci. 46a. Junior Signal Corps.—*Prerequisite:* Mil. Sci. 45a.

½	A-D incl.	(See 42a for hours.)			JAMES ENGERUD

Mil. Sci. 46b. Junior Signal Corps.—*Prerequisite:* Mil. Sci. 45b.

1	420	3–5	M	222 Arm.	JAMES
		4	F	222 Arm.	
	421	9–11	S	222 Arm.	
		4	F	222 Arm.	

Mil. Sci. 48a. Senior Signal Corps.—*Prerequisite:* Mil. Sci. 47a.

½	A-D incl.	(See 42a for hours.)			JAMES ENGERUD

Mil. Sci. 48b. Senior Signal Corps.—*Prerequisite:* Mil. Sci. 47b.

1	431	3–5	M	144 Arm.	ENGERUD
		4	F	144 Arm.	
	432	9–11	W	145 Arm.	
		4	F	144 Arm.	

COAST ARTILLERY (ANTI-AIRCRAFT)

Mil. Sci. 52a. Freshman Coast Artillery (AA).—

½	A	3–5	Tu	Arm.	CARY
	B	1–3	Th	Arm.	
	C	8–10	S	Arm.	

Mil. Sci. 52b. Freshman Coast Artillery (AA).—

½	501	9	M	144 Arm.	CARY
	502	1	M	144 Arm.	
	503	2	Tu	144 Arm.	
	504	11	Th	144 Arm.	
	505	4	Th	144 Arm.	
	506	11	F	144 Arm.	
	507	1	F	144 Arm.	

Mil. Sci. 54a. Sophomore Coast Artillery (AA).—

Credits	Section	Hours	Days	Room	Instructor
½	D	3–5	Tu	Arm.	CHAPMAN
	E	1–3	Th	Arm.	
	F	8–10	S	Arm.	

Mil. Sci. 54b. Sophomore Coast Artillery (AA).—

½	521	2	M	144 Arm.	CARY
	522	9	Tu	144 Arm.	
	523	10	W	144 Arm.	
	524	3	Th	144 Arm.	
	525	10	F	144 Arm.	
	526	2	F	144 Arm.	
	527	10	S	144 Arm.	

Mil. Sci. 56a. Junior Coast Artillery (AA).—*Prerequisite:* First and second year basic credits.

½	Batteries A-F	(See 52a and 54a for hours.)			
		4	F	155 Arm.	CHAPMAN

Mil. Sci. 56b. Junior Coast Artillery (AA).—*Prerequisite:* First and second year basic credits.

1	531	1–3	M	152 Arm.	CHAPMAN
	532	4	TT	152 Arm.	
	533	10–12	S	152 Arm.	

Mil. Sci. 58a. Senior Coast Artillery (AA).—*Prerequisite:* Junior credits.

½	Group I	1–3	Tu	152 Arm.	CHAPMAN
		4	F	152 Arm.	
	Group II	2–4	F	152 Arm.	
		4	F	152 Arm.	

Mil. Sci. 58b. Senior Coast Artillery (AA).—*Prerequisite:* Junior credits.

1	541	3–5	M	152 Arm.	CHAPMAN
	542	11	TT	152 Arm.	

MINING ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $7.50.

Courses for Undergraduates

Mining 2. Mining Principles.—(For students in courses other than mining). *Prerequisite:* Chemistry, sophomore standing. (3). 9 MWF; 206 T.B. Mr. NICHOLSON.

Mining 4. Mining Methods.—*Prerequisite:* Mining 1 and registration in Geology 43. (3). 8 MS, 10 Th; 206 T.B. Mr. NICHOLSON.

Mining 10. Electrical Engineering of Mines.—*Prerequisite:* Physics 1b-3b. (3). 2 WF, 2-5 Tu; 206 T.B. and Min. Lab. Mr. NICHOLSON.

Mining 15. Mine Ventilation.—*Prerequisite:* Mining 4. (2). 11 TT; 206 T.B. Professor CALLEN.

Mining 16. Non-Ferrous Ore Treatment.—*Prerequisite:* Chemistry 73a, Mining 9. (5). 9 MTWTF; 207 T.B. Assistant Professor MITCHELL.

Mining 18. Metallurgical Problems.—*Prerequisite:* Registration in Mining 16. (2). 1-4 MW; Min. Lab. Assistant Professor MITCHELL.

Mining 20. Mine Ventilation Laboratory.—*Prerequisite:* Registration in Mining 15. (2). 1-4 W, 10 F; Min. Lab. and 206 T.B. Professor CALLEN.

Mining 21. Examination, Valuation, and Reports.—*Prerequisite:* Mining 4, Geology 20 and 43 or equivalent. (3). 11 MWF; 206 T.B. Mr. NICHOLSON.

Mining 42. Mining and Metallurgical Design.—*Prerequisite:* Mining 41. (2). 1-4 F, 8-11 S; 207 T.B. Assistant Professor MITCHELL.

Mining 64. Coal and Ore Preparation Laboratory.—*Prerequisite:* Mining 9. (3). 1-5 TT; Min. Lab. Assistant Professor MITCHELL.

Mining 90. Mining and Metallurgical Reports.—*Prerequisite:* Senior standing in Mining Engineering. (1). 10 M; 207 T.B. Professor CALLEN.

Courses for Graduates

Mining 101. Advanced Mining Practice.—(1 unit). Arrange. Professor CALLEN.

Mining 102. Advanced Preparation of Coal and Ores.—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 104.† Mining Reports.—(1 unit). Arrange. Professor CALLEN.

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†Of courses 104 and 105, only one will be given, according to election of students; the same applies to courses 106 and 107.

Mining 105.† Welfare Work and Education among Mine Employees.—(1 unit). Arrange. Professor CALLEN.

Mining 106.† Advanced Coal, Ore, and Metallurgical Plant Design.—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 107.† Advanced Non-Ferrous Metallurgical Projects.—(1 unit). Arrange. Assistant Professor MITCHELL.

MUSIC

Courses for Undergraduates

Music 2. History of Music.—*Prerequisite:* One year of university work. (2). 11 MWF; Lect. Room, S.M.H. Professor SCHWARTZ.

Music 4. Theory of Music (Harmony).—*Prerequisite:* Music 3.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	106 S.M.H.	KESSLER
[1]Section G is for students from other colleges only.	E	1	MWF	106 S.M.H.	KESSLER
	[1]G	3	MWF	103 S.M.H.	KESSLER

Music 6. Theory of Music (Advanced Harmony).—*Prerequisite:* Music 5. (3). 11 MWF; 103 S.M.H. Associate Professor MILES.

Music 8. Strict Counterpoint.—*Prerequisite:* Music 7.

3	C	10	MWF	103 S.M.H.	KESSLER
[1]Section G is for juniors only.	O	2	TT	103 S.M.H.	KESSLER
		9	F	106 S.M.H.	KESSLER
	[1]G	3	MWF	106 S.M.H.	MILES

Music 10. Analysis, Musical Form.—*Prerequisite:* Music 9.

2	T	9	MTh	103 S.M.H.	SCHWARTZ
	K	9	TT	103 S.M.H.	SCHWARTZ

Music 11b. Composition.—*Prerequisite:* Music 9-10. (2). Arrange. Associate Professor MILES.

Music 12b. Advanced Composition.—*Prerequisite:* Music 11a-11b. (4). Arrange. Associate Professor MILES.

Music 14. Music Appreciation.—The appreciation of good music from the standpoint of the listener. Copiously illustrated with phonograph and reproducing piano. Primarily for students from the other colleges of the University. Attendance at Star Course concerts required.

2	L	10	TT	Lecture Room, on 3rd floor, S.M.H.	STIVEN
[1]Section P is for P.S.M. students.	[1]P	3	TT	103 S.M.H.	KITCHELL

Music 16. Instrumentation.—*Prerequisite:* Junior standing. (1 or 2).* 2 TT; Band Building. Professor HARDING.

Music 18. Advanced Orchestration.—*Prerequisite:* Music 10, 15, and 16. (4). Arrange. Professor HARDING.

Music 22. Ear Training and Sight Singing.

1	B	9	MW	106 S.M.H.	PERCIVAL
	W	11	MTh	106 S.M.H.	PERCIVAL
	J	8	TT	106 S.M.H.	PERCIVAL

Music 24. Ear Training and Sight Singing.—*Prerequisite:* Music 22.

1	K	9	TT	106 S.M.H.	PERCIVAL
	C	10	MW	106 S.M.H.	PERCIVAL
	L	10	TT	106 S.M.H.	PERCIVAL

Music 25b. Public School Methods (Instrumental Methods).—*Prerequisite:* Junior standing. (3). 2 MWTF; 106 S.M.H. Mr. HOLMES.

Music 26b. Public School Methods (Junior High School Vocal).—*Prerequisite:* Music 25a and b. (3). 1 MTWT; 103 S.M.H. Miss KITCHELL.

Music 27. Thesis.—Arrange.

Music 30b. Accompanying and Ensemble.—*Prerequisite:* Junior standing. (½ to 1).* Arrange.

Music 31b. Accompanying and Ensemble.—*Prerequisite:* Music 30a-b. (½ to 1).* Arrange.

Music 33. Advanced History of Music.—*Prerequisite:* Music 1 and 2.

1	B	9	W	103 S.M.H.	SCHWARTZ
	T	9	F	103 S.M.H.	SCHWARTZ

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

†Of courses 104 and 105, only one will be given, according to election of students; the same applies to courses 106 and 107.

Music 35. Recital Course in Applied Music.—(For seniors in Music 45b, 65b, 75b, 85b, or 95b.) (4). Arrange.

Music 36. Recital Course in Applied Music.—(For Seniors in Music 55b.) (3). Arrange.

Music 37. Recital Course in Composition.—(For Seniors in Theory Major.) (4). Arrange.

Music 38b. Band Conducting.—*Prerequisite:* Music 16. (2). 2 M, 1 TT; Band Building. Professor HARDING.

APPLIED MUSIC COURSES

Note: Students other than those registered in the School of Music are required to pay fees of $25 for each course in applied music.

Students in the School of Music will receive 4 to 5 hours credit for their major subject in Applied Music. They will ordinarily receive 2½ hours credit for their minor subject. Students from other colleges will ordinarily receive 2 hours credit if in accordance with the regulations of their college.

Courses in Applied Music which require one half-hour lesson per week of recitation and one hour daily of preparation receive 2 hours credit.

Courses in Applied Music which require two 20-minute lessons per week of recitation and *one* hour daily of preparation receive two and one-half hours credit.

Courses in Applied Music which require two half-hour lessons per week of recitation and *two* hours daily of preparation receive 4 hours credit.

Courses in Music 44a-b, 45a-b, 64a-b, 65a-b, 74a-b, 75a-b, 84a-b, 85a-b, require two half-hour lessons per week of recitation and *three* hours daily of preparation.

Hours to be arranged.

PIANO

Professor VAN DEN BERG, Assistant Professors WATT, SCHOONMAKER, Mrs. SULLIVAN, Miss USRY, Mr. HILL

Music 42a-42b. Piano, First Year.—(2 to 4).*

Music 43a-43b. Piano, Second Year.—(2 to 4).*

Music 44a-44b. Piano, Third Year.—(2 to 5).*

Music 45a-45b. Piano, Fourth Year.—(2 to 5).*

VOICE

Mr. JOHNSON, Mr. HAMP, Miss SUTHERLIN, Mr. JOHNSTON

Music 52a-52b. Voice, First Year.—(2 to 4).*

Music 53a-53b. Voice, Second Year.—(2 to 4).*

Music 54a-54b. Voice, Third Year.—(2 to 4).*

Music 55a-55b. Voice, Fourth Year.—(2 to 4).*

VIOLIN

Assistant Professor ROOSA, Mr. COHEN

Music 62a-62b. Violin, First Year.—(2 to 4).*

Music 63a-63b. Violin, Second Year.—(2 to 4).*

Music 64a-64b. Violin, Third Year.—(2 to 5).*

Music 65a-65b. Violin, Fourth Year.—(2 to 5).*

VIOLONCELLO

Mrs. SULLIVAN

Music 72a-72b. Violoncello, First Year.—(2 to 4).*

Music 73a-73b. Violoncello, Second Year.—(2 to 4).*

Music 74a-74b. Violoncello, Third Year.—(2 to 5).*

Music 75a-75b. Violoncello, Fourth Year.—(2 to 5).*

ORGAN

Associate Professor MILES, Mr. DEMMING

Students desiring to take organ will be obliged to pass without conditions the entrance examination in piano. Under no circumstances will they be accepted if their piano work falls below the standard represented by this examination.

Music 82a-82b. Organ, First Year.—(2 to 4).*

Music 83a-83b. Organ, Second Year.—(2 to 4).*

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Music 84a-84b. Organ, Third Year.—(2 to 5).*

Music 85a-85b. Organ, Fourth Year.—(2 to 5).*

BAND AND ORCHESTRAL INSTRUMENTS

Professor HARDING, Mr. DVORAK

All the following courses are required for major work in this group. Parts a and b in each course are concerned with professional instruments, and parts c and d with supplementary instruments.

Music 92a-92d. Wind Instruments, First Year.—(2 to 4).*

Music 93a-93d. Wind Instruments, Second Year.—(2 to 4).*

Music 94a-94d. Wind Instruments, Third Year.—(2 to 4).*

Music 95a-95d. Wind Instruments, Fourth Year.—(2 to 4).*

PHILOSOPHY

Major: 20 hours from any courses offered by the department, including Phil. 2, 3, 4, and 7. Six hours in psychology may be counted toward a major in philosophy.

Minors: 20 hours in (a) psychology (at least 6 additional hours if psychology is counted toward a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) astronomy, botany, chemistry, mathematics, physics, zoology, geology. At least 8 hours must be offered in each subject, if two are chosen.

Phil. 1. Logic.—*Prerequisite:* One year of university work.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	117 L.H.	KUBITZ
	B	9	MWF	117 L.H.	KUBITZ
	C	10	MWF	117 L.H.	MORROW
	D	11	MWF	117 L.H.	GOTSHALK
	E	1	MWF	104 L.H.	NICHOLSON
	F	2	MWF	117 L.H.	NICHOLSON
	G	1	MWF	113 L.H.	DELARGY

Phil. 2. Introduction to Philosophy.—*Prerequisite:* One year of university work.

3	Lect.	11	MW	300 Math.	MCCLURE
	A Disc.	3	W	302 L.H.	DELARGY
	B Disc.	11	Th	117 L.H.	MCCLURE
	C Disc.	1	Th	117 L.H.	KUBITZ
	D Disc.	2	Th	113 L.H.	KUBITZ
	E Disc.	3	Th	113 L.H.	MORROW
	F Disc.	10	F	205 L.H.	DELARGY
	G Disc.	11	F	233 L.H.	DELARGY
	H Disc.	11	F	203 L.H.	KUBITZ

Courses for Advanced Undergraduates and Graduates

Phil. 4. History of Modern Philosophy.—*Prerequisite:* Three hours in philosophy and junior standing, or senior standing.

4	Lect.	10	TT	L.H. Theatre	MCCLURE
	A Disc.	11	Th	123 L.H.	GOTSHALK
	B Disc.	1	Th	123 L.H.	NICHOLSON
	C Disc.	2	Th	114 L.H.	NICHOLSON
	D Disc.	2	Th	117 L.H.	GOTSHALK
	E Disc.	3	Th	117 L.H.	GOTSHALK
	F Disc.	3	F	117 L.H.	NICHOLSON

Phil. 9. Political and Social Ethics.—*Prerequisite:* Junior standing. (3). 9 MWF; 203 L.H. Professor MORROW.

Phil. 11h. Philosophy of Religion (Historical).—*Prerequisite:* Three hours in philosophy. (3). 11 MWF; 303 L.H. Professor TAWNEY.

Phil. 16. Metaphysics.—*Prerequisite:* Three hours in philosophy. (3). 10 MWF; 303 L.H. Assistant Professor GOTSHALK.

Phil. 20. Honors Course.—*Prerequisite:* Senior standing. (2). Hour to be arranged.

Phil. 22. American Philosophy (Royce, James, Santayana, and Dewey).—*Prerequisite:* Three hours in philosophy. (3). 2 MWF; 204a L.H. Dr. DELARGY.

Courses for Graduates

Phil. 110. Locke, Berkeley, Hume.—(1 unit). Arrange. Professor MORROW.

Phil. 112. German Idealism.—(1 unit). Arrange. Professor TAWNEY.

Phil. 120. Seminar in Modern Philosophy.—(1 unit). Arrange. Professor MCCLURE.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

PHYSICAL EDUCATION FOR MEN

(Including Courses formerly Athletic Coaching)

Freshmen must register in courses numbered 11, 12, 13, 14, 15, 16, 17, 18, and 19.
Sophomores must register in courses numbered 21, 22, 23, 24, 25, 26, 27, and 28.
Juniors and seniors MAY register in courses numbered 33, 34, 35, 36, and 37.
Students previously enrolled in Individual Gymnastics must continue to take this course until notified otherwise by the University Health Service.
All students excepting those taking Individual Gymnastics must elect a different course each semester.
For information, late registration, and changing sections, call at Room 201 Old Gymnasium.

Major: See Curriculum in Physical Education for Men, page 67 in *Directions for Registration.*

Courses for Freshmen

P.E. 11. Individual Gymnastics.—(Freshmen who do not pass the health examination are excused from Military and must register in this course.)

Credits	Section	Hours	Days	Room	Instructor
1½	B	9	MTWTF	New Gym.	HANKNER
	C	10	MTWTF	New Gym.	HANKNER
	D	11	MTWTF	New Gym.	STAFFORD
	F	2	MTWTF	New Gym.	HANKNER
	G	3	MTWTF	New Gym.	MCCRISTAL
	H	4	MTWTF	New Gym.	HANKNER
	L	10	MTWTF	Gym. Annex	DERR
	M	11	MTWTF	Gym. Annex	DERR
	O	2	MTWTF	Gym. Annex	MCCRISTAL
	P	3	MTWTF	Gym. Annex	DERR
	Q	4	MTWTF	Gym. Annex	DERR

P.E. 12. Individual Gymnastics.—*Prerequisite:* P.E. 11.

1½	B	9	MTWTF	New Gym.	HANKNER
	C	10	MTWTF	New Gym.	HANKNER
	D	11	MTWTF	New Gym.	STAFFORD
	F	2	MTWTF	New Gym.	HANKNER
	G	3	MTWTF	New Gym.	MCCRISTAL
	H	4	MTWTF	New Gym.	HANKNER
	L	10	MTWTF	Gym. Annex	DERR
	M	11	MTWTF	Gym. Annex	DERR
	O	2	MTWTF	Gym. Annex	MCCRISTAL
	P	3	MTWTF	Gym. Annex	DERR
	Q	4	MTWTF	Gym. Annex	DERR

P.E. 13. Beginning Swimming.—(This course is open to non-swimmers only. Freshmen who cannot swim twenty-five yards are advised to register in this course.)

½	F	2	MW	Old Pool	CRAIG
	G	3	MW	Old Pool	BURT
	L	10	TT	Old Pool	CRAIG
	M	11	TT	Old Pool	CRAIG
	N	1	TT	Old Pool	CRAIG
	O	2	TT	Old Pool	CRAIG
	P	3	TT	Old Pool	BURT

P.E. 14. Individual Athletics.—

½	B	9	MW	Old Gym.	BURT
	G	3	MW	Old Gym.	LAW
	K	9	TT	Old Gym.	DERR
	P	3	TT	Old Gym.	KENNEY

P.E. 15. Tumbling Stunts.—

½	C	10	MW	Old Gym.	BURT
	D	11	MW	Old Gym.	BURT
	F	2	MW	Old Gym.	BURT
	J	8	TT	Old Gym.	BURT
	K	9	TT	Old Gym.	BURT
	L	10	TT	Old Gym.	BURT
	M	11	TT	Old Gym.	BURT
	O	2	TT	Old Gym.	DERR

P.E. 16. Soccer Football.—

½	B	9	MW	Soccer Field	MCCRISTAL
	C	10	MW	Soccer Field	MCCRISTAL
	D	11	MW	Soccer Field	MCCRISTAL
	E	1	MW	Soccer Field	TREECE
	F	2	MW	Soccer Field	TREECE
	H	4	MW	Soccer Field	PATERSON
	N	1	TT	Soccer Field	TREECE
	O	2	TT	Soccer Field	TREECE
	Q	4	TT	Soccer Field	PATERSON

P.E. 17. Tap Dancing.—

Credits	Section	Hours	Days	Room	Instructor
½	E	1	MW	New Gym.	Brown
	H	4	MW	New Gym.	McCristal
	K	9	TT	New Gym.	McCristal
	L	10	TT	New Gym.	McCristal
	N	1	TT	New Gym.	Brown
	P	3	TT	New Gym.	Hankner
	Q	4	TT	New Gym.	McCristal

P.E. 18. Intermediate Swimming.—(This course is open only to (a) freshmen who have not taken P.E. 13 and (b) freshmen who cannot swim 100 yards.)

½	C	10	MW	Old Pool	Treece
	D	11	MW	Old Pool	Treece

P.E. 19. Skating and Playground Ball.—(This course is open only to beginning skaters; laboratory fee, $2.25, payable to the Athletic Association.)

½	B	9	MW	Skating Rink	Craig
	C	10	MW	Skating Rink	Craig
	D	11	MW	Skating Rink	Craig
	K	9	TT	Skating Rink	Paterson
	L	10	TT	Skating Rink	Brown
	M	11	TT	Skating Rink	Brown

Courses for Sophomores

P.E. 21. Individual Gymnastics.—

1½	B	9	MTWTF	New Gym.	Hankner
	C	10	MTWTF	New Gym.	Hankner
	D	11	MTWTF	New Gym.	Stafford
	F	2	MTWTF	New Gym.	Hankner
	G	3	MTWTF	New Gym.	McCristal
	H	4	MTWTF	New Gym.	Hankner
	L	10	MTWTF	Gym. Annex	Derr
	M	11	MTWTF	Gym. Annex	Derr
	O	2	MTWTF	Wrestling Rm.	McCristal
	P	3	MTWTF	Gym. Annex	Derr
	Q	4	MTWTF	Gym. Annex	Derr

P.E. 22. Individual Gymnastics.—

1½	B	9	MTWTF	New Gym.	Hankner
	C	10	MTWTF	New Gym.	Hankner
	D	11	MTWTF	New Gym.	Stafford
	F	2	MTWTF	New Gym.	Hankner
	G	3	MTWTF	New Gym.	McCristal
	H	4	MTWTF	New Gym.	Hankner
	L	10	MTWTF	Gym. Annex	Derr
	M	11	MTWTF	Gym. Annex	Derr
	O	2	MTWTF	Wrestling Rm.	McCristal
	P	3	MTWTF	Gym. Annex	Derr
	Q	4	MTWTF	Gym. Annex	Derr

P.E. 23. Advanced Swimming.—(This course is open only to sophomores who can swim 100 yards.)

½	B	9	MW	New Pool	Treece
	C	10	MW	New Pool	Paterson
	D	11	MW	New Pool	Paterson
	F	2	MW	New Pool	Paterson
	K	9	TT	New Pool	Treece
	L	10	TT	New Pool	Paterson
	M	11	TT	New Pool	Paterson
	N	1	TT	New Pool	Paterson
	O	2	TT	New Pool	Paterson

P.E. 24. Boxing.—

½	B	9	MW	Gym. Annex	Law
	F	2	MW	Gym. Annex	Law
	K	9	TT	Gym. Annex	Law
	L	10	TT	Gym. Annex	Kenney
	M	11	TT	Gym. Annex	Kenney
	O	2	TT	Gym. Annex	Law

P.E. 25. Wrestling.—

½	C	10	MW	Wrestling Rm.	Kenney
	D	11	MW	Wrestling Rm.	Kenney
	E	1	MW	Wrestling Rm.	Kenney
	F	2	MW	Wrestling Rm.	Kenney
	G	3	MW	Wrestling Rm.	Kenney
	L	10	TT	Wrestling Rm.	Law
	M	11	TT	Wrestling Rm.	Law
	O	2	TT	Wrestling Rm.	Kenney
	P	3	TT	Wrestling Rm.	Law
	Q	4	TT	Wrestling Rm.	Law

P.E. 26. Fencing.—

Credits	Section	Hours	Days	Room	Instructor
½	G	3	MW	Gym. Annex	Craig
	H	4	MW	Gym. Annex	Craig
	P	3	TT	Gym. Annex	Craig
	Q	4	TT	Gym. Annex	Craig

P.E. 27. Apparatus Stunts.—

½	H	4	MW	Old Gym.	Burt
	Q	4	TT	Old Gym.	Burt

P.E. 28. Games, Contests, and Relays.—

½	C	10	MW	Old Gym.	Law
	D	11	MW	Old Gym.	Law
	L	10	TT	Old Gym.	Treece
	M	11	TT	Old Gym.	Treece

Courses for Juniors and Seniors

P.E. 33. Tennis.—

½	D	11	MW	Varsity Courts	Gelwick
	E	1	MW	Varsity Courts	Gelwick
	M	11	TT	Varsity Courts	Gelwick
	N	1	TT	Varsity Courts	Gelwick
	O	2	TT	Varsity Courts	Gelwick

P.E. 34. Circus Stunts.—

½	H	4	MW	Old Gym.	Jackson
	Q	4	TT	Old Gym.	Jackson

P.E. 35. Advanced Circus Stunts.—

½	H	4	MW	Old Gym.	Jackson
	Q	4	TT	Old Gym.	Jackson

P.E. 36. Life Saving and Diving.—(This course is open only to juniors and seniors who can swim 100 yards.)

½	G	3	MW	New Pool	Paterson
	P	3	TT	New Pool	Paterson

P.E. 37. Handball.—

½	G	3	MW	New Gym.	Treece
	P	3	TT	New Gym.	Treece

P.E. 38. Golf and Volley Ball.—

½	F	2	MW	New Gym.	Brown
	O	2	TT	New Gym.	Brown

P.E. 39. Squash Rackets.—(½). 10 TT; New Gym. Associate Professor Stafford.

PROFESSIONAL COURSES FOR MEN

(Formerly Athletic Coaching)

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

First Year

P.E. 2. Calisthenics, Dancing, Tumbling, and Marching.—(Formerly A.C. 2). (4). 8-10 MTWTF; New Gym. Mr. Price.

P.E. 30. Football.—(Formerly A.C. 30). (Second half of the semester).

2	C	2–4	MTWTF	New Gym.	Department Staff
	D	2–4	MTWTF	New Gym.	
	E	2–4	MTWTF	New Gym.	

P.E. 80. Basketball.—(Formerly A.C. 40). (First half of the semester).

2	C	2–4	MTWTF	New Gym.	Department Staff
	D	2–4	MTWTF	New Gym.	
	E	2–4	MTWTF	New Gym.	

Second Year

P.E. 7. Boxing and Wrestling.—(Formerly A.C. 7). (First half of the semester). *Prerequisite:* Sophomore standing.

2	A	8–10	MTWTF	Wrestling Rm.	Kenney and assistants
	B	8–10	MTWTF	Wrestling Rm.	

P.E. 31. Football.—(Formerly A.C. 31). (Second half of the semester). *Prerequisite:* P.E. 30.

2	A	8–10	MTWTF	Armory Field	Department Staff
	B	8–10	MTWTF	Armory Field	

P.E. 58. **Baseball.**—(Formerly A.C. 50). *Prerequisite:* Sophomore standing.

Credits	Section	Hours	Days	Room	Instructor
4	A	10–12	MTWTF	221 E.H.	LUNDGREN and
	B	1–3	MTWTF	221 E.H.	JORDAN

Third Year

P.E. 5. **Recreational Activities.**—(Formerly A.C. 15). (First half of the semester). *Prerequisite:* Junior standing. (2). 1-3 MTWTF; New Gym. Professor STALEY.

P.E. 20. **Track and Field Athletics.**—(Formerly A.C. 20). *Prerequisite:* Junior standing.

4	A	10–12	MTWTF	Field and Armory	WERNER
	B	1–3	MTWTF	Field and Armory	WERNER

P.E. 32. **Football Theory.**—(Formerly A.C. 32). *Prerequisite:* P.E. 30 and 31.

2	Lect.	11	TT	209 New Gym.	ZUPPKE and Department Staff
	Quiz A	3	TT	204 New Gym.	
	Quiz B	9	TT	204 New Gym.	
	Quiz C	10	TT	204 New Gym.	

P.E. 70. **Health Education and Corrective Gymnastics.**—(Formerly A.C. 70). *Prerequisite:* Anat. 1 and 2, Physiol. 1 and 2. (4). 9 MTWTF; 209 New Gym. Associate Professor STAFFORD.

P.E. 81. **Basketball.**—(Formerly A.C. 41). (Second half of the semester). *Prerequisite:* P.E. 80 (formerly A.C. 40), and junior standing. (2). 1–3 MTWTF; 204 New Gym. Mr. RUBY and Mr. SABO.

Fourth Year

P.E. 4. **Apparatus and Tumbling Stunts.**—(Formerly A.C. 4). *Prerequisite:* P.E. 2 and senior standing. (4). 1-3 MTWTF; Old Gym. Mr. PRICE.

P.E. 6. **Training and First Aid.**—(Formerly A.C. 16). *Prerequisite:* Senior standing or consent of instructor.

2	A	9	TT	119-22 New Gym.	BROWN
	B	10	TT	119-22 New Gym.	BULLOCK

P.E. 8. **Organization and Administration.**—(Formerly A.C. 17). *Prerequisite:* Senior standing. (3). 10 MWF; 204 New Gym. Professor HUFF and Assistant Professor OLANDER.

P.E. 63. **Swimming.**—(Formerly A.C. 60). *Prerequisite:* Senior standing or consent of instructor. (2). 8 MTWTF; Pool, Old Gym. Mr. MANLEY.

PHYSICAL EDUCATION FOR WOMEN

Freshmen and Sophomores:—Of the four required semesters in physical education, the department requires: one semester of gymnastics (P.E. 42); one semester of swimming (P.E. 45, 46, 54); one semester of dancing (P.E. 47, 49, 51); and one semester of an elective.

Juniors and Seniors may receive credit for four courses in addition to the above requirement.

Major: See Curriculum in Physical Education for Women, page 68 in *Directions for Registration.*

Courses for Undergraduates

P.E. 40b. **Gymnastics, Rhythms, and Track.**—For freshmen intending to specialize in physical education. (1). 3 MTWTF[1]; W. Gym. Miss KITZINGER, Miss JOHNSON.

P.E. 41b. **Gymnastics, Tap Dancing, and Baseball.**—For sophomores specializing in physical education. (1). 2 MTWTF[1]; W. Gym. Miss KITZINGER, Miss HUELSTER, Miss ROBERTSON.

P.E. 42. **Sports and Gymnastics.**—

1	B	9	MWF	North Room; W.Gym.	KITZINGER
	D	11	MWF	North Room; W.Gym.	HUELSTER
	F	10	TT	North Room; W.Gym.	MEARES
		4	W		
	V	11	TT	North Room; W.Gym.	LAWSON
		4	M		

P.E. 43. **Seasonal Sports.**—(For Skating, Sections C and D, there is a laboratory fee of $3, payable to the Athletic Association.)

1					
Skating and Tennis....C	10	MWF	129 W.Gym.	ROBERTSON
Elementary Skating and Tennis.....D	11	MWF	129 W.Gym.	ROBERTSON
Volleyball and Golf...[2]G	3	MW	South Room; W.Gym.	LAWSON

P.E. 44. **Tumbling and Apparatus.**—

1	10	MWF	North Room; W.Gym.	KITZINGER

[1]The Tuesday and Thursday meetings of P.E. 40b and 41b will last 45 minutes; students should keep free the hour following each meeting.

[2]This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

P.E. 45. Elementary Swimming.—

Credits	Section	Hours	Days	Room	Instructor
1	D	11	MWF	Pool; W.B.	SMITH
	F	2	MWF	Pool; W.B.	MEARES

P.E. 46. Intermediate Swimming.—

1	B	9	MWF	Pool; W.B.	MEARES
	C	10	MWF	Pool; W.B.	MEARES
(Sub-Intermediate)....	H	4	MWF	Pool; W.B.	SMITH

P.E. 47. Elementary Clogging.—

1	B	{2 {1	TT M	W.B.	MEARES
	F	2	MWF	W.B.	HUELSTER
	G	3	MWF	W.B.	HUELSTER

P.E. 48. Intermediate Clog and Tap Dancing.—

1		11	MWF	W.B.	KITZINGER

P.E. 49. Elementary Folk Dancing.[1]—

1					
English Country and Morris.....	S	9	TT	South Room; W.Gym.	FREER
	C	10	MW	South Room; W.Gym.	JOHNSON

P.E. 50. Intermediate Folk Dancing.[1]—

1		3	TT	North Room; W.Gym.	ROBERTSON

P.E. 51. Elementary Rhythms.—

1	B	9	MWF	South Room; W.Gym.	JOHNSON
	D	11	MWF	South Room; W.Gym.	JOHNSON

P.E. 52. Intermediate Rhythms.[1]—

1		10	TT	South Room; W.Gym.	JOHNSON

P.E. 54. Advanced Swimming and Diving.—

1		3	MWF	Pool; W.B.	SMITH

P.E. 55. Life Saving.—

1		4	TT	Pool; W.B.	SMITH

P.E. 56. Individual Gymnastics.—(Registration on recommendation of Health Service.)

1	B	9	MWF	Corr. Room; W.Gym.	SCHNAUBER
	C	10	MWF	Corr. Room; W.Gym.	SCHNAUBER
	D	11	MWF	Corr. Room; W.Gym.	SCHNAUBER
	F	2	MWF	Corr. Room; W.Gym.	SCHNAUBER
	S	3	MTT	Corr. Room; W.Gym.	SCHNAUBER

P.E. 57. Modified Sports and Dancing.—(Registration on recommendation of Health Service or Department of Physical Education for Women.)

1		3:40	MWF	South Room; W.Gym.	MEARES

P.E. 60. Handball and Tenikoit.[1]—

1		11	TT	South Room; W.Gym.	HUELSTER

P.E. 62. Rhythms.[1]—(For Juniors majoring in Physical Education.)

1		2	TT	South Room; W.Gym.	JOHNSON

P.E. 65. Theory and Practice of Gymnastics.—For seniors majoring in Physical Education. (1). 1 Th; 129 W.Gym. Miss KITZINGER.

P.E. 66. Elective Athletic Activities.—(Participation in W.A.A. sports; registration on recommendation of department.) (1). Two forty-five minute periods to be arranged.

Courses for Students Majoring in Physical Education

P.E. 90b. Organization and Administration.—*Prerequisite:* Senior standing in the School of Physical Education. (2). 11 TT; 129 W. Gym. Professor FREER.

P.E. 95b. Methods.—*Prerequisite:* P.E. 95a and junior standing in the School of Physical Education or consent of the instructor. (4). 1 MWF; 128 W. Gym. Miss ROBERTSON.

P.E. 97b. Educational Practice.—*Prerequisite:* P.E. 95a, 96a, 97a and senior standing in the School of Physical Education. (3). 1 MWF and 9 TT; 129 W.Gym. Assistant Professor LAWSON.

P.E. 98. Theory of Individual and Remedial Gymnastics.—*Prerequisite:* P.E. 95a, 96a. (4). 8 MWF; 129 W. Gym. Miss SCHNAUBER.

P.E. 99. Methods of Teaching Health.—First Aid. *Prerequisite:* P.E. 95a, 96a, 97a. (3). 9 MTT; 129 W. Gym. Assistant Professor LAWSON.

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[1]This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

PHYSICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $4.50.

Major: 20 hours from courses offered in the department. At least 5 hours must be offered from the group of courses for advanced undergraduates and graduates.

Minors: 20 hours in one or two of the following subjects, with not less than 8 hours in each department if two subjects are chosen: mathematics (courses in calculus and beyond), astronomy, chemistry (except Chem. 1, 2, 3, 4, 5, or 6), or education.

Physics 7a-7b and 8a-8b are recommended to students not specializing in physics, mathematics, chemistry, or engineering. For undergraduate students taking advanced work or a major in physics, the following courses are suggested:

Freshman year: Trigonometry and analytic geometry.
Sophomore year: Physics 1a-1b, 3a-3b, and calculus.
Junior year: Physics 14, 16, 36, 44.
Senior year: Physics 23, 30, 45, 46, 71, 72, 78.

Introductory Courses for Undergraduates

Physics 1a. General Physics.—*Prerequisite:* Credit in Math. 2 and 4; registration in Math. 6 and Physics 3a.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	9	MW	119 P.L.	SANDERS and others
	Quiz	9	TT	208, 302, 406 P.L.	

Physics 3a. General Physics Laboratory.—*Prerequisite:* Physics 1a or registration therein.

2	A	1–4	W	406, 408 P.L.	SANDERS and others
	B	2–5	Th	406, 408 P.L.	

Physics 1b. General Physics.—*Prerequisite:* Math. 2, 4, and 6; Physics 1a; registration in Physics 3b.

3	Lect. A	11	MW	100 P.L.	KRUGER, ALMY, and others
	Lect. B	2	MW	100 P.L.	
	Quiz A	8	TT	305 P.L.	
	Quiz B	9	TT	306 P.L.	
	Quiz C	10	TT	305, 306 P.L.	
	Quiz D	11	TT	302, 305 P.L.	
	Quiz E	1	TT	302 P.L.	
	Quiz F	2	TT	305, 306 P.L.	
	Quiz H	9	WF	306 P.L.	
	Quiz I	10	WF	306 P.L.	
	Quiz K	1	WF	305 P.L.	

Physics 3b. General Physics Laboratory.—*Prerequisite:* Physics 1b or registration therein.

2	A	8–11	M	305 P.L.	KRUGER and others
	B	2–5	M	305, 406 P.L.	
	C	9–12	Tu	305 P.L.	
	D	1–4	Tu	305, 403 P.L.	
	E	9–12	W	403 P.L.	
	F	2–5	W	302, 305 P.L.	
	G	9–12	Th	305 P.L.	
	H	1–4	Th	305 P.L.	
	J	2–5	F	305, 406 P.L.	
	L	9–12	S	305 P.L.	

Physics 7b. General Physics.—*Prerequisite:* Math. 4; Physics 7a, and registration in Physics 8b.

3	Lect. A	9	TT	100 P.L.	WATSON and others
	Lect. B	11	TT	100 P.L.	
	Quiz A	8	WF	208, 305 P.L.	
	Quiz B	9	WF	208, 302, 305 P.L.	
	Quiz C	10	WF	208, 302 P.L.	
	Quiz D	11	WF	208, 302, 305 P.L.	

Physics 8b. General Physics Laboratory.—*Prerequisite:* Physics 7b or registration therein.

2	A	9–12	M	208 P.L.	PATON and others
	B	1–4	M	208, 302 P.L.	
	C	8–11	Tu	208, 204 P.L.	
	D	2–5	Tu	208, 302 P.L.	
	F	1–4	W	208, 302 P.L.	
	J	2–5	F	208, 302 P.L.	
	L	9–12	S	208 P.L.	

Intermediate Courses

Physics 15. Electricity and Magnetism.—*Prerequisite:* Physics 1a-1b, 3a-3b; or Physics 7a-7b, 8a-8b. (3). 8 MW, 204 P.L.; 1-4 F, 112 P.L. Associate Professor WILLIAMS.

Physics 25. Architectural Acoustics.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b. (2). 9 MW; 100 P.L. Professor WATSON.

Courses for Advanced Undergraduates and Graduates

Physics 14b. Theoretical Mechanics.—*Prerequisite:* Physics 14a. (3). 8 TTS; 306 P.L. Mr. Mott-Smith.

Physics 44b. Electrical and Magnetic Measurements.—*Prerequisite:* Physics 44a.

Credits	Section	Hours	Days	Room	Instructor
3	K	1–4	TT	104, 108 P.L.	Knipp, Williams, and others
	L	8–11	TT	104, 108 P.L.	
	Y	1–4	W		
		8–11	S	108 P.L.	
	N	2–5	MF	104, 108 P.L.	
	M	8–11	MF	104, 108 P.L.	

Physics 45. Kinetic Theory of Heat and Radiation.—*Prerequisite:* Physics 16. (3). 10 TTS; 204 P.L. Associate Professor Paton.

Physics 71b. Light.—*Prerequisite:* Physics 71a. (2). 11 TT; 204 P.L. Dr. Almy.

Physics 72b. Light Laboratory.—*Prerequisite:* Registration in Physics 71b. (2). 2-5 MW; 313 P.L. Dr. Almy.

Physics 78. X-Rays.—*Prerequisite:* Physics 1a-1b, 3a-3b; or 7a-7b, 8a-8b; Math. 7 and 9, or 8a-8b. (3). 11 MWF; 204 P.L. Dr. Sanders.

Physics 98. Thesis.—(2 to 5).* Professors in the department.

Courses for Graduates

Physics 104b. Selected Problems in Electrical Measurements.—(1 unit). Arrange. 112 P.L. Professor Knipp.

Physics 122b. Dynamics.—(1 unit). 8 MWFS; 302 P.L. Professor Kunz.

Physics 123. Dynamical Theory of Sound.—(1 unit). 11 MWF; 202 P.L. Professor Watson.

Physics 124. Conduction of Electricity through Gases.—(1 unit). 9 TTS; 119 P.L. Professor Knipp.

Physics 125. Hydrodynamics.—(½ unit). 8 TT; 302 P.L. Professor Kunz.

Physics 127b. Recent Problems in Physics.—Relativity. (1 unit). 10 TTS; 202 P.L. Mr. Mott-Smith.

Physics 128b. Problems and Methods in Theoretical Physics.—(1 unit). 9 TTS; 202 P.L. Assistant Professor Bartlett.

Physics 131b. Investigation of Special Problems.—(½ to 2 units).* Arrange. Assistant Professor Kruger.

Physics 170b. Light.—(1 to 2 units).* 11 TT, 204 P.L.; 2-5 MW, 313 P.L. Dr. Almy.

Physics 185. Band Spectra and Molecular Structure.—(1 unit). 10 MWF; 204 P.L. Professor Loomis.

Physics 190. Research.—(1 to 3 units).* Arrange. Professors in the department.

Physics 199. Physics Colloquium.—(No credit). 4:45 p.m. Th; 119 P.L. Professor Loomis.

PHYSIOLOGY

Note: Certain courses in this department require a laboratory fee of $3.50.

Major: 20 hours from courses offered in the department, exclusive of Physiol. 1.

Minors: 20 hours in not more than two of the following: botany, bacteriology, chemistry, entomology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Physiol. 1. Elements of Physiology.—A survey of the field of mammalian physiology.

2[1]	Lect. A	10	TT	228 N.H.	Burge
[1]Seniors will receive only 1 hour credit.	Lect. B	11	MW	228 N.H.	
	Quiz A	8	M	425 N.H.	Orth
	Quiz B	9	M	425 N.H.	Orth
	Quiz C	1	T	425 N.H.	Orth
	Quiz D	9	W	425 N.H.	Orth
	Quiz E	8	Th	425 N.H.	Orth
	Quiz F	3	Th	423 N.H.	Orth
	Quiz G	2	F	425 N.H.	Orth
	Quiz H	10	S	425 N.H.	Orth

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Physiol. 2. Physiology of Physical Exercise.—*Prerequisite:* Physiol. 1 and sophomore standing.

Credits	Section	Hours	Days	Room	Instructor
4[1]	Lect.	10	MW	410 U.H.	ELHARDT
[1]Seniors will receive only 3 hours credit.	Lab. A	3–5	M	413 N.H.	
	Lab. B	10–12	Tu	413 N.H.	
	Lab. C	1–3	W	413 N.H.	
	Lab. D	10–12	Th	413 N.H.	
	Lab. E	8–10	S	413 N.H.	
	Quiz F	9	Th	425 N.H.	
	Quiz G	9	F	425 N.H.	
	Quiz H	10	F	425 N.H.	

Physiol. 4. General Physiology.—Circulation, respiration, glands of internal secretion, digestion, metabolism, excretion, reproduction, special senses, nervous system, muscle, vitamins, and osseous system. (Not open to students who have had Physiol. 1.)

5[1]	Lect. A	11	MW	228 N.H.	BURGE
[1]Seniors will receive only 4 hours credit.	Lect. B	10	TT	228 N.H.	WILLIAMS
	Lab. A	8–10	MW	413 N.H.	KNEER
	Lab. B	1–3	MF	413 N.H.	NEILD
	Lab. C	8–10	TT	413 N.H.	
	Lab. D	10–12	TT	413 N.H.	
	Lab. E	3–5	TT	413 N.H.	
	Lab. F	10–12	FS	413 N.H.	
	Quiz A	8	Tu	425 N.H.	
	Quiz B	2	W	423 N.H.	
	Quiz C	9	F	229 N.H.	
	Quiz D	11	F	423 N.H.	
	Quiz E	8	S	425 N.H.	

Physiol. 6. Advanced Physiology.—Physiology of the nervous system; glands of internal secretion, respiration, and muscle. (Recommended for the general student.) *Prerequisite:* Physiol. 1 or 4.

5	Lect.	10	TT	423 N.H.	WICKWIRE
	Quiz A	3	Tu	423 N.H.	
	Quiz B	10	F	423 N.H.	
	Lab. A	10–12	MW	413 N.H.	
	Lab. B	1–3	TT	413 N.H.	
	Lab. C	8–10	WF	413 N.H.	
	Lab. D	3–5	WF	413 N.H.	

Courses for Advanced Undergraduates and Graduates

Physiol. 8. Thesis.—*Prerequisite:* Senior standing and 15 hours of physiology. (3 to 5).* Time to be arranged before registration.

Physiol. 9. Physiology of the Special Senses.—*Prerequisite:* Senior standing; Physiol. 1 and 6. (3). Lect., 9 Tu; Quiz, 9 Th; Lab., arrange. Mr. WICKWIRE.

Courses for Graduates

Physiol. 101. Journal Club.—Review of literature. (¼ unit). Arrange. Members of the staff.

Physiol. 102. Research.—(1 to 2 units).* Arrange. Associate Professor BURGE.

Physiol. 103. Experimental Physiology.—Special phases of the physiology of respiration, circulation, digestion, metabolism, excretion, secretion, glands of internal secretion, nervous system. (½ to 1 unit).* Arrange. Associate Professor BURGE.

POLITICAL SCIENCE

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 44 or 62).

Minors: 20 hours selected from one or two of the following subjects: history, economics, law, sociology, philosophy, and education. At least eight hours must be offered in each subject, if two are chosen.

Courses 1 and 3 give a general survey of national, state, and local government in the United States. Undergraduates beginning the study of political science are advised to take first, course 1, 3, or 16, and those planning for advanced work should take course 1 and either 3 or 16 in their sophomore year. Course 1 is offered the first semester.

Courses for Undergraduates

Pol. Sci. 3. State and Local Government.—(A continuation of Pol. Sci. 1; may be taken independently). *Prerequisite:* Sophomore standing.

3[1]	A1	8	MWF	300 L.H.	LENOIR
[1]The total credit for students who take both 3 and 16 will not be more than 4 hours.	A2	8	MWF	204 L.H.	CARLETON
	B1	9	MWF	300 L.H.	BERDAHL
	B2	9	MWF	204 L.H.	CARLETON
	B3	9	MWF	340 L.H.	MATHEWS

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Pol. Sci. 3. State and Local Government (concluded)

Credits	Section	Hours	Days	Room	Instructor
3	C1	10	MWF	300 L.H.	Lenoir
	C2	10.	MWF	204 L.H.	Sikes
	D1	11	MWF	340 L.H.	Hyneman
	D2	11	MWF	302 L.H.	Carleton
	E1	1	MWF	340 L.H.	Hyneman
	E2	1	MWF	204 L.H.	
	F	2	MWF	204 L.H.	Sikes
	G	3	MWF	204 L.H.	Sikes
	K	9	TTS	204 L.H.	Powell

Courses for Advanced Undergraduates and Graduates

Note: Junior standing is required for admission to the following courses.

Pol. Sci. 6b. International Law (continuation of 6a).—*Prerequisite:* Open to seniors, graduate students, and law students of junior standing. (3). 2 MWF; 202 L.H. Professor Garner.

Pol. Sci. 7. American Foreign Relations.—*Prerequisite:* Pol. Sci. 1 or Hist. 3a-3b; junior standing. (3). 11 MWF; 204 L.H. Professor Mathews.

Pol. Sci. 8. International Organization.—*Prerequisite:* Junior standing. (3). 11 TT; 304 L.H. Professor Berdahl.

Pol. Sci. 11. Constitutional Aspects of Social and Industrial Problems.—*Prerequisite:* Six hours of political science or economics; junior standing. (3). 10 MWF; 340 L.H. Assistant Professor Hyneman.

Pol. Sci. 12. National Administration in the United States.—*Prerequisite:* Pol. Sci. 1; junior standing. (3). 9 MWF; 326 L.H. Professor Fairlie.

Pol. Sci. 22. Continental European Governments.—*Prerequisite:* Graduate or senior standing, or junior standing with six hours of political science; History 20a-20b recommended. (3). 3 MWF; 308 L.H. Professor Garner.

Pol. Sci. 28. Current Governmental Problems.—*Prerequisite:* Junior standing with six hours of political science. (2). 3 TT; 204 L.H. Professor Mathews.

Pol. Sci. 32. Principles of Political Science.—*Prerequisite:* Six hours of political science. (2). 2 TT; 304 L.H. Professor Fairlie.

Pol. Sci. 34. Municipal Problems.—*Prerequisite:* Open to graduate students and to undergraduate students who have had Pol. Sci. 4 or Econ. 1, or who have senior standing.

3	Lect.	9	TT	L.H. Theatre	Kneier
	A Quiz	11	Th	308 L.H.	Kneier
	B Quiz	3	Th	300 L.H.	Kneier
	C Quiz	3	Th	304 L.H.	Kneier
	D Quiz	9	F	205 L.H.	Kneier
	E Quiz	10	F	233 L.H.	Kneier
	F Quiz	11	F	139 L.H.	Kneier
	G Quiz	1	F	304 L.H.	Kneier

Pol. Sci. 36b. Thesis and Honors Course.—*Prerequisite:* Senior standing. (2 to 4).* Arrange. Members of the department.

Courses for Graduates

Pol. Sci. 102. The Nature of the State.—(1 unit). Twice a week. Time to be arranged. Professor Fairlie.

Pol. Sci. 103. Seminar in Political Science and Public Law.—Once a week. Time to be arranged. Members of the department.

Pol. Sci. 106b. Special Topics in International Law.—(1 unit). Twice a week. Time to be arranged. Professor Garner.

Pol. Sci. 108. Problems of International Organization.—(1 unit). Twice a week. Time to be arranged. Professor Berdahl.

Pol. Sci. 112. Public Administration.—(1 unit). Twice a week. Time to be arranged. Professor Fairlie.

PSYCHOLOGY

Note: Certain courses in this department require a laboratory fee of $1.

Major: 20 hours chosen from courses announced by the department, excepting Psych. 1. At least 8 hours must be offered in the advanced group.

Minors: 20 hours chosen from not more than two of the following subjects: education, mathematics, philosophy, sociology, physiology, and zoology. At least 8 hours must be offered in each, if two are chosen.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Courses for Undergraduates

Psych. 1. Introduction to Psychology.—*Prerequisite:* One year of university work.

Credits	Section	Hours	Days	Room	Instructor
4	Lect. A	9	TT	218 U.H.	RUCH
	Quiz A1	8	MW	403 U.H.	
	Quiz A2	9	MW	403 U.H.	
	Quiz A3	9	MW	404 U.H.	
	Quiz A4	10	MW	404 U.H.	
	Quiz A5	11	MW	403 U.H.	
	Quiz A6	11	MW	411 U.H.	
	Quiz A7	2	MW	403 U.H.	
	Quiz A8	3	MW	407 U.H.	
	Lect. B	11	MW	218 U.H.	CULLER
	Quiz B1	8	TT	407 U.H.	
	Quiz B2	9	TuS	407 U.H.	
	Quiz B3	9	TT	403 U.H.	
	Quiz B4	10	TuS	407 U.H.	
	Quiz B5	11	TuS	403 U.H.	
	Quiz B6	11	TT	406 U.H.	
	Quiz B7	2	TT	403 U.H.	
	Quiz B8	3	TT	403 U.H.	

Psych. 2. General Psychology.—*Prerequisite:* Psych. 1 or senior standing.

4	Lect.	9	MW	218 U.H.	HIGGINSON
	Quiz A	8	TT	411 U.H.	
	Quiz B	9	TT	411 U.H.	
	Quiz C	9	TuS	412 U.H.	
	Quiz D	10	TT	411 U.H.	
	Quiz E	11	TuS	411 U.H.	
	Quiz F	2	TT	411 U.H.	
	Quiz G	3	TT	411 U.H.	

Psych. 3. Laboratory Practice (Elementary).—*Prerequisite:* Psych. 1.

Lab. A	10–12	MW	417, 418 U.H.	HIGGINSON
Lab. B	2–4	MW	417, 418 U.H.	LINDSLEY
Lab. C	8–10	TT	417, 418 U.H.	LINDSLEY
Lab. D	10–12	TT	417, 418 U.H.	HIGGINSON
Lab. E	2–4	TT	417, 418 U.H.	LINDSLEY

Courses for Advanced Undergraduates and Graduates

Psych. 5. Comparative Psychology.—*Prerequisite:* Psych. 2 or 3. (3). 10 MWF; 406 U.H. Dr. MCALLISTER.

Psych. 10. Mental and Physical Work.—*Prerequisite:* Psych. 1 and junior standing. (2). 11 TT; 412 U.H. Dr. RUCH.

Psych. 14. Social Psychology.—*Prerequisite:* Psych. 1 and junior standing.

3	Lect.	9	MW	211 U.H.	LINDSLEY
	Quiz A	9	F	211 U.H.	
	Quiz B	10	F	404 U.H.	

Psych. 18. Perception.—*Prerequisite:* Psych. 2 or 3. (3). 10 TT; 318 U.H. Associate Professor CULLER.

Psych. 20. Systematic Psychology.—*Prerequisite:* Psych. 2 or 3, and senior standing. (2). 9 TT; 404 U.H. Professor WOODROW.

Psych. 21. Character and Personality.—*Prerequisite:* Psych. 2 or 3.

3	Lect.	11	MW	315 U.H.	SEARS
	Quiz A	11	F	315 U.H.	
	Quiz B	10	F	318 U.H.	

Psych. 27b. Thesis and Honors Course.—(Primarily designed for major students and for candidates for honors). *Prerequisite:* Psych. 2 and 3; consent of the instructor. (2). Time to be arranged; 402 U.H. Professor WOODROW.

Courses for Graduates

Psych. 102. Translation of Psychological Treatises.—(½ unit). Time to be arranged; 419 U.H. Professor WOODROW.

Psych. 103. Research.—(½ to 2 units).* Time to be arranged. Professor WOODROW, Associate Professor CULLER, Assistant Professor HIGGINSON.

Psych. 105. Seminar.—(1 unit). Once a week. Time to be arranged; 419 U.H. Professor WOODROW.

Psych. 106. Neural Theory of the Psychological Functions.—(1 unit). 4-6 Tu; 419 U.H. Associate Professor CULLER.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

PUBLIC SPEAKING

(See Speech, under English.)

PUBLIC UTILITIES AND TRANSPORTATION

(See also Railway Engineering.)

A. PUBLIC UTILITIES

Course for Advanced Undergraduates and Graduates

Pub. Util. 83. Public Utility Rates.—*Prerequisite:* Public Utilities 81. (3). 9 MWF; 126 Com. Assistant Professor GRAY.

Course for Graduates

Pub. Util. 180. Management of Public Utilities.—(1 unit). 4-6 W; 212 Com. Assistant Professor GRAY.

B. TRANSPORTATION

Course for Undergraduates

Trans. 1. Economics of Transportation.—*Prerequisite:* Econ. 1, junior standing.

Credits	Section	Hours	Days	Room	Instructor
3	A Quiz	8	MWF	328 Com.	COVER
	B Quiz	9	MWF	307 Com.	FITZGERALD
	C Quiz	10	MWF	101 Com.	LOCKLIN
	D Quiz	11	MWF	307 Com.	FITZGERALD

Courses for Advanced Undergraduates and Graduates

Trans. 3. Industrial Traffic Management.—*Prerequisite:* Trans. 1. (3). 9 TTS; 101 Com. Assistant Professor LOCKLIN.

Trans. 26. Current Transportation Problems.—*Prerequisite:* Trans. 1. (3). 10 TTS; 101 Com. Assistant Professor LOCKLIN.

Course for Graduates

Trans. 100. Economics of Transportation.—(1 unit). Arrange. Assistant Professor LOCKLIN.

RAILWAY ENGINEERING

(See also Public Utilities and Transportation.)

Note: Certain courses in this department require a laboratory fee of $3.

Courses for Undergraduates

R.E. 4. Locomotives.—*Prerequisite:* R.E. 3; T.A.M. 2 and 3; registration in M.E. 64. (3). Sec. W, 11 MWF; 104 T.B. Mr. SCHRADER.

R.E. 7. Locomotive and Car Design.—*Prerequisite:* R.E. 2. (3). Sec. W, 1-4 MWF; 104 T.B. Mr. SCHRADER.

R.E. 8. Railway Laboratory.—*Prerequisite:* R.E. 5. (2). Sec. W, 8-11 TT; 104 T.B. Mr. SCHRADER.

R.E. 33. Economic Theory of Railway Location.—*Prerequisite:* C.E. 3; T.A.M. 2. (4). Sec. U, 11 MWF, 1-4 Tu; 117 T.B. Professor KING.

R.E. 33a. Economic Theory of Railway Location.—*Prerequisite:* C.E. 3; T.A.M. 2. (3). Sec. U, 11 MWF; 117 T.B. Professor KING. (An abridgment of course 33, for students in departments other than railway engineering.)

R.E. 36. Railway Maintenance.—*Prerequisite:* Registration in C.E. 3. (3). Sec. U, 10 MW, 9-12 S; 117 T.B. Professor KING.

R.E. 37. Railway Design Problems.—*Prerequisite:* Registration in C.E. 65. (2). Sec. U, 9 TT; 117 T.B. Professor KING.

R.E. 51. Seminar.—Open to railway students only. (1). Sec. U, 10 F; 117 T.B. Professor KING.

R.E. 60. Electric Railway Principles.—*Prerequisite:* R.E. 59; T.A.M. 3; E.E. 25, 75. (2). Sec. V, 11 TT; 105 T.B. Associate Professor TUTHILL.

R.E. 61. Electric Traction.—*Prerequisite:* T.A.M. 2 or 3; E.E. 11, 61 or 25, 75. (3). Sec. V, 10 MWF; 105 T.B. Associate Professor TUTHILL.

R.E. 67. Seminar.—Open to seniors in railway courses only. (1). Sec. V, 9 F; 117 T.B. Professor SCHMIDT.

R.E. 70. Electric Railway Design.—*Prerequisite:* R.E. 64; registration in R.E. 74. (2). Sec. V, 1-4 MW; 117 T.B. Associate Professor TUTHILL.

R.E. 74. Electric Railway Economics.—*Prerequisite:* R.E. 64. (3). Sec. V, 11 MWF; 105 T.B. Associate Professor TUTHILL.

R.E. 98. Thesis.—Arrange.

Courses for Graduates

R.E. 102. Locomotive Design.—(1 unit). Arrange. Professor YOUNG.

R.E. 106. Locomotive Operation.—(1 unit). Arrange. Professor SCHMIDT.

R.E. 110. Railway Location.—(1 unit). Arrange. Professor KING.

RHETORIC

(See English, B.)

ROMANCE LANGUAGES AND LITERATURE

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, and 6b, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), German, Greek, history, Italian, Latin, philosophy, Spanish, provided that at least 8 hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, and 2a, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), French, German, Greek, history, Italian, Latin, philosophy, provided that at least 8 hours be taken in any subject chosen.

A. FRENCH

Courses for Undergraduates

French 1a. Elementary Course.—For students who have no credit in French.

Credits	Section	Hours	Days	Room	Instructor
4[1]	B1	9	TWTF	212 U.H.	LEGRAND
[1]Seniors will receive	B2	9	TWTF	116 New Agr.	HERDMAN
only 3 hours credit.	C1	10	TWTF	122 New Agr.	CARTER
	C2	10	TWTF	308 L.H.	AMIEL
	D	11	TWTF	122 New Agr.	CARTER
	F	2	MTWT	139 L.H.	SMITH
	G	3	MTWT	133 L.H.	HERDMAN

French 1b. Elementary Course (continued).—*Prerequisite:* French 1a or one year of high-school French.

4[1]	A1	8	TWTF	214 U.H.	BUSSARD
[1]Seniors will receive	A2	8	TWTF	235 L.H.	ROCHE
only 3 hours credit.	A3	8	TWTF	122 New Agr.	ROWE
	B1	9	TWTF	312 U.H.	SMITH
	B2	9	TWTF	122 New Agr.	ROWE
	C1	10	TWTF	227 L.H.	ALLEN
	C2	10	TWTF	139 L.H.	DISMUKES
	D	11	TWTF	227 L.H.	GOGGIN
	E1	1	MTWT	311 U.H.	ALEXANDER
	E2	1	MTWT	203 L.H.	SMITH
	F	2	MTWT	212 U.H.	ALEXANDER
	G	3	MTWT	214 U.H.	ALEXANDER
	H	4	MTWT	214 U.H.	ALEXANDER

French 2a. Modern French.—*Prerequisite:* French 1b, or two years of high-school French.

4	A	8	TWTF	142 L.H.	RALPH
	C	10	TWTF	123 New Agr.	REW
	D	11	TWTF	123 New Agr.	REW
	G	3	MTWT	139 L.H.	SMITH

French 2b. Modern French.—*Prerequisite:* French 2a, or three years of high-school French.

Credits	Section	Hours	Days	Room	Instructor
4	[1]A1	8	TWTF	136 L.H.	HILTON
[1]Sections A1, B1, C1, D1, and E1 are primarily for students who expect to go beyond French 2b. More attention is paid to the speaking and hearing of French.	A2	8	TWTF	123 New Agr.	HERDMAN
	[1]B1	9	TWTF	224 L.H.	BUSSARD
	B2	9	TWTF	123 New Agr.	RALPH
	[1]C1	10	TWTF	113 L.H.	BUSSARD
	C2	10	TWTF	133 L.H.	LEGRAND
	[1]D1	11	TWTF	232 L.H.	ALLEN
	D2	11	TWTF	203 U.H.	AMIEL
	[1]E1	1	MTWT	212 U.H.	PIETRANGELI
	E2	1	MTWT	235 L.H.	GOGGIN
	F	2	MTWT	110 L.H.	HERDMAN
	G	3	MTWT	310 U.H.	ALLEN

French 3b. Introduction to French Literature.—*Prerequisite:* French 3a.

3	A	8	MWF	211 L.H.	WILL
	B1	9	MWF	303a L.H.	JACOB
	B2	9	MWF	105 L.H.	WILL
	C	10	MWF	224 L.H.	GULLETTE
(In French)	E	1	MWF	128 L.H.	ROCHE
	F	2	MWF	303a L.H.	JACOB

French 6b. Second-Year Composition and Conversation.—*Prerequisite:* French 6a or 2a or three years of high-school French.

2	K	9	TT	232 L.H.	HILTON
	N	1	TT	407 U.H.	HILTON
	O	2	TT	208 U.H.	HILTON

French 7b. Intermediate Composition and Conversation.—*Prerequisite:* French 7a. (*Note:* Prospective teachers of French are strongly advised to take French 7a and 7b.)

2	J	8	TT	104 L.H.	LEGRAND
	B	9	MW	318 U.H.	AMIEL
	K	9	TT	104 L.H.	ROCHE
	L	10	TT	211 L.H.	ROCHE
	M	11	TT	113 L.H.	LEGRAND
	N	1	TT	105 L.H.	AMIEL
	F	2	MW	238 L.H.	LEGRAND

French 8b. Advanced Composition and Conversation.—*Prerequisite:* French 8a.

2	K	9	TT	300 L.H.	AMIEL
	O	2	TT	105 L.H.	ROCHE

French 28b. Senior Thesis.—For candidates for honors in French. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in French have the following prerequisites: French 3a-3b and junior standing; or senior standing and permission of the instructor.

French 10b. Survey of French Literature.—(3). 9 MWF; 232 L.H. Professor CARNAHAN.

French 17b. French Drama of the Nineteenth Century.—

2	L	10	TT	110 L.H.	WILL
	N	1	TT	109 L.H.	HAMILTON

French 24b. French Drama of the Seventeenth and Eighteenth Centuries.—(3). 9 MWF; 227 L.H. Professor OLIVER.

French 29b. Modern French Poetry.—(2). 10 TT; 204a L.H. Assistant Professor JACOB.

French 32b. French Novel of the Nineteenth Century.—(3). 8 MWF; 128 L.H. Assistant Professor JACOB.

French 33b. La Littérature Contemporaine.—(In French). (2). 11 TT; 109 L.H. Professor MICHAUD.

Courses for Graduates

French 102. Villon, Rabelais, Montaigne, La Pléiade.—(1 unit). 4 MW; 425a Lib. Assistant Professor WILL.

French 104. Eighteenth Century Prose Writers.—(1 unit). 10 TT; 219 L.H. Professor OLIVER.

French 127. French Romanticism.—(1 unit). 3 TT; 425a Lib. Professor CARNAHAN.

French 129. Research Problems in French Romanticism.—(½ to 1 unit). Arrange. 425a Lib. Professor CARNAHAN.

French 132. French Lyric Poetry.—(1 unit). 3 MW; 113 L.H. Professor MICHAUD.

French 144. Le Réalisme et le Naturalisme français.—(In French). (1 unit). 3-5 F; 120 L.H. Professor MICHAUD.

French 175. Old French Phonology and Morphology.—(1 unit). 4 TT; 224 L.H. Professor OLIVER.

French 195. Seminar.—Research work in preparation for theses in French. (1 to 2 units).* Members of the department.

B. ITALIAN

Courses for Undergraduates

Italian 1b. Elementary Course.—*Prerequisite:* Italian 1a.

Credits	Section	Hours	Days	Room	Instructor
4[1]	C	10	TWTF	235 L.H.	PIETRANGELI
[1]Seniors will receive only 3 hours credit.	F	2	MTWT	224 L.H.	VAN HORNE and DISMUKES

Italian 2b. Intermediate Italian.—*Prerequisite:* Italian 2a. (3). 11 MWF; 219 L.H. Miss PIETRANGELI.

Course for Advanced Undergraduates and Graduates

Italian 3b. Dante: The Divine Comedy.—*Prerequisite:* Italian 3a; junior standing. (2). 3 TT; 219 L.H. Professor VAN HORNE.

Courses for Graduates

Italian 143. Italian Literature in the Renaissance.—(1 unit). 1 TT; 216 L.H. Professor VAN HORNE.

Italian 195. Seminar.—Research work in preparation for theses in Italian. (1 to 2 units).* Professor VAN HORNE.

C. SPANISH

Courses for Undergraduates

Spanish 1a. Elementary Course.—For students who have no credit in Spanish.

4[1]	A	8	TWTF	302 L.H.	RAMSEY
[1]Seniors will receive only 3 hours credit.	B	9	TWTF	203a L.H.	UTLEY
	C	10	TWTF	136 L.H.	RAMSEY
	D	11	TWTF	310 U.H.	KOZMA
	E	1	MTWT	232 L.H.	KIDDER
	F	2	MTWT	227 L.H.	KIDDER
	G	3	MTWT	227 L.H.	UTLEY

Spanish 1b. Elementary Course (continued).—*Prerequisite:* Spanish 1a or one year of high-school Spanish.

4[1]	A1	8	TWTF	133 L.H.	YOUNG
[1]Seniors will receive only 3 hours credit.	A2	8	TWTF	232 L.H.	UTLEY
	B1	9	TWTF	311 L.H.	YOUNG
	B2	9	TWTF	136 L.H.	LODGE
	C1	10	TWTF	240 L.H.	YOUNG
	C2	10	TWTF	334 L.H.	KIDDER
	C3	10	TWTF	114 L.H.	ELLIES
	D	11	TWTF	204 U.H.	ADAM
	E1	1	MTWT	302 U.H.	KOZMA
	E2	1	MTWT	139 L.H.	LODGE
	F	2	MTWT	136 L.H.	LODGE
	G	3	MTWT	136 L.H.	HILTON

Spanish 2a. Modern Spanish.—*Prerequisite:* Spanish 1b or two years of high-school Spanish.

4	A	8	TWTF	139 L.H.	AVILÉS
	B	9	TWTF	321 L.H.	DALLERA
	D	11	TWTF	214 U.H.	DALLERA
	F	2	MTWT	128 L.H.	UTLEY

Spanish 2b. Modern Spanish.—*Prerequisite:* Spanish 2a or three years of high-school Spanish.

4	A	8	TWTF	240 L.H.	LODGE
	B1	9	TWTF	139 L.H.	ADAM
	B2	9	TWTF	206 L.H.	KIDDER
	C	10	TWTF	203a L.H.	ADAM
	D	11	TWTF	104 L.H.	ELLIES
	E	1	MTWT	227 L.H.	BURNER
	F	2	MTWT	233 L.H.	BURNER

Spanish 3b. Introduction to Spanish Literature.—*Prerequisite:* Spanish 3a.

3	B	9	MWF	133 L.H.	BURNER
	D	11	MWF	133 L.H.	BALSEIRO
	E	1	MWF	203a L.H.	VAN HORNE

Spanish 5b. Commercial Spanish.—*Prerequisite:* Spanish 5a.

2	K	9	TT	133 L.H.	AVILÉS
	D	11	MW	308 L.H.	AVILÉS
	N	1	TT	128 L.H.	AVILÉS

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Spanish 7b. Intermediate Composition and Conversation.—*Prerequisite:* Spanish 7a. (*Note:* Prospective teachers of Spanish are strongly advised to take Spanish 7a and 7b.)

Credits	Section	Hours	Days	Room	Instructor
2	A	8	WF	227 L.H.	Ellies
	M	11	TT	128 L.H.	Avilés
	O	2	TT	123 L.H.	Ellies

Spanish 8b. Advanced Composition and Conversation.—*Prerequisite:* Spanish 8a. (2). 8 TT; 123 L.H. Miss Ellies.

Spanish 25. Methods of Teaching Spanish.—Discussions and laboratory work in phonetics. *Prerequisite:* 20 hours credit in Spanish, or 16 hours credit in Spanish plus 20 in French. Not open to students other than seniors except by permission of instructor. (3). 2 MWF; 310 U.H. Assistant Professor Gullette.

(*Note:* Spanish 25 will be given only second semester in 1933-34. French 25 will be given first semester.)

Spanish 28b. Senior Thesis.—For candidates for honors in Spanish. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in Spanish have the following prerequisites: Spanish 3a-3b and junior standing; or senior standing and permission of the instructor.

Spanish 10b. Survey of Spanish Literature.—(3). 11 MWF; 136 L.H. Associate Professor Hamilton.

Spanish 11b. Cervantes: Don Quijote.—(2). 11 TT; 205 L.H. Professor Van Horne.

Spanish 17b. El Teatro Español Moderno.—(2). 10 TT; 303a L.H. Associate Professor Balseiro.

Courses for Graduates

Spanish 130. Spanish Literature in the Sixteenth Century.—(1 unit). 4 TT; 214 L.H. Associate Professor Hamilton.

Spanish 135. La Novela Española Moderna.—(In Spanish). (1 unit). Arrange. 429 Lib. Associate Professor Balseiro.

Spanish 185. Old Spanish Readings.—(1 unit). 3 TT; 214 L.H. Associate Professor Hamilton.

Spanish 195. Seminar.—Research work in preparation for theses in Spanish. (1 to 2 units).* Members of the department.

SCANDINAVIAN LANGUAGES

(See English, D.)

SOCIOLOGY

Major: 20 hours from any courses in the department.

Minors: 20 hours from one or two of the following subjects: history, philosophy, psychology, economics, political science. At least 8 hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Sociol. 1. Principles of Sociology.—*Prerequisite:* Junior standing, or sophomore standing with either the principles of economics or the principles of psychology or 5 hours of history.

3	A	8	MWF	304 L.H.	Hiller
	B	8	TTS	326 L.H.	Albig
	C	9	MWF	235 L.H.	Tylor
	D	9	MWF	406 U.H.	Houghton
	E	10	MWF	304 L.H.	Houghton
	F	11	MWF	326 L.H.	Hiller
	G	1	MWF	303 L.H.	Houghton
	H	2	MWF	306 L.H.	Tylor

Sociol. 2. Social Factors in Personality.—*Prerequisite:* Sociol. 1.

3	A	8	MWF	202 L.H.	Ahrens
	B	9	MWF	202 L.H.	Ahrens

Courses for Advanced Undergraduates and Graduates

Sociol. 3. Social Evolution.—*Prerequisite:* Sociol. 1 and junior standing. (3). 11 MWF; 202 L.H. Mr. Ahrens.

Sociol. 4. Social Control.—*Prerequisite:* Sociol. 1 and junior standing.

2	A	10	TT	303 L.H.	Albig
	B	11	TT	303 L.H.	Albig

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Sociol. 6. Urban Sociology.—*Prerequisite:* Sociol. 1 and junior standing. (3). 8 MWF; 334 L.H. Assistant Professor TYLOR.

Sociol. 8. Charities.—*Prerequisite:* Sociol. 1 and one semester either of economics or of history.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	306 L.H.	TIMMONS
	B	2	MWF	334 L.H.	TIMMONS

Sociol. 9. Criminology.—*Prerequisite:* Sociol. 1 and senior standing. (Open to pre-legal juniors without Sociol. 1.)

3	A	9	MWF	128 L.H.	TAFT
	B	3	MWF	334 L.H.	TAFT

Sociol. 14. Group Opinion.—*Prerequisite:* Sociol. 1 and senior standing. (3). 1 MWF; 326 L.H. Assistant Professor ALBIG.

Sociol. 24. Penology.—*Prerequisite:* Sociol. 9. (3). 1 MWF; 105 L.H. Professor TAFT.

Sociol. 27. Community Welfare Administration.—*Prerequisite:* Fourteen credit hours in the department of sociology. (3). 10 MWF; 105 L.H. Assistant Professor TIMMONS.

Sociol. 28. Immigration and Assimilation.—*Prerequisite:* Five hours of sociology. (3). 9 MWF; 238 L.H. Associate Professor HILLER.

Sociol. 42. Early Civilizations.—*Prerequisite:* Junior standing. (3). 10 MWF; 306 L.H. Assistant Professor KELLY.

Sociol. 44. Negro Origins.—*Prerequisite:* Sociol. 3 or 30 or 42. (3). 11 MWF; 306 L.H. Assistant Professor KELLY.

Sociol. 90b. Honors Course.—For senior majors in sociology. Consent of instructor is required. (2). Arrange. Members of the department.

Courses for Graduates

Sociol. 124. Advanced Penology.—(1 unit). Twice a week. Arrange. 201 L.H. Professor TAFT.

Sociol. 128. Fusion of Culture Resulting from Immigration.—(1 unit). Twice a week. Arrange. 201 L.H. Associate Professor HILLER.

Sociol. 150. Seminar.—Preparation of theses. (½ to 2 units).* Arrange. Members of the department.

SPANISH

(See Romance Languages and Literature, C.)

SWEDISH

(See English, D.)

THEORETICAL AND APPLIED MECHANICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $2.50.

Courses for Undergraduates

T.A.M. 1. Analytical Mechanics (Statics).—*Prerequisite:* Math. 7; registration in Math. 9.

2	C	8	TT	313 M.T.L.
	Q	8	TT	316 M.T.L.
	R	8	TT	202 E.H.
	Ch1	8	TT	205 E.H.
	X	9	MW	313 M.T.L.
	F	9	TT	313 M.T.L.
	M	9	TT	316 M.T.L.
	N	10	TT	310 M.T.L.
	S	10	TT	313 M.T.L.
	Ch2	10	TT	316 M.T.L.
	J	11	TT	305 M.T.L.
	E	11	TT	310 M.T.L.
	D	1	TT	305 M.T.L.
	K	1	TT	202 E.H.
	P	1	WF	202 E.H.
	G	2	TT	305 M.T.L.
	L	2	TT	313 M.T.L.

T.A.M. 2. Analytical Mechanics (Dynamics).—*Prerequisite:* T.A.M. 1.

3	C	9	MWF	202 E.H.
	Y	11	MWF	202 E.H.
	D	2	MWF	305 M.T.L.
	Z	4	MWF	202 E.H.

T.A.M. 3. Resistance of Materials.—*Prerequisite:* T.A.M. 1.

Credits	Section	Hours	Days	Room	Instructor
3	Y	10	MWF	310 M.T.L.	
	N	10	TTS	202 E.H.	
	K	11	MWF	305 M.T.L.	
	L	1	MWF	305 M.T.L.	
	M	1	MWF	310 M.T.L.	

T.A.M. 4. Hydraulics.—*Prerequisite:* T.A.M. 1 and registration in T.A.M. 2.

2	E	8	TT	305 M.T.L.	
	J	8	TT	310 M.T.L.	
	F	9	TT	305 M.T.L.	
	G	10	TT	305 M.T.L.	

T.A.M. 18. Strength of Materials.—*Prerequisite:* T.A.M. 17.

3	A	8	WF	305 M.T.L.	
		8–10	M	305 M.T.L.	
	B	10	MW	305 M.T.L.	
		9–11	F	305 M.T.L.	

T.A.M. 63. Resistance of Materials Laboratory.—*Prerequisite:* Registration in T.A.M. 3.

1	Y	1–3	M	223 M.T.L.	
	L	3–5	M	223 M.T.L.	
	K	3–5	Tu	223 M.T.L.	
	N	10–12	W	223 M.T.L.	
	M	3–5	W	223 M.T.L.	

T.A.M. 64. Hydraulics Laboratory.—*Prerequisite:* Registration in T.A.M. 4.

1	J	1–3	M	M.T.L.	
	F	3–5	Tu	M.T.L.	
	G	3–5	W	M.T.L.	
	E	3–5	Th	M.T.L.	

Courses for Advanced Undergraduates and Graduates

T.A.M. 42. Properties of Engineering Materials: Specifications and Inspection.—*Prerequisite:* T.A.M. 1, 3, and 63. (3 credits or ½ unit). Time to be arranged. Professor SEELY.

T.A.M. 44. Laboratory Work in Testing Materials.—*Prerequisite:* T.A.M. 1, 3, and 63. (3 credits or ½ to 1 unit).* Time to be arranged. Professor MOORE and Associate Professor PUTNAM.

Courses for Graduates

T.A.M. 107. Laboratory Investigations in Strength of Materials.—(1 to 2 units).* Twice a week. Arrange. Professor MOORE.

T.A.M. 108. Laboratory Investigations in Hydraulics.—(1 to 2 units).* Twice a week. Arrange. Professor ENGER.

T.A.M. 109. Laboratory Investigations in Plain and Reinforced Concrete.—(1 to 2 units).* Twice a week. Arrange. Professor RICHART.

T.A.M. 111. Analytical Study of Experimental Work on Reinforced Concrete: Columns and Slabs.—(1 unit). Twice a week. Arrange. Professor RICHART.

T.A.M. 113. Graphical and Approximate Methods of Structural Analysis.—(½ unit). Twice a week. Arrange. Professor WESTERGAARD.

T.A.M. 115. Theory of Elasticity with Application to Engineering Problems.—(Continuation of T.A.M. 114). (1 unit). Twice a week. Arrange. Professor WESTERGAARD.

T.A.M. 117. The Properties of Engineering Materials.—(1 unit). Three times a week. Arrange. Professor SEELY.

TRANSPORTATION

(See Public Utilities and Transportation, B.)

ZOOLOGY

(Including Anatomy.)

Note: Certain courses in this department require laboratory fees varying from $1 to $5.

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: bacteriology, botany, chemistry, entomology, geology, physics, physiology, psychology. At least 8 hours must be offered in each subject, if two are chosen.

Note: Credit for seniors who take Zoology 1 or 2 will be reduced one hour.

*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

Courses for Undergraduates

Zool. 1. General Zoology.

Credits	Section	Hours	Days	Room	Instructor
5[1]	Lect.	9	MWF	228 N.H.	THOMAS, KUDO, LUCE, and assistants
[1]Seniors will receive only 4 hours credit.	[2]A Lab. & Quiz	8–10	TTS	312 N.H.	
[2]Section A will not be opened until the other sections are filled.	C Lab. & Quiz	10–12	MWF	312 N.H.	
	D Lab. & Quiz	10–12	MWF	310 N.H.	
	F Lab. & Quiz	1–3	MWF	312 N.H.	
	G Lab. & Quiz	1–3	MWF	310 N.H.	
	L Lab. & Quiz	1–4	TT	312 N.H.	

Zool. 2. Vertebrate Zoology and Comparative Anatomy.—*Prerequisite:* Zool. 1.

5[1]	Lect.	10	MWF	228 N.H.	ADAMS, CAHN, PARK, and assistants
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	MWF	330 N.H.	
[2]Sections F and H will not be opened until the other sections are filled.	B Lab. & Quiz	8–10	MWF	418 N.H.	
	C Lab. & Quiz	10–12	TTS	330 N.H.	
	D Lab. & Quiz	8–10	TTS	330 N.H.	
	E Lab. & Quiz	1–3	MWF	330 N.H.	
	[2]F Lab. & Quiz	1–3	MWF	418 N.H.	
	G Lab. & Quiz	1–4	TT	330 N.H.	
	[2]H Lab. & Quiz	1–4	TT	418 N.H.	

Zool. 3. Microscopical Technic and Vertebrate Embryology.—*Prerequisite:* Zool. 1, 2.

5	Lect.	1	TT	228 N.H.	SHUMWAY ADAMSTONE and assistants
	A Lab.	8–10	MWF	323 N.H.	
	B Lab.	10–12	MWF	323 N.H.	
	C Lab.	1–3	MWF	323 N.H.	
[2]Lab. sections D and E and quiz sections 4 and 5 will not be opened until others are filled.	[2]D Lab.	3–5	MWF	323 N.H.	
	[2]E Lab.	8–10	TTS	323 N.H.	
	1 Quiz	8	Tu	229 N.H.	
	2 Quiz	10	Th	229 N.H.	
	3 Quiz	2	Tu	229 N.H.	
	[2]4 Quiz	2	Th	229 N.H.	
	[2]5 Quiz	1	M	425 N.H.	

Zool. 4. Invertebrate Morphology.—*Prerequisite:* Zool. 1 and 30 hours of university work.

3	Lect. or Quiz	3	TT	229 N.H.	VAN CLEAVE and assistant
	A Lab.	10–12	TT	420 N.H.	
	B Lab.	1–3	TT	420 N.H.	

Zool. 5. Heredity.—*Prerequisite:* One year of university work. Credit may not be received in both Zool. 5 and Zool. 15.

2	Lect.	8	TT	228 N.H.	ZELENY, LUCE, and assistants
	A Quiz	8	F	423 N.H.	
	B Quiz	9	F	423 N.H.	
	C Quiz	11	F	425 N.H.	
	D Quiz	8	M	423 N.H.	
	E Quiz	10	M	425 N.H.	
[1]Sections G and H will not be opened until the other sections are filled.	F Quiz	11	M	423 N.H.	
	[1]G Quiz	2	F	229 N.H.	
	[1]H Quiz	2	M	229 N.H.	

Zool. 10. Field Ecology and Ornithology.—Study in forests, streams, and lakes in the vicinity of Reelfoot Lake, Tenn. Covering Easter vacation. Expenses about $23. *Prerequisite:* Registration in Zool. 9 or 16 or their equivalent, and 30 hours of university work. (1). Professor SHELFORD, Assistant Professor CAHN.

Zool. 16. General Ornithology.—*Prerequisite:* 30 hours of university work.

2	Lect. or Quiz	2	TT	228 N.H.	CAHN and assistants
	A Lab.	8–10	TT	419 N.H.	
	B Lab.	8–12	S	419 N.H.	
	C Lab.	4–6	MW	419 N.H.	

(Field trips four hours per week in April and May.)

Courses for Advanced Undergraduates and Graduates

Zool. 9. Animal Ecology.—*Prerequisite:* One year of zoology and junior standing.

3 to 4*[2]	Lect. (1st half sem.)	9	TT	229 N.H.	SHELFORD
[2]For 4 hours credit, additional field work is assigned.	Lab. (2nd half sem.)	9–11	S	202 Viv.	SHELFORD
	Field	9–12	S	(Two all day trips)	

Zool. 8b. Thesis Investigation.—*Prerequisite:* Two years of zoology. (3 to 5).* Arrange. Members of the department.

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Zool. 18. Introduction to Protozoology.—*Prerequisite:* One year in zoology and junior standing. (2). 3-5 MW; 310 N.H. Assistant Professor KUDO.

Zool. 19b. Advanced Ornithology.—*Prerequisite:* Zool. 1, 2, 16, and senior standing. (2 or 3).* Arrange. 419 N.H. Assistant Professor CAHN.

Zool. 20b. Current Investigation.—Required of all graduate students majoring in zoology; may be elected by seniors majoring in zoology with consent of instructor. (1). 3 F; 229 N.H. Members of the department.

Zool. 21b. Introduction to Zoological Research.—*Prerequisite:* One year in zoology courses; senior standing. (2 to 5).* Arrange. 314 N.H. Professor WARD.

Zool. 23. Morphology of Vertebrates.—*Prerequisite:* Zool. 3 and 22.

Credits	Section	Hours	Days	Room	Instructor
2 to 4*	Lect.	4	W	419 N.H.	ADAMS
	A Lab.	1–5	TT	419 N.H.	

Zool. 66. Ontogeny of Vertebrates.—*Prerequisite:* Zool. 3 or 63. (2 to 5).* Arrange. Professor SHUMWAY.

Courses for Graduates

Students entering on graduate study in the Department of Zoology should have had two years of undergraduate work in the subject. When chosen as a minor the courses listed for graduates and undergraduates must be preceded by at least one full year's undergraduate work in zoology. Work done at other institutions will be evaluated on conference with the head of the department.

Zool. 106. Topics in Vertebrate Embryology.—(1 unit). Arrange. Professor SHUMWAY.

Zool. 107. Parasitology.—(1 unit). 3 MW; 229 N.H. Professor WARD.

Zool. 109. Physiological Ecology.—(½ to 1 unit).* Arrange. Professor SHELFORD.

Zool. 111. Experimental and Field Ecology.—(½ to 2 units).* Time to be arranged. Professor SHELFORD.

Zool. 115. Factors of Individual and Racial Development.—(1 unit). 3 TT; 425 N.H. Professor ZELENY.

Zool. 117. Faunistic Zoology.—(½ to 1 unit).* Time to be arranged. Professor VAN CLEAVE.

Individual Research Courses

Zool. 121. Invertebrate Morphology and Parasitology.—(1 to 2 units).* Time to be arranged. Professor WARD.

Zool. 122. Vertebrate Morphology.—(1 to 2 units).* Time to be arranged. Assistant Professor ADAMS.

Zool. 123. Faunistic and Systematic Zoology.—(1 to 2 units).* Time to be arranged. Professor VAN CLEAVE.

Zool. 124. Experimental Zoology and Genetics.—(1 to 2 units).* Time to be arranged. Professor ZELENY.

Zool. 125. Animal Ecology and Behavior.—Time and credits to be arranged. Professor SHELFORD.

Zool. 126. Vertebrate Embryology.—(1 to 2 units).* Time to be arranged. Professor SHUMWAY.

ANATOMY

Anat. 2. Human Anatomy.—(Exclusively for men majoring in Physical Education.) *Prerequisite:* Anat. 1 or its equivalent. Laboratory fee $5.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	9	S	228 N.H.	WRIGHT and assistants
	Lab. and Quiz				
	A1	8–10	MWF	408 N.H.	
	A2	8–10	MWF	405 N.H.	
	B1	10–12	MWF	408 N.H.	
	B2	10–12	MWF	405 N.H.	
	C1	1–3	MWF	408 N.H.	
[1]Sections D1 and D2	C2	1–3	MWF	405 N.H.	
will not be opened until	[1]D1	8–10	TTS	408 N.H.	
other sections are filled.	[1]D2	8–10	TTS	405 N.H.	

Anat. 2a. Human Anatomy.—(Exclusively for women in Physical Education.) *Prerequisite:* Zool. 1 and 2 and registration in the curriculum of Physical Education for Women. (3). 1-4 TT; 408 N.H. Mr. WRIGHT.

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*In registering for a course with variable units or credits, as ½ to 2 units or credits, a student must put on his study-list, *not* the possible units or credits as shown here, but the number of units or credits for which *he* intends to take the course, i.e., ½, or 1, or 1½, or 2.

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UNIVERSITY OF ILLINOIS BULLETIN

ISSUED WEEKLY

VOL. XXX JULY 18, 1933 No. 46

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TIME TABLE

FIRST SEMESTER
1933-1934

PUBLISHED BY THE UNIVERSITY OF ILLINOIS
URBANA

REGISTRATION CALENDAR

1933-34

FIRST SEMESTER

1933

Sept. 6-9, Wed.-Sat. . . . . Entrance examinations (get programs and permits at the Registrar's Office).
Sept. 14, Thurs., 7:30 p.m. . . Freshman Welcome.
Sept. 15, Fri., 8 a.m. . . . . Meetings for freshman groups with advisers.
Sept. 15, Fri., 9 a.m. . . . . Rhetoric examination.
Sept. 15, Fri., 1:30 p.m. . . . . Hygiene examination.
Sept. 15, Fri., 7:30 p.m. . . . . Student night meeting.
Sept. 15-16, Fri.-Sat. . . . . Registration for graduate students.
Sept. 16, Sat., 8 a.m.-5 p.m. . Registration for freshmen.
Sept. 18-19, Mon.-Tues. . . . . Registration for upper classmen.
Sept. 19, Tues. . . . . Talks for freshmen by Dean of Men and Dean of Women.
Sept. 20, Wed., 8 a.m. . . . . Instruction begun.
Sept. 25, Mon., 12 m. . . . . Latest date for change of study-lists without fee.
Sept. 30, Sat., 12 m. . . . . Latest date for rebates in full.
Oct. 31, Tues. . . . . Latest date for announcement of subjects for theses.
Nov. 18, Sat., 12 m. . . . . Latest date for rebates of one-half fees, and latest date for seniors graduating in February to make substitutions in courses or to remove failures of the last semester or the summer session.
Nov. 23-25, Thurs.-Sat. . . . . High School Conference.
Nov. 29, Wed., 12 m. . . . . Thanksgiving recess begun.
Dec. 4, Mon., 1 p.m. . . . . Instruction resumed.
Dec. 22, Fri., 12 m. . . . . Holiday recess begun.

1934

Jan. 3, Wed., 1 p.m. . . . . Instruction resumed.
Jan. 12, Fri. . . . . Latest date for special examinations.
Jan. 23, Tues. . . . . Semester examinations begun.
Jan. 31, Wed. . . . . Semester examinations ended.
Jan. 31-Feb. 3, Wed.-Sat. . . . Entrance examinations (get programs and permits at the Registrar's Office).

SECOND SEMESTER

Feb. 2-3, Fri.-Sat. . . . . Registration for graduate students.
Feb. 5-6, Mon.-Tues. . . . . Registration for undergraduate students.
Feb. 7, Wed., 8 a.m. . . . . Instruction begun.
Feb. 12, Mon. . . . . Earliest date for special examinations.
Feb. 12, Mon., 12 m. . . . . Latest date for change of study-lists without fee.
Feb. 17, Sat., 12 m. . . . . Latest date for rebates in full.
March 29, Thurs., 12 m. . . . . Easter recess begun.
April 3, Tues., 1 p.m. . . . . Instruction resumed.
April 7, Sat., 12 m. . . . . Latest date for rebates of one-half fees, and latest date for seniors to make substitutions in courses or to remove failures of the first semester.
May 14, Mon. . . . . Latest date for special examinations.
May 24, Thurs. . . . . Military day.
May 25, Fri. . . . . Semester examinations begun.
June 4, Mon. . . . . Semester examinations ended.
June 11, Mon. . . . . Sixty-third Annual Commencement.

SUMMER SESSION, 1934

June 18, Mon. . . . . Registration day.

KEY TO NAMES OF DEPARTMENTS AND DIVISIONS

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EXPLANATION

The arrangement of subjects in the following Time Table is alphabetical by names of departments. The connections of allied departments and divisions are indicated by cross references.

The courses offered by each department or division are listed, in numerical order, in groups with headings that indicate the students for whom they are designed. Groups of general, elementary, and introductory courses are listed as "Courses for Undergraduates." Intermediate and advanced groups are listed as "Courses for Advanced Undergraduates and Graduates." Courses with numbers beginning at 100 are listed as "Courses for Graduates" and are not open to undergraduates.

Following the title of each course of instruction will be found the requirements, if any, for admission to that particular course. The sequence indicated by these prerequisites must be followed. For example, under Art 35a-35b, Commercial Art, the prerequisites given are Art 27b and 31b. These two courses must be completed before Art 35a-35b may be taken.

If a course not required for graduation is selected by fewer than five students it may be withdrawn for the semester.

Credit

Credit for undergraduate students is reckoned in *semester hours*, or simply *hours*. An *hour* is one class period a week for one semester or the equivalent in laboratory, shop, or drafting room. The number of hours for which each course counts is shown in parentheses in the description of the course, thus, (2), except where the credits, sections, etc., are tabulated.

Credit for first-year graduate students, candidates for the master's degree, is counted in *units*. A *unit* course is one which requires ten hours of time per week through one semester, irrespective of the distribution of that time in class work, laboratory work, and private study; four such courses or their equivalent constitute a full minimum program for one semester. The unit values of graduate courses (numbered 100 and upwards) are indicated in parentheses following the titles of such courses. Courses of the intermediate groups "for graduates and advanced undergraduates" generally are evaluated for graduate credit as follows: (a) courses open only to students having at least senior standing, 1 unit for a 4-hour or a 5-hour course, ½ unit for a 1-hour, 2-hour, or 3-hour course; (b) courses open to juniors, ½ unit for a 4-hour or 5-hour course, ¼ unit for a 1-hour, 2-hour, or 3-hour course.

Buildings

University buildings are designated by the following abbreviations:

Administration Building (East)	Adm.(E)
Agricultural Building (Old)	Agr.
Agricultural Engineering Building	Agr.Eng.
Animal Pathology Laboratory	An.Path.L.
Architectural Building	Arch.
Armory	Arm.
Ceramics Laboratory	Cer.
Chemistry Annex	Chem.A.
Chemistry Building	Chem.
Civil Engineering Surveying Building	C.E.S.B.
Commerce Building	Com.
Dairy Manufactures Building	D.Mfrs.
Electrical Engineering Annex	E.E.A.
Electrical Engineering Laboratory	E.E.L.
Engineering Hall	E.H.
Entomology Building	Entom.
Floricultural Greenhouses	F.G.
Genetics Building	Gen.Bldg.
Gymnasium Annex	Gym.A.
Highway Laboratory	H.L.
Horticultural Field Laboratory	H.F.L.
Law Building	Law
Library	Lib.
Lincoln Hall	L.H.
Materials Testing Laboratory	M.T.L.
Mathematics Building	Math.
Mechanical Engineering Laboratory	M.E.L.
Men's New Gymnasium	New Gym.
Men's Old Gymnasium	Old Gym.
Mining Engineering Laboratory	Min.L.
Natural History Hall	N.H.
New Agricultural Building	New Agr.
Physics Laboratory	P.L.
Smith Memorial Music Hall	S.M.H.
Stock Judging Pavilion	S.P.
Transportation Building	T.B.
University Hall	U.H.
University High School	U.H.S.
Vegetable Greenhouse	V.G.
Vivarium Building	Viv.
Woman's Building	W.B.
Woman's Gymnasium	W.Gym.

TIME TABLE FOR COURSES OF INSTRUCTION
FIRST SEMESTER, 1933-1934

AGRICULTURAL ECONOMICS

Courses for Undergraduates

Agr. Econ. 1.[1] **Introductory Agricultural Economics.**—Required of all agricultural students entering September, 1933, and subsequently.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	3	W	103 New Agr.	Ross
	Disc. A	3	MF	313 New Agr.	
	Disc. B	10	MW	313 New Agr.	
	Disc. C	2	TT	313 New Agr.	

Agr. Econ. 20.[1] **Farm Management.**—*Prerequisite:* Sophomore standing. Local field trips will be arranged; estimated cost, $5.

3	Lect.and Disc.	10	TT	316 New Agr.	Wilcox and others
	S Lab.	1–3	Th	331 New Agr.	
	T Lab.	1–3	F	331 New Agr.	

Agr. Econ. 30. Marketing of Agricultural Products.—*Prerequisite:* Sophomore standing.

3	Lect.	10	M	111 New Agr.	Stewart
	C Quiz	10	WF	111 New Agr.	
	D Quiz	11	WF	111 New Agr.	

Agr. Econ. 40. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange.

(a) **Agricultural Marketing.**—Members of the department.
(c) **Agricultural Prices and Statistics.**—Assistant Professor Norton.
(e) **Farm Management.**—Professor Case.
(g) **Land Economics.**—Associate Professor Stewart.

Courses for Advanced Undergraduates and Graduates

Agr. Econ. 10. Economic Relationships of Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 11 MWF; 316 New Agr. Assistant Professor Norton.

Agr. Econ. 22. Types and Systems of Farming.—*Prerequisite:* Agr. Econ. 20. Lectures and quiz. Local field trips will be arranged; estimated cost, $3. (3). 8 MWF; 316 New Agr. Professor Case, Associate Professor Wilcox.

Agr. Econ. 24. Farm Operation.—*Prerequisite:* Agr. Econ. 20; junior standing. Local field trips will be arranged; estimated cost, $3. (2). 11 TT; 316 New Agr. Assistant Professor Johnston.

Agr. Econ. 26. Farm Administration.—*Prerequisite:* Agr. Econ. 20; senior standing. (2). 9 TT; 316 New Agr. Professor Case.

Agr. Econ. 36. Marketing Horticultural Products.—*Prerequisite:* Econ. 1 or 2; (Agr. Econ. 30 after 1933-34); senior standing. (3). 3 MWF; 203 V.G. Professor Lloyd. (Inspection trip requirement waived for 1933-34)

Agr. Econ. 41. Problems in Agricultural Economics.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Arrange.

(a) **Agricultural Marketing.**—Members of the department.
(b) **Agricultural Prices and Statistics.**—Assistant Professor Norton.
(c) **Farm Management.**—Professor Case.
(d) **Land Economics.**—Associate Professor Stewart.

Courses for Graduates

Agr. Econ. 109. Seminar. Thesis Course.—All graduate students majoring in Agricultural Economics must register in Agr. Econ. 109, but only those students writing theses acceptable for the degree of Master of Science will be given credit. (1 to 2 units).* Once a week. Arrange. Members of the department.

Agr. Econ. 110. Theory of Agricultural Economics.—(1 unit). Arrange. Associate Professor Stewart.

Agr. Econ. 111. Agricultural Prices and Statistics.—(1 unit). Arrange. Assistant Professor Norton.

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[1]Sophomores in 1933-34 will be permitted to elect either Agricultural Economics 1 or 20 to fulfill prescribed course requirement.

Agr. Econ. 112. Agricultural Economics Research.—(1 to 2 units).* Credit is conditional on completion of acceptable report of investigation. Arrange. Associate Professor STEWART.

Agr. Econ. 120. Farm Management Principles and Investigational Methods.—(1 unit). Twice a week. Arrange. Professor CASE.

Agr. Econ. 135. Marketing Fruits and Vegetables.—(1 to 2 units).* Arrange. Professor LLOYD.

AGRICULTURAL ENGINEERING

(Formerly Farm Mechanics)

Note: Certain courses in this department require laboratory fees varying from $1 to $8.

Courses for Undergraduates

Agr. Eng. 1. Introduction to Agricultural Engineering.—

Credits	Section	Hours	Days	Room	Instructor
3[1]	Lect.	8	WF	201 Agr. Eng.	YOUNG
[1]Seniors will receive only 2 hours credit.	B Quiz	9	W	201 Agr. Eng.	HAY
	J Quiz	8	Tu	201 Agr. Eng.	
	N Quiz	1	Tu	201 Agr. Eng.	
	S Quiz	9	F	201 Agr. Eng.	
	A Lab.	8–10	M		
	J Lab.	8–10	Th		
	N Lab.	1–3	Th		

Agr. Eng. 2. Field and Power-Driven Machinery.—*Prerequisite:* Agr. Eng. 1.

3	Lect.	9	TT	201 Agr. Eng.	SHAWL
	J Quiz	8	Tu	204 Agr. Eng.	
	A Quiz	8	W	204 Agr. Eng.	
	N Lab.	1–3	Th		
	A Lab.	8–10	F		

Agr. Eng. 5. Drainage.—*Prerequisite:* Sophomore standing.

3	Lect.	1	M	204 Agr. Eng.	LEHMANN
	Quiz	1	W	204 Agr. Eng.	
	Lab.	1–4	F		

Agr. Eng. 18a. Investigation with Thesis.—Continuous throughout the year; credit is not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; and approval of the head of the department. (5). Professor LEHMANN, Assistant Professor SHAWL.

Agr. Eng. 20. Farm Concrete Construction.—*Prerequisite:* Agr. Eng. 1.

2	Lect.	3	Tu	204 Agr. Eng.	YOUNG
	P Lab.	3–5	Th		
	J Lab.	8–10	S		

Courses for Advanced Undergraduates and Graduates

Agr. Eng. 28. Advanced Gas Engines and Tractors.—*Prerequisite:* Agr. Eng. 3 and consent of the instructor. (3). 2-5 MW; Lect., arrange; 201 Agr. Eng. Assistant Professor SHAWL.

Agr. Eng. 51. Special Power and Field Machinery.—*Prerequisite:* Agr. Eng. 17 or 28. Consult instructor before registering. (3). Arrange. Professor LEHMANN, Assistant Professor SHAWL.

AGRONOMY

Note: Certain courses in this department require laboratory fees varying from $1 to $4.

Courses for Undergraduates

Agron. 18. Investigation with Thesis.—(This course is continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; and the approval of the head of the department. (5). Arrange.

Soils.—Professors BAUER, DETURK, R. S. SMITH; Associate Professor SEARS.
Crops.—Professors BURLISON, WOODWORTH; Associate Professor DUNGAN.

Agron. 25. Farm Crops.—*Prerequisite:* Bot. 5.

3	Lect.	3	MW	205 Agr.	PIEPER, DUNGAN, and VANDOREN
	A Lab.	1–3	Tu	600 Agr.	
	Quiz	3	F	205 Agr.	

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Agron. 28. Soils.—*Prerequisite:* Chem. 5; Geol. 44. (Local field trip, cost not to exceed $1.)

Credits	Section	Hours	Days	Room	Instructor
5	A Lect.	8	MWF	205 Agr.	WIMER, CRANE, and STAUFFER
	A1 Quiz	8	TT	205 Agr.	
	A2 Quiz	8	TT	302 Agr.	
	A Lab.	1–4	Th	650 Agr.	
	C Lab.	8–11	S	650 Agr.	

Courses for Advanced Undergraduates and Graduates

Agron. 7. Crop Production as Affected by Environmental Factors.—*Prerequisite:* Agron. 25, junior standing. (3). Lect., 8 MWF; 302 Agr. Professor BURLISON, Associate Professor DUNGAN.

Agron. 11. Rôle of Micro-organisms in Soil Fertility.—*Prerequisite:* Agron. 28; Bact. 5a, junior standing. (3). Lect., 9 MWF; 302 Agr. Associate Professor SEARS.

Agron. 29. Field Plot Technic.—*Prerequisite:* Senior standing. (3). Lect., 10 MWF; 302 Agr. Professor WOODWORTH, Mr. MUMM.

Agron. 33. Chemical Methods of Soil Investigation.—(Given in 1933-34 and alternate years thereafter). *Prerequisite:* Agron. 28, junior standing. (3). Lect., 1 M; 302 Agr.; Lab., 1-4 WF; 218 Agr. Professor DETURK.

Courses for Graduates

Agron. 101. Chemical Properties of Soils and Their Relation to Plant Growth.—(1 unit). Twice a week. Arrange. 306 Agr. Professor DETURK.

Agron. 112. Theory and Analysis of Plant Breeding Problems.—(1 unit). Twice a week. Arrange. Professor WOODWORTH.

Agron. 118. Research.—(½ to 4 units.)* Arrange.

Soils.—Professors BAUER, DETURK, R. S. SMITH.
Crops.—Professors BURLISON, WOODWORTH; Associate Professor DUNGAN.

ANIMAL HUSBANDRY

Courses for Undergraduates

An. Husb. 1. Introduction to Animal Husbandry.—Required of students not having had livestock judging in high school. (No credit in this course allowed to juniors and seniors.) (2). 3-5 TT; S.P. Mr. CRAWFORD.

An. Husb. 3. Livestock Judging.—*Prerequisite:* An. Husb. 1 or equivalent. (5). 10-12 MTWTF; S.P. Associate Professor SNAPP.

An. Husb. 9a-u. Investigation with Thesis.—(Continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* Senior standing, including 20 hours pertinent to the thesis problem; and the approval of the head of the department. (5). Arrange.

(a) **Beef Cattle.**—Professor RUSK, Associate Professor SNAPP.
(c) **Horses.**—Professor EDMONDS.
(e) **Sheep.**—Assistant Professor KAMMLADE.
(g) **Swine.**—Professor CARROLL.
(j) **Poultry.**—Professor CARD.
(l) **Animal Nutrition.**—Professor MITCHELL.
(n) **Animal Genetics.**—Associate Professor ROBERTS.
(q) **Animal Pathology.**—Professor GRAHAM.
(s) **Meats.**—Associate Professor BULL.
(u) **Marketing.**—See Agr. Econ. 39. Associate Professor ASHBY.

An. Husb. 21. Principles of Feeding.—*Prerequisite:* Chem. 1 or 2.

3	Lect.	2	W	553 Agr.	BULL
	A Quiz	2	MF	553 Agr.	BULL
	B Quiz	11	TT	553 Agr.	BULL

An. Husb. 34. Anatomy and Physiology, and Non-Contagious and Parasitic Diseases of Farm Animals.—*Prerequisite:* An. Husb. 21. (3). 1 MWF; An. Path. L. Professor GRAHAM.

An. Husb. 36. Selection and Use of Meat.—(2). 9 TT; 403 Agr. Associate Professor BULL.

An. Husb. 38. Poultry Breeds and Judging.—*Prerequisite:* An. Husb. 37. (3). 3-4:30 MTWTF; Poultry Plant. (This course is concluded at the beginning of the Christmas recess). Dr. SLOAN.

From the students taking or having had this course will be chosen the team to represent the University in the Annual Mid-West Intercollegiate Student Poultry Judging Contest. The class will visit a near-by poultry show. The cost of the trip will be from $10 to $15.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

An. Husb. 7. Principles of Animal Nutrition.—*Prerequisite:* Senior standing, including An. Husb. 21; Chem. 32. (5). Arrange. 553 Agr. Mr. HAMILTON.

An. Husb. 12. Special Problems.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Arrange. Members of the department.

An. Husb. 22. Advanced Stock Judging.—*Prerequisite:* An. Husb. 3. (3). 3 MTWTF; S.P. Heads of divisions.

From the students in this class will be chosen the team to represent the University in the Annual Intercollegiate Student Judging Contest.

An. Husb. 24. Meat Judging and Special Problems.—*Prerequisite:* An. Husb. 10 or 36. (2 to 5).* Arrange. Associate Professor BULL.

From the students in this class will be chosen the team to represent the University in the Annual Intercollegiate Student Judging Contest. Students registering for meat judging only should register for 2 hours credit. This part of the course will terminate at Thanksgiving.

An. Husb. 25. Beef Production.—*Prerequisite:* An. Husb. 6. (3). 2 MWF; 316 New Agr. Professor RUSK, Associate Professor SNAPP.

An. Husb. 26. Pork Production.—*Prerequisite:* An. Husb. 6. (3). 9 MWF; 316 New Agr. Professor CARROLL.

An. Husb. 40. Economics of Poultry Keeping.—*Prerequisite:* Senior standing, including An. Husb. 37. (3). 8 MWF; 320 New Agr. Professor CARD.

Courses for Graduates

An. Husb. 112a-f. Research.—Arrange. One to three times a week. (½ to 2 units).*

(a) **Economic Factors Involved in Meat Production.**—Professor RUSK.
(b) **Systems of Livestock Farming.**—Professor CASE.
(c) **Animal Pathology.**—Professor GRAHAM.
(d) **Animal Nutrition.**—Professor MITCHELL.
(e) **Animal Genetics.**—Associate Professor ROBERTS.
(f) **Poultry Husbandry.**—Professor CARD.

An. Husb. 117. Animal Genetics.—(1 unit). One to three times a week. Arrange. Associate Professor ROBERTS.

An. Husb. 118. Animal Nutrition Seminar.—(½ unit). Two hours a week. Arrange. Professor MITCHELL.

An. Husb. 119. Laboratory Methods in Animal Nutrition.—(½ to 1 unit).* Two to five times a week. Arrange. (Lab. fee $5). Professor MITCHELL.

An. Husb. 120. Laboratory Methods in the Diagnosis of Animal Diseases.—(½ to 1 unit).* Two to five times a week. Arrange. Professor GRAHAM.

An. Husb. 121. Laboratory Methods in Animal Genetics.—(½ to 1 unit).* Two to five times a week. Arrange. Associate Professor ROBERTS.

ARCHITECTURE

Courses for Undergraduates

Arch. 11. History of Architecture.—*Prerequisite:* Sophomore standing. (Not open to students expecting a degree in Architecture). (3). 3 MWF; 120 Arch.

Arch. 13. History of Architecture.—*Prerequisite:* Arch. 31a and 32a or sophomore standing in Architecture. (2). 11 MW; 120 Arch.

Arch. 15. History of Architecture.—*Prerequisite:* Arch. 14. (2). 11 TT; 120 Arch.

Arch. 17. History of Architecture.—*Prerequisite:* Arch. 16. (2). 9 TT; 120 Arch.

Arch. 21-27. Freehand Drawing.—See Art 21-24.

Arch. 31a. Architectural Design.—

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	2	W	120 Arch.	
	A	1–4	TT	210 Arch.	
	B	8–11	MF	210 Arch.	
	C	8–11	TT	210 Arch.	

Arch. 33. Architectural Design.—*Prerequisite:* Arch. 32a.

3	A	1–4	MW	210 Arch.
		8–11	S	210 Arch.
	B	1–4	TT	210 Arch.
		8–11	S	210 Arch.
	C	1–4	WF	210 Arch.
		8–11	S	210 Arch.

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Arch. 34. Architectural Design.—*Prerequisite:* Arch. 33. See Arch. 33 for hours. 210 Arch.

Arch. 35. Architectural Design.—*Prerequisite:* Arch. 34 and registration in Arch. 65.

Credits	Section	Hours	Days	Room	Instructor
5	A	9–12	M	200 Arch.	
		1–4	MWF	200 Arch.	
	B	1–4	TTF	200 Arch.	
		9–12	F	200 Arch.	

Arch. 36. Architectural Design.—*Prerequisite:* Arch. 35. See Arch. 35 for hours. 200 Arch.

Arch. 37. Architectural Design.—*Prerequisite:* Arch. 36 and senior standing in Architecture. (7). 8-11 S, 1-4 MTWTF; 200 Arch.

Arch. 38. Architectural Design.—*Prerequisite:* Arch. 37 and senior standing in Architecture. (7). 8-11 S, 1-4 MTWTF; 200 Arch.

Arch. 43. Technology of Materials.—*Prerequisite:* Arch. 31a and 32a.

3	A	1–4	TT	310 Arch.
	Lect.	11	F	302 Arch.
	B	8–11	TT	310 Arch.
	Lect.	11	F	302 Arch.
	C	1–4	MW	310 Arch.
	Lect.	11	W	302 Arch.

Arch. 45. Graphic Statics.—*Prerequisite:* T.A.M. 1 or 18 and registration in continuing T.A.M.

3	A	9–12	WF	310 Arch.
	Lect.	9	Tu	302 Arch.
	B	1–4	MW	310 Arch.
	Lect.	9	Tu	302 Arch.
	C	1–4	TT	310 Arch.
	Lect.	11	M	302 Arch.

Arch. 47. Steel Construction.—*Prerequisite:* Arch. 46 and registration in Arch. 57. (5). 8 TT, 1-4 MWF; 300 Arch.

Arch. 57. Reinforced Concrete, Theory.—*Prerequisite:* Arch. 46 and registration in Arch. 47. (3). 2 TT, 8 S; 301 Arch.

Arch. 65. Theory of Architecture.—*Prerequisite:* Arch. 34 and registration in Arch. 35. (1). 9 Th; 302 Arch.

Arch. 68. Specifications.—*Prerequisite:* Senior standing in Architecture. (3). 11 MWF; 301 Arch.

Arch. 67. Theory of Form.—See Art 50.

Arch. 71a. Architectural Design.—(Not open to students expecting a degree in Architecture).

3	A	1–4	TT	210 Arch.
		2	W	120 Arch.

Arch. 73-74. Freehand Drawing.—See Art 21a-21b.

Arch. 75. Frame Construction Details.—*Prerequisite:* Consent of instructor. (Not open to students expecting a degree in Architecture).

2	A	1–4	TT	310 Arch.

Arch. 83. Office Practice.—*Prerequisite:* Senior standing in Architecture. (2). 10 TT; 301 Arch.

Arch. 99. Inspection Trip.—*Prerequisite:* Senior standing in Architecture. Required for graduation. No credit.

Courses for Graduates

Arch. 101. Architectural Construction, Theory and Design.—(½ to 2 units).* Professor PALMER.

Arch. 103. Architectural Construction.—Special Problems. (½ to 2 units).* Associate Professor MORGAN.

Arch. 104. Architectural Design.—(1 to 3 units).* Professor DEAM.

Arch. 105. Architectural Practice.—(¼ to ½ unit).* Professor PROVINE.

Arch. 106. Architectural History.—(½ to 2 units).* Professor NEWCOMB.

ART

Note: Certain courses in this department require laboratory fees varying from $3 to $5.

A list of courses in Art showing new and old numbers is given in DIRECTIONS FOR REGISTRATION, 1933-34, page 62.

Courses for Undergraduates

Art 1a (formerly 13a). **Design.**—

2	A	1–3	MW	342 L.H.	ANDERSON
	B	10–12	TT	342 L.H.	ANDERSON
	C	3–5	TT	342 L.H.	ANDERSON

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Art 1b (formerly 13b). **Design.**—*Prerequisite:* Art 1a. (2). 1-3 TT; 342 L.H. Miss ANDERSON.

Art 2a-2b (formerly 11a-11b). **Water Color.**—*Prerequisite:* Art 25b. (2). 1-4 TT; 410b Arch. Assistant Professor NEARPASS.

Art 3a-3b (formerly 11c-11d). **Water Color.**—*Prerequisite:* Art 2a. (2). 1-4 TT; 410b Arch. Assistant Professor NEARPASS.

Art 4a-4b (formerly 14a-14b). **Interior Design.**—*Prerequisite:* Art 31a, and 2a or 1b concurrently. (2). 10-12 MW; 342 L.H. Miss ANDERSON.

Art 10a (formerly 15a). **Course for Teachers.**—*Prerequisite:* Art 31a. (3). 9 MWF; 342 L.H. Miss ANDERSON.

Art 11 (formerly 16a). **History of Fine Arts.**—*Prerequisite:* Sophomore standing. (2). 10 MW; 120 Arch. Professor LAKE.

Art 13 (formerly 16c). **Art Appreciation.**—*Prerequisite:* Art 12 or junior standing. (3). 8 TTS; 120 Arch. Assistant Professor NICHOLSON.

Art 15 (formerly 16e). **History of Italian Art.**—(Primarily for students in colleges other than Fine and Applied Arts). *Prerequisite:* Junior standing. (3). 9 MWF; 120 Arch. Assistant Professor NICHOLSON.

Art 17 (formerly 16g). **History of Ancient Art.**—(Primarily for students in colleges other than Fine and Applied Arts). *Prerequisite:* Junior standing. (3). 1 MWF; 120 Arch. Assistant Professor NICHOLSON.

Art 21a-21b (formerly Arch. 21-22). **Freehand Drawing.**—(Primarily for students in Architecture and Landscape Architecture).

Credits	Section	Hours	Days	Room	Instructor
2	A	8–11	TT	410a Arch.	WOODROOFE
	B	9–12	TT	410b Arch.	KENNEDY
	C	9–12	MF	410a Arch.	WOODROOFE

Art 22a-22b (formerly Arch. 23-24). **Freehand Drawing.**—(Primarily for students in Architecture and Landscape Architecture). *Prerequisite:* Art 21b.

2	A	8–11	TT	Hall of Casts	BAILEY
	B	1–4	MF	410a Arch.	HOGAN
	C	1–4	TT	410a Arch.	KENNEDY

Art 23a-23b (formerly Arch. 25-26). **Freehand Drawing.**—(Primarily for students in Architecture and Landscape Architecture). *Prerequisite:* Art 22b.

2	A	1–4	TT	Hall of Casts	HOGAN
	B	9–12	MW	Hall of Casts	KENNEDY

Art 24a-24b (formerly Arch. 27-28). **Freehand Drawing.**—(Primarily for students in Architecture). *Prerequisite:* Art 23b. (2). 8-11 MW; 10 Arch. Associate Professor BAILEY.

Art 25a (formerly 1a). **Cast and Still Life Drawing.**—

4[1]	A	9–12	MWF	403b Arch.	DONOVAN
[1]Section C, for students other than Painting curriculum, 3 hours credit.	B	1–4	MWF	Hall of Casts	WOODROOFE
	C[1]	9–12	TT	Hall of Casts	NEARPASS

Art 25b (formerly 1b). **Cast Drawing.**—*Prerequisite:* Art 25a.

2	A	9–12	MW	403b Arch.	DONOVAN
	B	1–4	MW	Hall of Casts	WOODROOFE
	C	9–12	TT	Hall of Casts	NEARPASS

Art 26a (formerly 3a). **Anatomy and Sketch.**—*Prerequisite:* Art 25a must precede or accompany this course. (2). 8 W, 403b Arch.; 9-12 S, 410a Arch. Mr. HOGAN.

Art 26b (formerly 3b). **Anatomy and Sketch.**—*Prerequisite:* Art 26a. (2). 8 W, 9-12 F; 410b Arch. Mr. KENNEDY.

Art 27a-27b (formerly 5a-5b). **Life Drawing.**—*Prerequisite:* Art 25b and 26b. (2). 1-4 MWF; 10 Arch. Associate Professor BAILEY.

Art 28a-28b (formerly 6a-6b). **Portrait.**—*Prerequisite:* Art 25b and 26b. (2). 9-12 TT; 10 Arch. Mr. HOGAN.

Art 29a-29b (formerly 5c-5d). **Life Drawing.**—*Prerequisite:* Art 27b. (3). 1-4 MWF; 403 Arch. Associate Professor BRADBURY.

Art 30a-30b (formerly 8a-8b). **Sketch.**—*Prerequisite:* Art 27b. (1). 9-12 M; 410b Arch. Associate Professor BRADBURY.

Art 31a (formerly 2a). **Composition and Design.**—*Prerequisite:* Art 25a must precede or accompany this course. (2). 10 TT; 302 Arch. Professor LAKE.

Art 31b (formerly 2b). **Composition.**—*Prerequisite:* Art 31a. (2). 2 MF; 410b Arch. Assistant Professor NEARPASS.

Art 32a-32b (formerly 2c-2d). **Composition.**—*Prerequisite:* Art 31b. (2). 9 WF; 403a Arch. Assistant Professor NEARPASS.

Art 33a-33b (formerly 2e-2f). **Composition and Illustration.**—*Prerequisite:* Art 32b. (2). 10 WF; 403a Arch. Assistant Professor NEARPASS.

Art 34a-34b (formerly 2g-2h). **Composition (Mural).**—*Prerequisite:* Art 33b. (3). 11 MWF; 403a Arch. Assistant Professor NEARPASS.

Art 35a-35b (formerly 9a-9b). **Commercial Art.**—*Prerequisite:* Art 27b and 31b. (2). 8 MW, 403a Arch.; 9-12 S, 410b Arch. Assistant Professor DONOVAN.

Art 41a-41b (formerly 7a-7b). **Still Life.**—*Prerequisite:* Art 25a. (2). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

Art 42a-42b (formerly 10a-10b). **Landscape.**—*Prerequisite:* Art 41b. (2). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

Art 43a-43b (formerly 10c-10d). **Landscape.**—*Prerequisite:* Art 42b. (3). 1-4 TT; 403 Arch. Assistant Professor DONOVAN.

Art 44a-44b (formerly 6c-6d). **Portrait.**—*Prerequisite:* Art 28b. (2). 9-12 TT; 403 Arch. Associate Professor BRADBURY.

Art 45a-45b (formerly 6e-6f). **Portrait.**—*Prerequisite:* Art 44b. (3). 9-12 TTS; 403 Arch. Associate Professor BRADBURY.

Art 46a-46b (formerly 8c-8d). **Sketch.**—*Prerequisite:* Art 30b. (1). 9-12 M; 410b Arch. Associate Professor BRADBURY.

Art 47a-47b (formerly 5e-5f). **Life Painting.**—*Prerequisite:* Art 29b. (3). 1-4 MWF; 403 Arch. Associate Professor BRADBURY.

Art 50 (formerly Art 4a and Arch. 67). **Modeling.**—*Prerequisite:* Art 25a. (2). 1-4 TT; 20 Arch. Professor LAKE.

Art 51a-51b (formerly 4b-4c). **Modeling.**—*Prerequisite:* Art 50. (2). 1-4 TT; 20 Arch. Professor LAKE.

Art 52a-52b (formerly 4d-4e). **Modeling.**—*Prerequisite:* Art 51b. (2). 1-4 TT; 20 Arch. Professor LAKE.

Art 90 (formerly 18). **Original Project.**—*Prerequisite:* Senior standing in art. (2). Arrange.

ASTRONOMY

Course for Undergraduates

Astron. 1. Descriptive Astronomy.—The earth as an astronomical body; the solar system. *Prerequisite:* Sophomore standing. (3). 11 MWF, 229 N.H.; one hour Wednesday evening, Observatory. Professor BAKER.

Courses for Graduates

Astron. 101. Seminar.—(1 unit). 1 MWF; Observatory. Professor BAKER.

Astron. 103. Celestial Mechanics.—(1 unit). 11 TTS; Observatory. Professor BAKER.

BACTERIOLOGY

Note: Certain courses in this department require laboratory fees varying from $4 to $5.

Major: 20 hours chosen from the courses offered by this department. Dairy Husbandry 10 (Advanced Dairy Bacteriology) may be offered in partial satisfaction of this requirement. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: chemistry and botany. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Bact. 5a. Introductory Bacteriology.—*Prerequisite:* Sophomore standing; or consent of the instructor.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	8	TT	100 Chem.	TANNER
	A	8	S	301 Chem.	
	B	2	Tu	303 Chem.	
	C	3	Tu	163 Chem.	
	D	2	Th	204 Chem.	
	E	3	Th	163 Chem.	
	F	2	W	301 Chem.	
	G	3	W	301 Chem.	

Bact. 5b. Introductory Bacteriology Laboratory.—*Prerequisite:* Bact. 5a, or concurrent registration in it.

2	A Lab.	10–12	MW	367 Chem.
	B Lab.	1–3	MW	367 Chem.
	C Lab.	10–12	TT	367 Chem.
	D Lab.	1–3	TT	367 Chem.

Courses for Advanced Undergraduates and Graduates

Bact. 7a. Research and Special Problems.—*Prerequisite:* Junior standing; Bact. 5a and 5b (or 20); and Bact. 26 or 8; consent of instructor. Hours and credit to be arranged before registration. (3 to 5).* Professor TANNER, Assistant Professor WALLACE.

Bact. 20. General Bacteriology.—*Prerequisite:* Two years of college chemistry; senior standing; consent of instructor. Students with credit in Bact. 5a and 5b will not be allowed credit for Bact. 20. (5). Lect., 11 MWF; 303 Chem. Lab., 1-3 MW; 360 Chem. Assistant Professor WALLACE.

Bact. 26. Pathological Bacteriology.—*Prerequisite:* Bact. 5a and 5b (or 20); junior standing. (5). Lect., 8 TT; 103 Chem. Lab., 8-10 MWF; 367 Chem. Assistant Professor WALLACE.

Courses for Graduates

Bact. 103. Physiology of Bacteria.—(1 unit). Lect., 9 MW; 366 Chem. Professor TANNER.

Bact. 107. Research in Bacteriology.—(1 to 4 units).* Conference, arrange. Lab., arrange; 365 Chem. Professor TANNER.

Bact. 118a. Current Literature.—Required of all graduate students majoring in bacteriology. *Prerequisite:* 10 hours of bacteriology and consent of the instructor. (¼ unit). 1 Tu; 366 Chem. Professor TANNER.

BOTANY

Note: Certain courses in this department require laboratory fees varying from $.50 to $3 (per unit in graduate courses).

Major: 20 hours of botany exclusive of courses 1 and 5, and inclusive of courses 2a or 2b, 3, and at least 5 hours in courses listed for advanced undergraduates and graduates.

Minors: 20 hours in one or two departments chosen in consultation with the head of the department from the following list: agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least eight hours must be offered in each department, if two are chosen.

Courses for Undergraduates

Bot. 1. General Botany.—

Credits	Section	Hours	Days	Room	Instructor
5[1]	Lect.	9	TT	228 N.H.	HOTTES, BUCHHOLZ, VESTAL, FULLER, and assistants
	A Lab.	8–10	MWF	258 N.H.	
[1]Seniors will receive only 4 hours credit.	B Lab.	10–12	MWF	258 N.H.	
	C Lab.	1–3	MWF	258 N.H.	
	1 Disc.	8	Tu	258 N.H.	
	2 Disc.	8	Th	258 N.H.	
	3 Disc.	10	Tu	258 N.H.	
	4 Disc.	10	Th	258 N.H.	
	5 Disc.	11	Tu	258 N.H.	
	6 Disc.	1	Tu	258 N.H.	
	7 Disc.	2	Tu	258 N.H.	

Bot. 2. Morphology.—*Prerequisite:* Bot. 1 or 5. (3). 1-3 MWF; 204 Entom. Dr. HAGUE.

Bot. 3. Physiology.—*Prerequisite:* Bot. 1 or 5.

5	Lect.	11	TT	229 N.H.	HOTTES and assistants
	A Lab.	8–10	MWF	153 N.H.	
	B Lab.	10–12	MWF	154 N.H.	

Bot. 5. Botany for Students in Agriculture.—

3[1]	Lect.	9	Th	229 N.H.	HOTTES, STEVENS, BUCHHOLZ, VESTAL, FULLER, and assistants
[1]Seniors will receive only 2 hours credit.	A Lab.	10–12	TT	259 N.H.	
	B Lab.	1–3	TT	259 N.H.	

Bot. 7. Plant Pathology.—*Prerequisite:* Bot. 1 or 5.

3	Lect.	9	M	241 N.H.	STEVENS and assistant
	A Lab.	8–10	WF	349 N.H.	

Bot. 8. Ecology.—*Prerequisite:* Bot. 1 or 5. (3). Lect., 8 TT; 229 N.H. Field study Saturday morning (occasionally all day) during first half of semester. Cost about $12. Associate Professor VESTAL.

Bot. 90a. Thesis Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

Bot. 91a. Honors Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Bot. 33. Physiology.—*Prerequisite:* Bot. 3 and junior standing. (3 or 5).* 1-3 MWF; 155 N.H. Professor HOTTES and assistant.

Bot. 45. Histology, Anatomy, and Technic.—*Prerequisite:* 1 year of botany, inclusive of Bot. 2a or 2b, and junior standing. (3 or 5).* 8-10 MWF; 206 Entom. Professor BUCHHOLZ.

Bot. 46. Heredity and Evolution.—*Prerequisite:* 1 year of botany and junior standing. (3 or 5).* Lect., 10 S; Lab., 10-12 TT; 201 Entom. Professor BUCHHOLZ.

Bot. 56. Plant Geography of the World.—*Prerequisite:* Botany 8 and junior standing. (3 or 5).* 10-12 MWF; 216 N.H. Associate Professor VESTAL.

Bot. 70. Taxonomy of Pathogenic Fungi.—*Prerequisite:* Bot. 7 or 42, and junior standing. (3 or 5).* Arrange, 304 N.H. Professor STEVENS.

Courses for Graduates

Bot. 110. Botanical Discussion.—No credit. Required of all graduate students in botany and members of the instructional staff. 4 Tu; 258 N.H.

Bot. 112. Discussions in Plant Morphology.—(¼ unit). 4 F; 205 Entom. Professor BUCHHOLZ.

Bot. 113. Discussions in Physiology.—(¼ unit). 4 Th; 155 N.H. Professor HOTTES.

Bot. 117. Discussions in Pathology and Mycology.—(¼ unit). 4 W; 304 N.H. Professor STEVENS.

Bot. 118. Discussions in Ecology.—(¼ unit). 4 M; 204 N.H. Associate Professor VESTAL.

Research Courses

Bot. 120. Morphology.—(½ to 2 units).* (Botany 112 to be taken concurrently.) 1 hour on either W or F, from 1 to 3, the rest arrange; 201 Entom. Professor BUCHHOLZ.

Bot. 130. Physiology.—(½ to 2 units).* (Botany 113 to be taken concurrently.) 1 hour on M, W, or F, from 1 to 3, the rest arrange; Botany Annex. Professor HOTTES.

Bot. 170. Pathology or Mycology.—(½ to 2 units).* (Botany 117 to be taken concurrently.) 1 hour on either M or W, from 2 to 4; the rest arrange. 304 N.H. Professor STEVENS.

Bot. 180. Plant Ecology or Geography.—(½ to 2 units).* (Botany 118 to be taken concurrently.) 1 hour on Tu from 1 to 3, the rest arrange; 204 N.H. Associate Professor VESTAL.

BUSINESS ORGANIZATION AND OPERATION

(Including Accountancy and Business Law)

A. ACCOUNTANCY

Courses for Undergraduates

Accy. 1a. Principles of Accounting.—Beginners' course. (Students who present one unit of bookkeeping for entrance will not be allowed credit in Accy. 1a and should register in Accy. 1e. Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above.)

Credits	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	119 Com.	KARRENBROCK
	A2	8	MWF	122 Com.	HACKETT
	J1	8	TTS	328 Com.	LUKAS
	J2	8	TTS	306 Com.	FRESE
	B1	9	MWF	119 Com.	KARRENBROCK
	K1	9	TTS	123 Com.	NEWCOMER
	K2	9	TTS	306 Com.	FRESE
	C1	10	MWF	123 Com.	HACKETT
	C2	10	MWF	306 Com.	FRESE
	L1	10	TTS	328 Com.	LUKAS
	D1	11	MWF	119 Com.	KARRENBROCK
	D2	11	MWF	123 Com.	HACKETT
	M1	11	TTS	328 Com.	LUKAS
	F1	2	MWF	123 Com.	NEWCOMER
	G1	3	MWF	123 Com.	NEWCOMER

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Accy. 1b. Accounting Procedure.—A continuation of Accy. 1a. (Credit is given for Accy. 1a without Accy. 1b.) *Prerequisite:* Accy. 1a.

Credits	Section	Hours	Days	Room	Instructor
3	J	8	TTS	122 Com.	GREEN
	K	9	TTS	122 Com.	GREEN
	F	2	MWF	119 Com.	BAILY
	G	3	MWF	119 Com.	BAILY

Accy. 1e. Principles of Accounting.—Similar to Accy. 1a. (Students who have one unit entrance credit in bookkeeping must take this course rather than Accy. 1a.)

2[1]	K	9	TT	223 Com.	MCMAHAN
[1]Students who have failed	L	10	TT	223 Com.	MCMAHAN
in Accy. 1a may register	O	2	TT	223 Com.	MCMAHAN

in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above.

Accy. 2a. Elementary Cost Accounting.—*Prerequisite:* Accy. 1b, registration or credit in Econ. 1.

3	B	9	MWF	122 Com.	GREEN
	K	9	TTS	115 Com.	THEISS
	C	10	MWF	122 Com.	GREEN
	L	10	TTS	115 Com.	THEISS
	E	1	MWF	307 Com.	MOYER
	F	2	MWF	307 Com.	MOYER
	G	3	MWF	115 Com.	THEISS

Accy. 2b. Intermediate Accounting.—*Prerequisite:* Accy. 2a.

3	J	8	TTS	123 Com.	NEWCOMER
	B	9	MWF	310 Com.	FRESE
	D	11	MWF	325 Com.	LUKAS

Accy. 90a. Senior Thesis or Independent Study.—(A) Senior Thesis: primarily for candidates for graduation with High Honors. *Prerequisite:* Senior standing in Accountancy. (2 or 4).* Arrange. (B) Independent Study: see *Annual Register*, page 70, "University Honors." *Prerequisite:* Senior standing in Accountancy and a grade average in the upper ten percent of the junior class on Honors Day. (3 to 5).* Arrange. Professor LITTLETON and others.

Courses for Advanced Undergraduates and Graduates

Accy. 3a. Advanced Accounting.—*Prerequisite:* Accy. 2a-2b; Econ. 3; an average of "C" or better in Accy. 1 and 2.

3	A	8	MWF	115 Com.	FILBEY
	B	9	MWF	115 Com.	FILBEY
	D	11	MWF	219 Com.	LITTLETON
	F	2	MWF	122 Com.	KARRENBROCK

Accy. 3b. Auditing.—*Prerequisite:* Accy. 3a.

3		11	MWF	115 Com.	FILBEY

Accy. 4a. Cost Accounting.—*Prerequisite:* Accy. 2a-2b.

2	L	10	TT	219 Com.	SCHLATTER
	M	11	TT	219 Com.	SCHLATTER
	O	2	TT	219 Com.	SCHLATTER

Accy. 4b. Accounting Systems.—*Prerequisite:* Accy. 2a-2b; Econ. 3. (Credit is given for either 4a or 4b separately.)

2	J	8	TT	119 Com.	BAILY
	K	9	TT	119 Com.	BAILY

Accy. 5a. C.P.A. Problems.—*Prerequisite:* Accy. 3a-3b.

3	C	10	MWF	317 Com.	SCOVILL
	D	11	MWF	317 Com.	SCOVILL

Accy. 13. Governmental Accounting.—*Prerequisite:* Accy. 3a.

2		2	TT	123 Com.	HACKETT

Accy. 30. Budgets and Accounting Control.—*Prerequisite:* Accy. 2b.

3		2	MWF	115 Com.	THEISS

Courses for Graduates

Accy. 103. Advanced Theory.—(1 unit). 3-5 Tu; 420 Com. Professor LITTLETON.

Accy. 104. Accounting Systems.—(1 unit). 3-5 Th; 209 Com. Professor SCOVILL.

Accy. 120. Income Tax Development.—(1 unit). Arrange. Professor FILBEY.

Accy. 129. Thesis.—(1 unit). 4-6 W; 420 Com. Professor LITTLETON and others.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

B. BUSINESS ORGANIZATION AND OPERATION

Courses for Undergraduates

B.O.O. 1. Industrial Organization and Management.—*Prerequisite:* Econ. 1 or 2; 45 credit hours. Junior and senior engineering students are admitted with consent of instructor.

Credits	Section	Hours	Days	Room	Instructor
3	J	8	TTS	312 Com.	Mandeville
	K	9	TTS	312 Com.	Mandeville
	C	10	MWF	307 Com.	Anderson
	D	11	MWF	307 Com.	Anderson
	F	2	MWF	312 Com.	Mandeville

B.O.O. 2. Marketing Organization and Operation.—*Prerequisite:* Econ. 1 and junior standing.

3	A1	8	MWF	310 Com.	Converse
	A2	8	MWF	224 Com.	Huegy
	B	9	MWF	224 Com.	Huegy
	C	10	MWF	310 Com.	Converse
	D	11	MWF	310 Com.	Converse
	M	11	TTS	222 Com.	Whitlo
	F	2	MWF	224 Com.	Huegy

B.O.O. 10. Newspaper Advertising.—For students specializing in journalism. (Offered first semester only). *Prerequisite:* Journ. 5 and 6.

3	B	9	MWF	306 Com.	Russell
	D	11	MWF	306 Com.	Russell

B.O.O. 11. Principles of Business.—*Prerequisite:* Junior standing. Not open to commerce students.

3		9	MWF	329 Com.	Mandeville

B.O.O. 90a. Senior Thesis or Independent Study.—(A) Senior Thesis, primarily for candidates for graduation with High Honors. *Prerequisite:* Senior standing in Commerce. (2 or 4).* Arrange. (B) Independent Study, see *Annual Register*, page 70, "University Honors." *Prerequisite:* Senior standing in Commerce and a grade average in the upper ten percent of the junior class on Honors Day. (3 to 5).* Arrange. Members of the staff.

Courses for Advanced Undergraduates and Graduates

B.O.O. 3. Retail and Chain Store Organization and Operation.—*Prerequisite:* B.O.O. 2.

3		10	MWF	222 Com.	Whitlo

B.O.O. 4. Management in Manufacturing.—*Prerequisite:* B.O.O. 1.

3		8	MWF	307 Com.	Anderson

B.O.O. 7. Salesmanship.—*Prerequisite:* B.O.O. 2.

2	J	8	TT	310 Com.	Jones
	L	10	TT	310 Com.	Jones
	N	1	TT	310 Com.	Jones
	O	2	TT	310 Com.	Jones

B.O.O. 8. Advertising.—*Prerequisite:* B.O.O. 2.

3	A	8	MWF	306 Com.	Russell
	B	9	MWF	326 Com.	Heslip
	C	10	MWF	326 Com.	Heslip
	F	2	MWF	326 Com.	Heslip

B.O.O. 20. Credits and Collections.—*Prerequisite:* B.O.O. 2; junior standing.

3		11	MWF	224 Com.	Huegy

B.O.O. 75. Management of Public Utilities.—*Prerequisite:* Econ. 1 and Accy. 2a.

3		8	MWF	223 Com.	Gray

Courses for Graduates

B.O.O. 102. Marketing Policies and Problems.—(1 unit). Arrange. Professor Converse.

B.O.O. 104. Scientific Management.—(1 unit). Arrange. Professor Anderson.

B.O.O. 107. Sales Campaigns.—(1 unit). Arrange. Professor Russell.

B.O.O. 129. Thesis.—(1 unit). Arrange. Professor Russell and others.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

C. BUSINESS LAW

Courses for Undergraduates

Bus. Law 1a. General Principles of Business Law.—*Prerequisite:* 60 hours of university credit, including Econ. 1 and Accy. 1b.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	219 Com.	Roberts
	B	9	MWF	219 Com.	Roberts
	K	9	TTS	106 Com.	Curtis
	C	10	MWF	106 Com.	Curtis
	L	10	TTS	106 Com.	Curtis
	D	11	MWF	222 Com.	Dillavou
	E	1	MWF	219 Com.	Roberts
	F	2	MWF	222 Com.	Dillavou

Bus. Law 1b. General Principles of Business Law.—*Prerequisite:* Bus. Law 1a.

3	A	8	MWF	108 Com.	Asher
	B	9	MWF	106 Com.	Curtis
	J	8	TTS	108 Com.	Asher

Bus. Law 2. Elementary Law of Business.—This course is offered exclusively for non-commerce students. *Prerequisite:* Junior standing.

3		2	MWF	219 Com.	Roberts

Courses for Advanced Undergraduates and Graduates

Bus. Law 10. Law of Security Relations and Banking.—*Prerequisite:* Senior standing and registration or credit in Bus. Law 1b.

3	A	8	MWF	222 Com.	Dillavou
	B	9	MWF	222 Com.	Dillavou

D. BUSINESS ENGLISH

(See Rhetoric 10, 21, and 22 under English Department.)

CERAMIC ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2.00 to $7.50.

Courses for Undergraduates

Cer.E. 1. Ceramic Materials.—*Prerequisite:* Chem. 4.

3	A	8	MWF	214 Cer.
	B	8	MWF	218 Cer.

Cer.E. 21. Ceramic Pyrometry.—*Prerequisite:* General physics; inorganic chemistry. (1). 8 Tu; 214 Cer.

Cer.E. 97. Thesis.—(3 to 5).* Arrange.

Cer.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Advanced Undergraduates and Graduates

Cer.E. 5. Ceramic Bodies.—*Prerequisite:* Cer. 1, 4. (5). 10 MWF, 218 Cer.; 2-5 MWF, 113-114 Cer.

Cer.E. 7. Structural Clay Products.—*Prerequisite:* Cer. 1, 4. (3). Lect. and quiz, 11 MWF; 218 Cer.

Cer.E. 16. Enamels.—*Prerequisite:* Cer. 14. (3). 8 Th, 214 Cer.; 9-12 TT, 102, 113-114 Cer.

Cer.E. 18. Ceramic Microscopy.—*Prerequisite:* Chem. 40; Geol. 47 and 49 or equivalent. (3). 1-4 TT, 9-12 S; 312 Cer.

Cer.E. 22. Kilns and the Burning of Clay Products.—*Prerequisite:* Cer. 5 and 11. (3). 11 MWF; 214 Cer.

Cer.E. 23. Dryer and Kiln Design.—*Prerequisite:* Cer. 11; registration in Cer. 22; G.E.D. 1 or 4. (2). 2-5 MF; 212 Cer.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

Cer.E. 101. The Chemistry of the Compounds of Silicon.—*Prerequisite:* Elementary courses in organic and physical chemistry. (1 unit).

Cer.E. 102. General Technology of the Clay Industries.—*Prerequisite:* The elements of mineralogy and of physical chemistry. (1 or 2 units).*

Cer.E. 103. Chemistry of the Silicates.—Laboratory to supplement Ceramic Engineering 101, which must precede or accompany it. (1 to 2 units).*

Cer.E. 106. Research.—Professors PARMELEE, HURSH, ANDREWS.

CHEMISTRY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $18.

Students in the curricula of chemistry and chemical engineering, majors in chemistry, and all others who desire a thorough training in the fundamentals of chemistry and their applications to modern life, should select courses from the following, and usually in the sequence given: Chemistry 1 or 2, 6, 10, 24, 34a, 36b, 37b, 40, 41, 42b, 43b, 50a, and courses in the industrial, sanitary, and miscellaneous groups. Students in engineering should register for Chemistry 3 or 2, 4, 24. Students who are compelled to meet chemical requirements briefly may register for the following sequence: Chemistry 1 or 2, 5, 24, 32 or 33.

Students who find it impossible to take more than one semester's work are requested to register in Chemistry 1 or 2 in the second semester rather than in the first.

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, 6, 7, 93a, and inclusive of courses in qualitative, quantitative, and organic chemistry. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from not more than two of the following: bacteriology, botany, entomology, geology, mathematics, philosophy, physiology, physics, psychology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in Chemistry 1, 2, 3, 4, 5, 6, and 7.

Courses for Undergraduates

Chem. 7. General Chemistry.—Not open to students who have earned credit in high school chemistry. This course may be applied toward the science group requirements. After completing Chem. 7 a student is permitted to register in Chem. 2; or upon passing a proficiency examination in Chem. 2, he may register in Chem. 4, 5, or 6.

Credits	Section	Hours	Days	Room	Instructor
5[1]	Lect.	10	TT	112 Chem.A.	REED
	70 Quiz	8	MWF	8 Chem.A.	
[1]Seniors will receive only 3 hours credit.	Lab.	1–4	Th	1 Chem.A.	
	71 Quiz	10	MWF	8 Chem.A., 116 Chem.	
	Lab.	1–4	Tu	1 Chem.A.	
	72 Quiz	1	MWF	9 Chem.A.	
	Lab.	2–5	W	1 Chem.A.	
	73 Quiz	1	MWF	308 Chem.A.	
	Lab.	2–5	F	1 Chem.A.	

Chem. 93a. General Chemistry.—Lectures, demonstrations, and recitations. An elementary résumé of the various fields of chemistry. (*Note:* This course is accepted in partial fulfilment of the general science requirement. It is not accepted as a prerequisite to other chemistry courses.) *Prerequisite:* Junior standing or consent of the instructor. No credit is allowed students who have previous credit in college chemistry. (3). 2 MWF; 100 Chem. Professor BUSWELL and assistant.

Chem. 1. Inorganic Chemistry.—*Prerequisite:* One unit of entrance credit in physics, or 2½ units of entrance credit in mathematics, or registration in Math. 1a or 2 or 3. Students may register in either lecture section but are required to take the quiz and laboratory in some one section.

3 or 5[1]	A Lect.	11	TT	100 Chem.	AUDRIETH
	B Lect.	9	TT	100 Chem.	QUILL
[1]Students who have received entrance credit for high school chemistry are given only 3 hours credit for Chem. 1. Seniors will receive only 3 hours credit.	1 Quiz	3	TT	300 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	2 Quiz	10	TT	103 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	3 Quiz	1	TT	103, 116 Chem.	
	Lab.	2–5	TT	101 Chem.A.	
	4 Quiz	2	WF	103 Chem.	
	Lab.	1–4	TT	101 Chem.A.	
	5 Quiz	11	MW	103 Chem.	
	Lab.	1–4	TT	212 Chem.A.	
	6 Quiz	8	TT	163, 116, 162 Chem.	
	Lab.	8–10	MWF	1 Chem.A.	
	7 Quiz	1	TT	204 Chem.	
	Lab.	1–3	MWF	101 Chem.A.	

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 1. Inorganic Chemistry (concluded)

Primarily for students in premedical courses:

Credits	Section	Hours	Days	Room	Instructor
3 or 5[1]	8 Quiz	10	TT	301 Chem.	
	Lab.	1–3	MWF	101 Chem.A.	
[1]Students who have received entrance credit for high school chemistry are given only 3 hours credit for Chem. 1. Seniors will receive only 3 hours credit.	9 Quiz	11	MW	201 Chem.	
	Lab.	1–4	TT	212 Chem.A.	
	10 Quiz	2	WF	300 Chem.	
	Lab.	1–4	TT	101 Chem.A.	
	11 Quiz	10	TT	116 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	12 Quiz	3	TT	204 Chem.	
	Lab.	10–12	MWF	201 Chem.A.	

Primarily for students in the College of Agriculture:

14 Quiz	3	TT	210 Chem.A.	
Lab.	10–12	MWF	1 Chem.A.	
15 Quiz	10	TT	210 Chem.A.	
Lab.	10–12	MWF	201 Chem.A.	
16 Quiz	1	TT	308 Chem.A.	
Lab.	1–3	MWF	201 Chem.A.	
17 Quiz	10	TT	9 Chem.A.	
Lab.	1–3	MWF	201 Chem.A.	

For students majoring in home economics:

18 Quiz	1	TT	301 Chem.	
Lab.	1–3	MWF	1 Chem.A.	
19 Quiz	8	TT	204 Chem.	
Lab.	8–10	MWF	1 Chem.A.	

Chem. 2. Inorganic Chemistry.—(For all students who have had high school chemistry.) *Prerequisite:* One unit of entrance credit in chemistry. Students may register for any lecture section, but are required to take the quiz and laboratory in some one section. Students in the curriculum of chemistry or chemical engineering should register in Sections 47 and 48. *Note:* Students whose preparation in chemistry is inadequate are advised to register for Chem. 1 or 3 rather than Chem. 2.

2, 3, or 5[1]	D Lect.	10	F	100 Chem.	HOPKINS
	E Lect.	11	F	100 Chem.	COPLEY
[1]Seniors will receive only 2 hours credit in Chem. 2. Students below the rank of senior receive 5 hours credit, provided their high school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.	F Lect.	9	F	100 Chem.	BAILAR
	20 Quiz	1	TT	201, 111 Chem.	
	Lab.	8–10	S	1 Chem.A.	
	21 Quiz	10	TT	303 Chem.	
	Lab.	8–10	Th	1 Chem.A.	
	22 Quiz	2	MW	201 Chem.	
	Lab.	8–10	Tu	212 Chem.A.	
	23 Quiz	1	WF	201, 204 Chem.	
	Lab.	2–4	W	212 Chem.A.	
	24 Quiz	9	MW	162 Chem.	
	Lab.	1–3	M	212 Chem.A.	
	25 Quiz	10	MW	201 Chem.	
	Lab.	10–12	Th	212 Chem.A.	

Primarily for students in premedical courses:

26 Quiz	10	TT	308 Chem.A.
Lab.	8–10	Th	1 Chem.A.
27 Quiz	2	MW	204 Chem.
Lab.	8–10	Tu	212 Chem.A.
28 Quiz	10	MW	300 Chem.
Lab.	10–12	Th	212 Chem.A.
29 Quiz	11	TT	204 Chem.
Lab.	3–5	Th	1 Chem.A.
30 Quiz	9	TT	9 Chem.A.
Lab.	1–3	W	1 Chem.A.

Primarily for students in the College of Engineering:

31 Quiz	11	TT	201, 303 Chem.
Lab.	8–10	Th	212 Chem.A.
32 Quiz	11	TT	300 Chem.
Lab.	1–3	Th	1 Chem.A.
33 Quiz	8	TT	300 Chem.
Lab.	8–10	S	101 Chem.A.
34 Quiz	9	TT	8 Chem.A.
Lab.	1–3	W	101 Chem.A.
35 Quiz	1	TT	303 Chem.
Lab.	8–10	S	101 Chem.A.
36 Quiz	8	WF	210 Chem.A., 103 Chem.
Lab.	8–10	M	101 Chem.A.
37 Quiz	1	WF	8 Chem.A.
Lab.	2–4	W	201 Chem.A.
38 Quiz	9	MW	210 Chem.A., 163 Chem.
Lab.	1–3	M	201 Chem.A.

Chem. 2. Inorganic Chemistry (concluded)

Primarily for students in the College of Agriculture:

Credits	Section	Hours	Days	Room	Instructor
2, 3, or 5[1]	40 Quiz	8	TT	303 Chem.	
	Lab.	8–10	S	201 Chem.A.	
[1]Seniors will receive only 2 hours credit in Chem. 2. Students below the rank of senior receive 5 hours credit, provided their high school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.	42 Quiz	10	TT	204 Chem.	
	Lab.	8–10	Th	1 Chem.A.	

For students majoring in home economics:

44 Quiz	8	TT	301, 161 Chem.
Lab.	8–10	M	201 Chem.A.

For students in the curricula of chemistry and chemical engineering:

47 Quiz	11	MW	300, 301 Chem.
Lab.	1–3	Tu	201 Chem.A.
48 Quiz	10	MW	9, 308 Chem.A.
Lab.	1–3	Th	201 Chem.A.

Chem. 3. Inorganic Chemistry.—(For engineering students who have had no chemistry.) Students may register for any lecture section, but are required to take the quiz and laboratory in some one section. *Note:* Students who have credit for high school chemistry should register for Chem. 2 rather than Chem. 3.

Credits	Section	Hours	Days	Room	Instructor
3 or 4[1]	A Lect.	11	TT	100 Chem.	AUDRIETH
	B Lect.	9	TT	100 Chem.	QUILL
[1]Students who have used their high school chemistry for entrance credit are given only 3 hours credit for Chem. 3. Seniors will receive only 3 hours credit.	81 Quiz	8	WF	300 Chem.	
	Lab.	1–3	TT	1 Chem.A.	
	82 Quiz	1	WF	303 Chem.	
	Lab.	8–10	TT	201 Chem.A.	
	83 Quiz	11	MW	116 Chem.	
	Lab.	8–10	MW	101 Chem.A.	
	84 Quiz	10	TT	111 Chem.	
	Lab.	1–3	WF	1 Chem.A.	

Chem. 10. Qualitative Analysis.—(Open to all students; required of those majoring in chemistry or registered in the curricula of chemistry or chemical engineering.) *Prerequisite:* Chem. 6.

Credits	Section	Hours	Days	Room	Instructor
5 or 2[1]	Lect.	9	W	100 Chem.	REEDY
[1]Students who already have credit for the laboratory work of qualitative analysis may, with the consent of the instructor, register for lecture and quiz only, and receive a credit of 2 hours. Such students must register in section 4.	1 Quiz	9	MF	103, 111 Chem.	
	Lab.	8–11	TTS	310 Chem.A.	
	2 Quiz	9	MF	201, 300 Chem., 308 Chem.A.	
	Lab.	1–4	MWF	310 Chem.A.	
	3 Quiz	9	MF	8, 9 Chem.A.	
	Lab.	1–4	TT	310 Chem.A.	
		8–11	S	310 Chem.A.	
	4 Quiz[1]	9	MF	116 Chem.	

Chem. 22. Elementary Quantitative Analysis.—*Prerequisite:* Chem. 4 or 5. (For all students who have not followed the sequence Chemistry 1, 2 or 3, 6 and 10.)

Credits	Section	Hours	Days	Room	Instructor
5	Lect.	11	W	112 Chem.A.	ENGLIS
	A Quiz	11	MF	308 Chem.A.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	11	MF	8, 9 Chem.A.	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S	301 Chem.A.	

Chem. 24. Quantitative Analysis.—*Prerequisite:* Chem. 10.

Credits	Section	Hours	Days	Room	Instructor
5	Lect.	9	F	112 Chem.A.	CLARK
	A Quiz	9	MW	204, 301 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	9	MW	303 Chem.	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S	301 Chem.A.	

Chem. 32. Elementary Organic Chemistry.—(Especially for students in agriculture.) *Prerequisite:* Chem. 5 or 10.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	8	ThS	217 Chem.	FUSON and assistants
	Quiz	8	Tu	217 Chem.	
	A Lab.	1–4	Tu	250 Chem.	

Chem. 33. Elementary Organic Chemistry.—(For students in home economics and pre-medical courses.) *Prerequisite:* Chem. 10 or 5. (Limited to 120 students.)

Credits	Section	Hours	Days	Room	Instructor
5	Lect.	8	MW	100 Chem.	SHRINER and assistants
	Quiz	8	F	100 Chem. 204 Chem. 163 Chem. 217 Chem. 303 Chem.	
Quiz section assignments will be made by the instructor after registration is complete.					
	Conf.	8	Tu	112 Chem.A.	
	Lab.	9–11	Tu	250 Chem.	
		8–11	Th	250 Chem.	

Chem. 34a. Organic Chemistry.—(For students majoring in chemistry or for those registered in the curriculum of chemistry or of chemical engineering.) *Prerequisite:* Chem. 6, 10, and 24.

Credits	Section	Hours	Days	Room	Instructor
5	Lect.	9	MWF	217 Chem.	MARVEL and assistants
	Conf.	1	M	217 Chem.	
	Lab.	2–4	M	250 Chem.	
		1–4	W	250 Chem.	

Chem. 90a. Thesis.—(*Note:* Senior research in chemistry and chemical engineering optional instead of required. Each student who desires research must receive special permission both from the instructor under whom he is to work and from the head of the division in which the research is to be taken. Such written permission should be presented, at the time of registration, to the adviser for the chemists or chemical engineers.) *Prerequisite:* Chem. 24, 34a, 40, 41, 42, and 43, or the consent of the head of the department. (3 to 5).* Professor ADAMS (in charge).

Courses for Advanced Undergraduates and Graduates

Chem. 15a. Inorganic Chemistry.—*Prerequisite:* Senior standing.

2		9	MW	112 Chem.A.	QUILL

Chem. 16a. Inorganic Chemistry.—(Laboratory.) *Prerequisite:* Senior standing, registration or credit in Chem. 15a.

2	Conf.	9	F	301 Chem.	AUDRIETH
	Lab.	Arrange		350 Chem.	

Chem. 27. Special Methods and Instruments in Quantitative Analysis.—*Prerequisite:* Chem. 24, 34a, 40 and 41, or registration in 40 and 41.

3	Lect.	11	Tu	161 Chem.	SMITH
	A Lab.	1–4	TT	305 Chem.	
	B Lab.	1–4	F	305 Chem.	
		8–11	S	305 Chem.	

Chem. 38a. Qualitative Organic Analysis.—*Prerequisite:* Chem. 36b and 37b.

3	Conf.	1	TT	217 Chem.	MARVEL
	Lab.	2–4	TT	250 Chem.	

Chem. 40. Elementary Physical Chemistry.—*Prerequisite:* Chem. 24; Physics 1a-1b or 7a-7b; Math. 7 or 8. (3). 10 MWF; 217 Chem. Professor RODEBUSH.

Chem. 41. Elementary Physical Chemistry.—(Laboratory.) To accompany Chem. 40.

1	A Lab.	1–4	Tu	124 Chem.	PHIPPS
	B Lab.	1–4	Th	124 Chem.	
	C Lab.	1–4	F	124 Chem.	

Chem. 42. Elementary Physical Chemistry.—*Prerequisite:* Chem. 40. (3). 9 TTS; 161 Chem. Associate Professor PHIPPS.

Chem. 43. Elementary Physical Chemistry.—(Laboratory.) *Prerequisite:* Chem. 40, 41, and registration in Chem. 42.

1	A Lab.	1–4	M	124 Chem.	PHIPPS
	B Lab.	1–4	Tu	124 Chem.	
	C Lab.	1–4	W	124 Chem.	
	D Lab.	1–4	Th	124 Chem.	
	E Lab.	1–4	F	124 Chem.	

Chem. 44a. Advanced Physical Chemistry.—*Prerequisite:* Chem. 40, 41. (2). 10 TT; 161 Chem. Associate Professor PHIPPS.

Chem. 50a. Physiological Chemistry.—*Prerequisite:* Chem. 24 or 22, and 33 or 34a.

5	Lect.	9	TT	217 Chem.	ROSE and assistants
	A Lab.	1–4	TT	450 Chem.	
		8–11	S	450 Chem.	
	B Lab.	1–4	MWF	450 Chem.	

Chem. 60a. Chemical Technology.—*Prerequisite:* Chem. 24, registration in Chem. 34a. (Estimated cost of inspection trip is $30-$35 per student.)

4	Lect.	11	MWF	161 Chem.	KISTLER
	A Lab.	1–5	M	50 Chem.	KISTLER
	B Lab.	1–5	Tu	50 Chem.	KISTLER
	C Lab.	1–5	Th	50 Chem.	KISTLER
	D Lab.	1–5	F	50 Chem.	KISTLER

Chem. 61a. Principles of Chemical Engineering.—*Prerequisite:* Chem. 42 or senior standing.

4	Lect.	9	MWF	161 Chem.	KRASE
	A Lab.	1–5	M	50 Chem.	HOWARD
	B Lab.	1–5	Tu	50 Chem.	HOWARD
	C Lab.	1–5	W	50 Chem.	HOWARD
	D Lab.	1–5	Th	50 Chem.	HOWARD

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 62a. Principles of Research and Development.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (2). Lect., 10 MW; 161 Chem. Professor KEYES.

Chem. 73a. Metallurgy.—*Prerequisite:* Senior standing in engineering courses only. (3). Lect., 8 MWF; 161 Chem. Mr. HOWARD.

Chem. 86a. Chemistry of Sanitation.—*Prerequisite:* Chem. 24. Lectures, demonstrations, and field trips. (3). 10 MWF; 162 Chem. Professor BUSWELL.

Chem. 92a. Chemical Literature and Reference Work.—(Required of juniors in chemistry; expected also of juniors taking major work in chemistry.) *Prerequisite:* 18 hours of chemistry, one year of French or German, junior standing.

Credits	Section	Hours	Days	Room	Instructor
1	A	10	Th	201 Chem.	BARTOW
	B	8	F	201 Chem.	
Graduates only....	K	4	M	201 Chem.	

Chem. 95a. History of Science with Particular Reference to Chemistry.—*Prerequisite:* Junior standing and 20 hours of laboratory science. (2). 8 TT; 111 Chem. Dr. BARTOW.

Courses for Graduates

Chem. 101a. Inorganic Chemistry.—(½ unit). (For laboratory work see Chem. 102a.) 8 MW; 303 Chem. Professor HOPKINS.

Chem. 102a. Inorganic Chemistry.—(Laboratory work to accompany or follow Chem. 101a.) Arrange. (¼ to 1 unit).* Professor HOPKINS.

Chem. 105a. Inorganic Seminar and Special Topics.—(¼ to 1 unit).* Seminar, 11 S; 162 Chem. Special topic: Mechanism of reactions. (Dr. Copley). 9 MW; 105 Chem.A. Professor HOPKINS.

Chem. 123a. Qualitative Analysis.—(½ unit). Lectures. 11 MF; 162 Chem. Associate Professor REEDY.

Chem. 123c. Qualitative Analysis.—(Laboratory work, optional, to accompany Chem. 123a.) (¼ to ¾ unit).* Arrange. Associate Professor REEDY.

Chem. 125a. Quantitative Analysis.—(Seminar). (Required of all students taking a major or minor in analytical chemistry.) (¼ to 1 unit).* 4 Th; 162 Chem. Professor CLARK.

Chem. 126a. Quantitative Instrumental and Chemical Methods of Analysis in Organic Chemical Research.—(Ultimate bomb analysis, gas density, polarimetry, refractometry, spectrophotometry, colorimetry, microscopy, etc.). (½ unit). Lectures. 8 TT; 308 Chem.A. Assistant Professor ENGLIS.

Chem. 126c. Quantitative Instrumental and Chemical Methods of Analysis in Organic Chemical Research.—(Laboratory work, optional, to accompany Chem. 126a.) (¼ to ¾ unit).* Arrange; 305a Chem. Assistant Professor ENGLIS.

Chem. 127a. Modern Applications of X-rays to Chemical and Industrial Problems.—(½ unit). Lectures. 10 TT; 217 Chem. Professor CLARK.

Chem. 127c. Modern Applications of X-rays to Chemical and Industrial Problems.—(Laboratory work, optional, to accompany Chem. 127a.) (¼ to ½ unit).* Arrange; 308 Chem. Professor CLARK.

Chem. 132a. Organic Chemistry.—(First course.) (¾ unit). 11 TT; 217 Chem. Professor FUSON.

Chem. 134. Organic Chemistry.—Chiefly laboratory work. (½ to 1 unit).* Arrange. 219 Chem. Professor FUSON.

Chem. 135a. Organic Chemistry.—(Seminar). (¼ unit). Once a week. 10 W; 111 Chem. Professor ADAMS.

Chem. 136a. Organic Chemistry.—Special Topics. (¾ unit). 11 TT; 103 Chem. Associate Professor SHRINER.

Chem. 145a. Physical Chemistry.—(Seminar). (¾ unit). 10-12 S; 176 Chem. Professor RODEBUSH.

Chem. 152a. Physiological Chemistry.—Chiefly laboratory. (½ to 1 unit).* Arrange. 467b Chem. Professor ROSE.

Chem. 155a. Physiological Chemistry.—(Seminar required of all students majoring in physiological chemistry). (¾ unit). Two hours a week. 9-11 F; 456 Chem. Professor ROSE.

Chem. 160a. Advanced Chemical Technology and Chemical Engineering.—*Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 1 MW; 162 Chem. Professor KEYES.

Chem. 161a. Chemical Plant Design.—Calculations and layout of equipment for recently developed processes. *Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 9 TT; 162 Chem. Associate Professor KRASE.

Chem. 186a. Sanitary Chemistry.—(½ to 1¼ units).* Arrange. 60b Chem. Professor BUSWELL.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 190a. Research.—Work may be taken in the following subjects:

Physical and Electrochemistry.—Professor RODEBUSH, Associate Professor PHIPPS.

Inorganic Chemistry.—Professor HOPKINS; Associate Professor REEDY; Dr. AUDRIETH, Dr. BAILAR, Dr. STILLWELL, Dr. QUILL, Dr. COPLEY.

Analytical Chemistry.—Professor CLARK; Associate Professor REEDY; Assistant Professors SMITH, ENGLIS.

Food Chemistry.—Assistant Professor ENGLIS.

Applied X-rays.—Professor CLARK, Dr. STILLWELL.

Organic Chemistry.—Professors NOYES, ADAMS, MARVEL, FUSON; Associate Professor SHRINER; Dr. BAILAR.

Zymochemistry.—Professor BUSWELL.

Phytochemistry.—Assistant Professor ENGLIS.

Physiological Chemistry.—Professor ROSE.

Chemical Engineering.—Professor KEYES; Associate Professor KRASE; Assistant Professor KISTLER.

Ceramic Chemistry.—Professor PARMELEE.

CIVIL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $2.50.

Courses for Undergraduates

C.E. 1. Plane Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

Credits	Section	Hours	Days	Room	Instructor
3	E	8–10	MWF	C.E.S.B.	
	F	10–12	MWF	C.E.S.B.	
	G	1–3	MWF	C.E.S.B.	
	H	1–3	MWF	C.E.S.B.	

C.E. 3. Railway and Highway Surveying.—*Prerequisite:* C.E. 1, 15, 16 or 18.

4	E	8–10	MTTF	407 E.H.	

C.E. 15. General Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

3	E	8–11	TT	C.E.S.B.	
	F	1–4	MF	C.E.S.B.	
	G	1–4	TT	C.E.S.B.	

C.E. 17. Surveying for Landscape Architects.—*Prerequisite:* Math. 4.

3	E	1–3	MWF	C.E.S.B.	

C.E. 20. Highway Construction.—*Prerequisite:* C.E. 1.

2	E	10	TT	102 E.H.	
	F	8	TT	112 M.T.L.	

C.E. 21. Highway Construction.—*Prerequisite:* C.E. 20.

2	E	10	TT	101 E.H.	
	F	11	TT	102 E.H.	
	G	9	TT	112 M.T.L.	

C.E. 22. Highway and Municipal Design.—*Prerequisite:* C.E. 21.

4	E	10	MWF	101 E.H.	
		1–4	Th	309 E.H.	

C.E. 30. Highway Materials Laboratory.—*Prerequisite:* Registration or credit in C.E. 21 or 28a.

1	E	1–4	Th	201 M.T.L.	
	F	1–4	Tu	201 M.T.L.	
	G	1–4	W	201 M.T.L.	

C.E. 35. Plain Concrete.—*Prerequisite:* Sophomore standing in engineering, architecture, or landscape architecture.

2	E	8	Tu	201 M.T.L.	
		8–11	Th	201 M.T.L.	
	F	1	M	201 M.T.L.	
		1–4	F	201 M.T.L.	

C.E. 40. Water Supply.—*Prerequisite:* T.A.M. 3 and 4.

4	E	9	MWF	208 E.H.	
		1–4	Tu	211 E.H.	
	F	10	MWF	208 E.H.	
		1–4	Tu	214 E.H.	
	G	11	MWF	208 E.H.	
		1–4	Tu	309 E.H.	

C.E. 42. Water Purification.—*Prerequisite:* Registration or credit in C.E. 40 or 40a and Bact. 5a.

Credits	Section	Hours	Days	Room	Instructor
4	E	8	MF	208 E.H.	
		8–11	Tu	113 M.T.L.	
		8–11	Th	214 E.H.	

C.E. 42a. Water Purification.—*Prerequisite:* Registration or credit in C.E. 40 or 40a, Chem. 22 and Bact. 5a.

2	E	8	M	208 E.H.
		8–11	Th	214 E.H.

C.E. 49. Municipal Sanitation.—*Prerequisite:* Junior standing in engineering, architecture, or landscape architecture.

3	E	2	MWF	102 E.H.

C.E. 50. Hydrology.—*Prerequisite:* Senior standing in civil engineering.

2	E	11	TT	208 E.H.
	F	10	TT	208 E.H.

C.E. 60. Bridge and Building Construction.—*Prerequisite:* Sophomore standing in engineering.

3	E	11	MWF	102 E.H.
	F	1	MWF	102 E.H.
	G	9	MWF	102 E.H.
	H	10	MWF	102 E.H.

C.E. 61. Structural Stresses.—*Prerequisite:* Registration or credit in T.A.M. 3.

4	E	10	MWF	405 E.H.
		1–4	Tu	419 E.H.
	F	10	MWF	400 E.H.
		1–4	Th	419 E.H.
	G	11	MWF	405 E.H.
		1–4	Tu	419 E.H.

C.E. 62. Elementary Structural Design.—*Prerequisite:* Credit or registration in C.E. 61.

3	E	8–10	MWF	419 E.H.

C.E. 63. Theory of Reinforced Concrete.—*Prerequisite:* T.A.M. 3.

2	E	9	TT	101 E.H.

C.E. 64. Structural Design.—*Prerequisite:* C.E. 62 and 63a.

4	E	8	W	319 E.H.
		1–4	MWF	
	F	8	W	319 E.H.
		1–4	MWF	
	G	8	W	319 E.H.
		1–4	MWF	

C.E. 66. Masonry Construction.—*Prerequisite:* C.E. 61 and 63.

3	E	9	MWF	101 E.H.

C.E. 67. Statically Indeterminate Structures.—*Prerequisite:* Registration or credit in C.E. 64a.

3	E	10	MWF	205 E.H.
	F	11	MWF	205 E.H.

C.E. 86. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 61a.

4	E	9	MF	408 E.H.
		8–11	TT	408 E.H.

C.E. 89. Structural Engineering.—*Prerequisite:* Senior standing in engineering or architecture.

3	E	9	MWF	205 E.H.

C.E. 90. Contracts and Specifications.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	8	MF	101 E.H.
	F	11	TT	205 E.H.
	G	10	MW	109 E.H.

C.E. 91. Estimates and Costs.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	8	MF	405 E.H.
	F	11	TT	405 E.H.

C.E. 97. Thesis.—(2 or 3).* Arrange.

C.E. 99. Inspection Trip.—No credit, but required for graduation.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

C.E. 101. Water Supply.—(1 unit). 11 TT; 204 E.H. Professor BABBITT.

C.E. 103. Highway Engineering.—(1 unit). 11 MW; 308 E.H. Professor CRANDELL.

C.E. 105. Reinforced Concrete Theory.—(1 unit). 4 MF; 205 E.H. Professor CROSS.

C.E. 106. Reinforced Concrete Structures.—(1 unit). 4 TT; 205 E.H. Professor CROSS.

C.E. 109. Water Purification and General Sanitation.—(1 unit). 3 MF; 204 E.H. Professor BABBITT.

C.E. 113. Foundations.—(½ unit). 8 W; 304 E.H. Professor HUNTINGTON.

C.E. 124. Steel Building Design.—(1 unit). 8 MF; 304 E.H. Professor HUNTINGTON.

C.E. 130. Hydrology.—(1 unit). 1 TT; 102 E.H. Professor PICKELS.

C.E. 140. Research.—(½ to 2 units).* Arrange.

C.E. 198. Thesis.—(1 to 2½ units).* Arrange.

CLASSICS

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, and 17.

Minors: 20 hours chosen from not more than two of the following: foreign language (Latin being especially recommended), English literature, history, and philosophy. At least eight hours must be taken in each subject, if two are chosen.

Latin

Major: 20 hours, excluding Latin 11a-11b, 6, 1a-1b, 13, and 20, and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours chosen from not more than two of the following: foreign language (Greek being especially recommended), English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17 and Latin 11a-11b, 6, 1a-1b, 9, 13, 20. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours chosen from not more than two of the following: foreign language, English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

GREEK

Courses for Undergraduates

Greek 1a. Elementary Greek.—(4). 11 TWTF; 120 L.H. Associate Professor PERRY.

Greek 3. Second Year Greek: Plato.—*Prerequisite:* Greek 1a-1b. (3). 11 MWF; 114 L.H. Mr. DALY.

Greek 15. Greek and Roman Sports.—*Note:* This course does not presuppose a knowledge of Greek. (2). 10 MW; 202 L.H. Mr. RAPP.

Greek 16. Life of the Ancient Greeks.—*Prerequisite:* Sophomore standing. *Note:* This course does not presuppose a knowledge of Greek. (1). 3 Th; 120 L.H. Mr. RAPP.

Courses for Advanced Undergraduates and Graduates

Greek 6. Thucydides and Plato.—*Prerequisite:* Greek 3 and 4 or an equivalent. (3). 9 TTS; 114 L.H. Associate Professor PERRY.

Greek 18. Greek Archaeology.—*Prerequisite:* Sophomore standing. *Note:* This course does not presuppose a knowledge of Greek. (2). 2 TT; 120 L.H. Mr. RAPP.

Greek History.—See History 55. 1 MWF; 202 L.H. Professor OLDFATHER.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

Note: Students desiring to take graduate work in Greek should have had at least three years of college Greek or an equivalent.

Greek 106a. Greek Drama, Tragedy.—(1 unit). Twice a week. Arrange. Associate Professor PERRY.

Greek 110a. See Latin 110a.

B. LATIN

Courses for Undergraduates

Latin 1a. Ovid.—*Prerequisite:* Two or three entrance units in Latin or Latin 6. (4). 1 TWTF; 114 L.H. Mr. JOHNSTON.

Latin 5a. Latin Composition.—*Prerequisite:* Three entrance units in Latin or Latin 6. Required to secure the department's recommendation to teach. (1). 4 Th; 120 L.H. Professor CANTER.

Latin 12a. Plautus, Terence, Catullus.—*Prerequisite:* Four entrance units in Latin or Latin 1a-1b. (4). 9 TWTF; 120 L.H. Professor CANTER.

Latin 20. Mythology of Greece and Rome.—*Prerequisite:* Sophomore standing. *Note:* This course does not presuppose a knowledge of Latin. (2). 2 TT; 202 L.H. Associate Professor PERRY.

Latin 30a. Honors Course.—Thesis or a special course of study approved by the department. *Prerequisite:* Senior standing and 14 hours of Latin acceptable for a major. (2). Arrange. Professor OLDFATHER.

Course for Advanced Undergraduates and Graduates

Latin 21. Tacitus and Juvenal.—*Prerequisite:* 12 hours of Latin acceptable for a major. (3). 2 MWF; 120 L.H. Professor CANTER.

Courses for Graduates

Note: Students desiring to take graduate work in Latin should have had at least three years of college Latin in addition to the Latin presented to meet entrance requirements.

Latin 106. Terence.—(1 unit). Twice a week. Arrange. Professor OLDFATHER.

Latin 107. Latin Epigraphy.—(1 unit). Twice a week. 4 MW; 120 L.H. Professor CANTER.

Latin 110a. Bibliography and Criticism.—(1 unit). Arrange. Professors OLDFATHER, CANTER, and Associate Professor PERRY.

DAIRY HUSBANDRY

Note: Certain courses in this department require laboratory fees varying from $2 to $3.

Courses for Undergraduates

D.H. 1. Testing Dairy Products.—*Prerequisite:* D.H. 24b or sophomore standing. (3). 1-4 TT; 503 Agr. Assistant Professor OVERMAN, Mr. GARRETT.

D.H. 6a. Dairy Products Plant Operations.—*Prerequisite:* D.H. 24b and consent of instructor. (3). Arrange. Associate Professor TRACY, Mr. TUCKEY.

D.H. 22. Cheese Making.—*Prerequisite:* D.H. 24b and sophomore standing. (3). 8 TT; 7-12 S. D.Mfrs. Professor RUEHE, Mr. TUCKEY.

D.H. 23a-j. Investigation with Thesis.—(Continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; approval of head of department. (5). Arrange.

(a) **Dairy Bacteriology.**—Professor PRUCHA, Assistant Professor BRANNON.
(c) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(e) **Dairy Farming and Economic Milk Production.**—Professor FRASER.
(g) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.
(j) **Dairy Production.**—Professors GAINES, YAPP; Associate Professor NEVENS.

D.H. 24a. Elementary Dairy Production.—

Credits	Section	Hours	Days	Room	Instructor
3[1]	Lect.	9	M	127 New Agr.	NEVENS, KUHLMAN
[1]Juniors and seniors receive only 2 hours credit.	Lab.	8–10	W	S.P.	
	Quiz	9	F	205 Agr.	
				127 New Agr.	

D.H. 24b. Elementary Testing and Manufacture of Dairy Products.—

3[1]	Lect.	1	Th	D.Mfrs.	TUCKEY, RAMSEY
[1]Juniors and seniors receive only 2 hours credit.	Quiz	2	Th	D.Mfrs.	
	A Lab.	1–3	Tu	D.Mfrs.	
	B Lab.	10–12	Tu	D.Mfrs.	

Courses for Advanced Undergraduates and Graduates

D.H. 4. Ice Cream Making.—*Prerequisite:* D.H. 24b and junior standing. (5). 1-4 TT, 4 MWF; D.Mfrs. (Inspection trip requirement waived for 1933-34). Associate Professor TRACY, Mr. RAMSEY.

D.H. 10. Advanced Dairy Bacteriology.—*Prerequisite:* Bact. 5a and 5b; junior standing. (4). 1-4 MWF; 456 Agr. Professor PRUCHA, Assistant Professor BRANNON.

D.H. 17. Advanced Study of Dairy Breeds.—*Prerequisite:* D.H. 2 and junior standing. (3). Arrange; 553 Agr. Professor YAPP.

D.H. 20. Economic Problems in Dairy Farming.—*Prerequisite:* Junior standing. (3). 9 MWF; 553 Agr. Professor FRASER.

Courses for Graduates

D.H. 101. Economic Milk Production.—(½ to 2 units).* Twice a week. Arrange. Professor FRASER.

D.H. 105. Dairy Manufactures.—(½ to 2 units).* Arrange. Professor RUEHE, Associate Professor TRACY.

D.H. 106. Dairy Bacteriology.—(½ to 2 units).* Arrange. Professor PRUCHA.

D.H. 107. Dairy Chemistry.—(½ to 2 units).* Arrange. Assistant Professor OVERMAN.

D.H. 108. Physiology of Lactation.—(½ to 2 units).* Once a week. Arrange. Professor GAINES.

D.H. 112a-f. Research.—(1 to 4 units).* Arrange. *Note:* Graduate students writing a thesis should so indicate when registering in D.H. 112.

(a) **Dairy Bacteriology.**—Professor PRUCHA.
(b) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(c) **Dairy Cattle Breeding.**—Professor YAPP.
(d) **Dairy Cattle Feeding.**—Associate Professor NEVENS.
(e) **Milk Production.**—Professor GAINES.
(f) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.

D.H. 113. Seminar.—(½ unit). Once a week. Current literature in dairy bacteriology, dairy chemistry, and dairy manufactures. Members of the graduate staff.

D.H. 114. Seminar.—(½ unit). Once a week. Current literature in biology of milk production. Professor GAINES.

ECONOMICS

(See also Business Organization and Operation, Public Utilities and Transportation, and Agricultural Economics.)

Major: For students in the College of Liberal Arts and Sciences, 20 hours made up of Economics I and other courses in economics for which it is a prerequisite.

Minors: 20 hours in any one or two of the following subjects: geography, history, philosophy, political science, and sociology.

Note: Economics 22 and 27 are open only to freshmen, without previous requirements.

Economics 1 is the fundamental course in economics. It is a prerequisite for most of the advanced courses, and students expecting to do advanced work in economics should take it in their sophomore year.

Courses for Undergraduates

Econ. 1. Principles of Economics.—*Prerequisite:* 30 hours of university work.

Credits	Section	Hours	Days	Room	Instructor
5	[1]Lect. I	8	TT	114 Com.	THOMPSON, BEHLING
[1]Students registered in quiz sections listed under Lect. 1 must enroll in Lect. I; those under Lect. II in Lect. 11.	A1 Quiz	8	MWF	111 Com.	HOOVER
	A2 Quiz	8	MWF	125 Com.	ALLEN
	A3 Quiz	8	MWF	328 Com.	FITZGERALD
	A4 Quiz	8	MWF	126 Com.	BRAINARD
	A5 Quiz	8	MWF	312 Com.	ALYEA
	D1 Quiz	11	MWF	322 Com.	BEHLING
	F Quiz	2	MWF	113 Com.	VAN ARSDELL
	[1]Lect. II	9	TT	114 Com.	THOMPSON, BEHLING
	B1 Quiz	9	MWF	312 Com.	ALYEA
	B2 Quiz	9	MWF	328 Com.	FITZGERALD
	B3 Quiz	9	MWF	125 Com.	ALLEN
	B4 Quiz	9	MWF	126 Com.	BRAINARD
	B5 Quiz	9	MWF	111 Com.	HOOVER
	C Quiz	10	MWF	328 Com.	SANFORD
	D2 Quiz	11	MWF	328 Com.	SANFORD
	E Quiz	1	MWF	113 Com.	VAN ARSDELL

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Econ. 2. Elements of Economics.—*Prerequisite:* 30 hours of university work. Exclusively for non-commerce students. Not open to those who have had Econ. 1.

Credits	Section	Hours	Days	Room	Instructor
3	C1 Quiz	10	MWF	305 Com.	Lounsbury
	C2 Quiz	10	MWF	325 Com.	Helbing
	C3 Quiz	10	MWF	108 P.L.	Curtis
	C4 Quiz	10	MWF	108 Com.	Long
	D Quiz	11	MWF	108 Com.	Long
	E1 Quiz	1	MWF	322 Com.	Berman
	E2 Quiz	1	MWF	306 Com.	Gay
	F Quiz	2	MWF	306 Com.	Gay
	J Quiz	8	TTS	326 Com.	Curtis

Econ. 3. Money, Credit, and Banking.—*Prerequisite:* Econ. 1 or 2.

3	Lect.	9	W	114 Com.	Lee
	B1 Quiz	9	MF	305 Com.	Lounsbury
	B2 Quiz	9	MF	101 Com.	Stalnaker
	K1 Quiz	9	TT	305 Com.	Lounsbury
	K2 Quiz	9	TT	101 Com.	Stalnaker
	L1 Quiz	10	TT	306 Com.	Lee
	L2 Quiz	10	TT	101 Com.	Stalnaker
	M Quiz	11	TT	306 Com.	Lee

Econ. 22. Economic History of the United States.—Open to freshmen only.

3	[1]Lect. I	1	M	114 Com.	Bogart
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II.	E1 Quiz	1	WF	111 Com.	Hoover
	E2 Quiz	1	WF	223 Com.	Bruce
	E3 Quiz	1	WF	310 Com.	Heckman
	E4 Quiz	1	WF	326 Com.	Curtis
	J Quiz	8	TT	223 Com.	Bruce
	K1 Quiz	9	TT	310 Com.	Heckman
	N Quiz	1	TT	329 Com.	Sanford
	[1]Lect. II	2	M	114 Com.	Bogart
	F1 Quiz	2	WF	329 Com.	Sanford
	F2 Quiz	2	WF	310 Com.	Heckman
	F3 Quiz	2	WF	223 Com.	Bruce
	F4 Quiz	2	WF	111 Com.	Hoover
	O Quiz	2	TT	329 Com.	Sanford
	K2 Quiz	9	TT	111 Com.	Hoover

Econ. 90a. Senior Thesis or Independent Study.—(A) Senior Thesis: primarily for candidates for graduation with High Honors. *Prerequisite:* Major in economics; senior standing. (2 or 4).* Arrange. (B) Independent Study: see *Annual Register* page 70, "University Honors." *Prerequisite:* Senior standing and a grade average in upper ten percent of the junior class on Honors Day. (3 to 5).* Arrange. Assistant Professor Wasserman and other members of the staff.

Courses for Advanced Undergraduates and Graduates

Econ. 4. History of Money and Banking in the United States.—*Prerequisite:* Econ. 3. (3). 10 MWF; 312 Com. Professor Lee.

Econ. 9. Advanced Theory and Practice of Banking.—*Prerequisite:* Econ. 1 or 2, and 3; senior standing.

3	Lect.	8	W	215 Com.	Wright
	A1 Quiz	8	MF	325 Com.	Wright
	A2 Quiz	8	MF	305 Com.	Lounsbury
	B Quiz	9	MF	325 Com.	Wright
	J Quiz	8	TT	325 Com.	Wright
	K Quiz	9	TT	325 Com.	Wright

Econ. 11. Industrial Consolidation.—*Prerequisite:* Econ. 10.

3	Lect.	9	M	215 Com.	Brown
	B1 Quiz	9	WF	108 Com.	Brown
	B2 Quiz	9	WF	113 Com.	Van Arsdell
	K1 Quiz	9	TT	108 Com.	Brown
	K2 Quiz	9	TT	113 Com.	Van Arsdell
	L Quiz	10	TT	108 Com.	Brown

Econ. 25. Economic History of England.—*Prerequisite:* Econ. 1 or 2, and junior standing. (3). 9 TTS; 223 Com. Professor Bogart.

Econ. 31. Organization of Foreign Commerce.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	10	W	215 Com.	Litman
	C Quiz	10	MF	322 Com.	Litman
	L Quiz	10	TT	322 Com.	Litman

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Econ. 35. Corporation Finance.—*Prerequisite:* Econ. 1 or 2. For engineering students only. (3). 10 MWF; 104 P.L. Mr. Van Arsdell.

Econ. 41. Introduction to Labor Problems.—*Prerequisite:* Econ. 1 or 2, and junior standing.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	2	F	215 Com.	Berman
	F1 Quiz	2	MW	322 Com.	Berman
	F2 Quiz	2	MW	325 Com.	Helbing
	O Quiz	2	TT	322 Com.	Berman

Econ. 44. Socialism and Economic Reform.—*Prerequisite:* Econ. 1 or 2, and senior standing. (3). 1 MWF; 325 Com. Dr. Helbing.

Econ. 51. Public Finance.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	11	M	114 Com.	Hunter
	D1 Quiz	11	WF	312 Com.	Hunter
	D2 Quiz	11	WF	326 Com.	Alyea
	D3 Quiz	11	WF	305 Com.	Allen
	K Quiz	9	TT	326 Com.	Alyea
	L Quiz	10	TT	312 Com.	Hunter
	M1 Quiz	11	TT	312 Com.	Hunter
	M2 Quiz	11	TT	326 Com.	Alyea

Econ. 55. Economics of Insurance.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	9	F	215 Com.	Dickinson
	B Quiz	9	MW	307 Com.	Dickinson
	K Quiz	9	TT	307 Com.	Dickinson

Econ. 61. Economic Theory.—*Prerequisite:* Econ. 1 or 2, and senior standing.

3	C Quiz	10	MWF	125 Com.	Wasserman
	D Quiz	11	MWF	125 Com.	Wasserman

Econ. 71. Economic Statistics.—*Prerequisite:* Econ. 1 or 2, and junior standing. (3). Quiz, 10 Tu, 307 Com.; practice, 1-3 TT, 317 Com. Assistant Professor Dickinson.

Principles of Public Utilities.—See Public Utilities 81.

Courses for Graduates

Econ. 101. Economic Theory.—(1 unit). 3 MW; 125 Com. Professor Weston.

Econ. 102. Monetary History and Theory from the Restriction Period to the Present.—(1 unit). Arrange. Assistant Professor Wasserman.

Econ. 103. The Distribution of Wealth.—(1 unit). 11 TT; 212 Com. Professor Weston.

Econ. 104a. Theories and Policies of Foreign Commerce.—(1 unit). 3 TT; 212 Com. Professor Litman.

Econ. 105. Public Finance.—(1 unit). 4-6 Tu; 212 Com. Professor Hunter.

Econ. 107. The Corporation in Economic Evolution.—(1 unit). Arrange. Assistant Professor Brown.

Econ. 109. Comparison of the Theory and Practice of the Leading Central and Reserve Banks, with Special Reference to England, Germany, France, and the United States.—(1 unit). Arrange. Professor Wright.

Econ. 112a. Labor Problems: Wages and Unemployment.—(1 unit). 4-6 M; 212 Com. Associate Professor Berman.

Econ. 118. Seminar.—Thesis course. (All graduate students writing theses in economics must register in Economics 118; registration for other students optional.) 4-6 Th (alternate weeks); 420 Com.

(a) **Third Year Seminar.**—Professor Weston.
(b) **First Year: General Economics.**—Assistant Professor Brown.
(d) **First Year: Public Utilities.**—See Public Utilities 118.

Econ. 120. History of Economic Thought.—(1 unit). 9 TT; 212 Com. Professor Weston.

Econ. 122. Economic History of the United States.—(1 unit). 4-6 Tu; 209 Com. Professor Bogart.

Econ. 123. Industrial and Financial Organization of Society.—(1 unit). 4-6 W; 209 Com. Professor Lee.

Econ. 143. Administration of Industrial Relations.—(1 unit). Arrange. Dr. Helbing.

Econ. 144. Economic Statistics with Special Reference to Time Series and Business Cycles.—(1 unit). Arrange. Assistant Professor Dickinson.

Theory of Agricultural Economics.—See Agricultural Economics 110.

Agricultural Resources and Prices.—See Agricultural Economics 111.

Agricultural Economics Research.—See Agricultural Economics 113.

Management of Public Utilities.—See Public Utilities 180.

EDUCATION

A. GENERAL EDUCATION

Introductory Courses

Ed. 2. History of Education.—*Prerequisite:* Junior standing.

Credits	Section	Hours	Days	Room	Instructor
3	B	9	MWF	303 Adm.(E)	Seybolt
	C	10	MWF	303 Adm.(E)	Seybolt

Ed. 5. Comparative Education.—*Prerequisite:* Junior standing.

3	E	1	MWF	204 Adm.(E)	Johnston
	F	2	MWF	204 Adm.(E)	Johnston
	L	10	TTS	204 Adm.(E)	Johnston

Ed. 6. Principles of Secondary Education.—*Prerequisite:* Ed. 25.

3	J	8	TTS	308 Adm.(E)	Clement
	K	9	TTS	308 Adm.(E)	Weber
	L	10	TTS	206 Adm.(E)	Williams
	M	11	TTS	204 Adm.(E)	Johnston
	E	1	MWF	206 Adm.(E)	Williams
	F	2	MWF	304 Adm.(E)	Weber
	G1	3	MWF	304 Adm.(E)	Peters
	G2	3	MWF	307 Adm.(E)	Potthoff

Ed. 10. Technic of Teaching.—*Prerequisite:* Ed. 25.

Students preparing to teach biology, chemistry, English, general science, home economics, physics, or music, or who expect to teach in elementary schools, must register in the sections indicated immediately below, and must register at the same time for the Educational Practice indicated. Only students specializing in the fields indicated may enroll in these sections.

3					
(Biology—Ed. Prac. 6).....	A	8	MWF	303 U.H.S.	Harnish
(Chemistry—Ed. Prac. 7).....	A	8	MWF	303 U.H.S.	Harnish
(English—Ed. Prac. 11).....	G1	3	MWF	205 U.H.S.	McHarry
(Gen. Sci.—Ed. Prac. 13).....	A	8	MWF	303 U.H.S.	Harnish
(Home Econ.—Ed. Prac. 14)....	G2	3	MWF	104 U.H.S.	King
(Physics—Ed. Prac. 21).....	A	8	MWF	303 U.H.S.	Harnish
(Music—Ed. Prac. 20).....	D1	11	MWF	207 U.H.S.	Holmes
(Elem. Sch.—Ed. Prac. 25).....	H	4	MWF	215 U.H.S.	Reagan

Students preparing to teach in other fields than those listed above will enroll in the sections listed below:

B	9	MWF	307 Adm.(E)	Odell
C2	10	MWF	206 Adm.(E)	Monroe
D2	11	MWF	206 Adm.(E)	Monroe
E	1	MWF	307 Adm.(E)	Stuit
F	2	MWF	307 Adm.(E)	Odell
G3	3	MWF	303 Adm.(E)	Reagan

Ed. 25. Educational Psychology.—*Prerequisite:* Psych. 1 or consent of instructor.

3	J2	8	TTS	307 Adm.(E)	Peters
	K	9	TTS	312 Adm.(E)	Dolch
	L	10	TTS	312 Adm.(E)	Dolch
	M	11	TTS	303 Adm.(E)	Potthoff
	E1	1	MWF	312 Adm.(E)	Peters
	E2	1	MWF	308 Adm.(E)	Potthoff
	F1	2	MWF	312 Adm.(E)	Peters
[1]Section G is for students who have not taken Psych. 1.	F2	2	MWF	308 Adm.(E)	Potthoff
	[1]G	3	MWF	204 Adm.(E)	Cameron
	H	4	MWF	312 Adm.(E)	Dolch

Ed. 99a. Thesis.—*Prerequisite:* Senior standing. (2). Arrange. Dean Benner and others.

Courses for Advanced Undergraduates and Graduates

Ed. 11. Ancient and Medieval Education.—*Prerequisite:* Senior standing or Ed. 2. (2). 9 TT; 303 Adm.(E). Professor Seybolt.

Ed. 18. Educational Measurements.—*Prerequisite:* Ed. 25. (3). 10 MWF; 312 Adm.(E). Associate Professor Odell.

Ed. 21. Supervision of Elementary Education.—*Prerequisite:* Junior standing and Ed. 25. (3). 2 MWF; 303 Adm.(E). Mr. Browne.

Ed. 40. Trends in Elementary Education.—*Prerequisite:* Ed. 25 and Ed. 10. (3). 7:30 p.m. MTT; 204 Adm.(E). Assistant Professor DOLCH.

Ed. 41. Survey of Vocational Education.—(Same as Ind. Ed. 41). *Prerequisite:* Senior standing. (3). 9 MWF; 304 Adm.(E). Professor MAYS.

Ed. 45. Genetic Psychology for Teachers.—*Prerequisite:* Ed. 25 and senior standing. (3). 11 MWF; 204 Adm.(E). Associate Professor GRIFFITH.

Ed. 50. Psychology of the Pre-School Child.—*Prerequisite:* Ed. 25. (3). 9 MWF; 204 Adm.(E). Associate Professor GRIFFITH.

Ed. 53. Problems of Industrial Education.—(Same as Ind.Ed. 53). *Prerequisite:* Junior standing or consent of instructor. (3). 10 MWF; 304 Adm.(E). Professor MAYS.

Ed. 54. Functions and Methods of the Part-Time School.—(Same as Ind.Ed. 54). *Prerequisite:* Senior standing. (2). 9 TT; 304 Adm.(E). Professor MAYS.

Courses for Graduates

Education 6 and 25, or their equivalents, are prerequisite to all courses for graduates. For a master's degree in Education, course 125 is required. For students who have not taken a course in history of education as undergraduates, Education 11 or 30 is required.

Ed. 102. Research in History of American Education.—(1 unit). Arrange. 311 Adm.(E). Professor SEYBOLT.

Ed. 104. Educational Administration.—(1 unit). 10-12 S; 307 Adm.(E). Associate Professor WEBER.

Ed. 106. High School Administration.—(1 unit). 3 TT; 308 Adm.(E). Professor CLEMENT.

Ed. 123. Educational Statistics.—(1 unit). 10-12 S; 304 Adm.(E). Associate Professor ODELL.

Ed. 124. Readings in Educational Research.—(1 unit). 4-6 Th; 206 Adm.(E). Professor MONROE.

Ed. 125. Educational Psychology.—(1 unit). 4-6 F; 204 Adm.(E). Professor CAMERON.

Ed. 127. High School Curricula.—(1 unit). 10-12 S; 308 Adm.(E). Professor CLEMENT.

Ed. 128. Junior High School.—(1 unit). 4 TT; 308 Adm.(E). Professor CLEMENT.

Ed. 147. Psychology of the Elementary School Subjects.—(1 unit). 4-6 Tu; 204 Adm.(E). Professor CAMERON.

Ed. 150. Thesis.—(1 to 2 units).* Dean BENNER and others.

Ed. 170. Public School Business Administration.—*Prerequisite:* Ed. 104. (1 unit). 4-6 W; 307 Adm.(E). Associate Professor WEBER.

Ed. 185. Seminar in Educational Psychology.—*Prerequisite:* Ed. 125 and consent of instructor. (1 unit). Arrange. 203 Adm.(E). Professor CAMERON, Associate Professor GRIFFITH.

Ed. 190. Research in Education.—*Prerequisite:* 3 units of graduate credit in education and consent of instructor. (1 unit). Arrange. Dean BENNER and others.

B. RELATED COURSES IN SPECIAL SUBJECTS

The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 20 hours in Education for graduation; for the 15 hours in Education for the State High School Certificate; or for the hours of Education necessary as a qualification for teachers in the North Central Association accredited schools.

Art 10a. Course for Teachers.—(3). (See Art).

English 42. Teaching of English Composition.—(2). (See English).

French 25. Methods of Teaching French.—(3). (See French).

History 18. Teaching of History.—(2). (See History).

Home Economics 11. Teachers' Course.—(3). (See Home Economics).

Mathematics 35. Teachers' Course.—(3). (See Mathematics).

Music 25a. Grade School Methods.—(3). (See Music).

Music 26a. High School Methods.—(3). (See Music).

Physical Education for Women 95a. Methods.—(3). (See Physical Education for Women).

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

C. EDUCATIONAL PRACTICE

The courses listed below are open only to seniors. *Prerequisite:* Ed. 25, Ed. 6, and Ed. 10, except that students who take Ed. Prac. 6, 7, 11, 11a, 13, 14, 20, 21, or 25 must register at the same time for Ed. 10. For Educational Practice in Agriculture, see Associate Professor NOLAN at 116 Old Agriculture. For Educational Practice in Physical Education, see Mr. JACKSON at 202 New Gymnasium. For Educational Practice in Home Economics, see Miss ROBINSON, Miss TODD, and Miss KING at 119 Woman's Building. Arrange for all other courses in Educational Practice with Principal C. W. SANFORD, at 102 University High School.

Ed. Prac. 1. Physical Education for Men.—(2 to 4).*

Ed. Prac. 2. Physical Education for Men.—(2 to 4).*

Ed. Prac. 3. Physical Education for Men.—(2 to 4).*

Ed. Prac. 4. Physical Education for Men.—(2 to 4).*

Ed. Prac. 5. Agricultural Education.—(3 to 5).* (Same as Agr. Ed. 50.)

Ed. Prac. 6. Biology.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 7. Chemistry.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 8. Civics.—(5).

Ed. Prac. 9. Drawing, Art.—(3 to 5).*

Ed. Prac. 10. Drawing, Mechanical.—(3 to 5).*

Ed. Prac. 11. English.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 11a. Speech.—(5). Students must be registered in Ed. 10, Section C2.

Ed. Prac. 12. French.—(5).

Ed. Prac. 13. General Science.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 14. Home Economics Education.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 15. History.—(5).

Ed. Prac. 16. Industrial Education.—(3 to 5).*

Ed. Prac. 17. Latin.—(5).

Ed. Prac. 19. Mathematics.—(5).

Ed. Prac. 20. Music.—(3 to 5).* Students must be registered in Ed. 10, Section D1.

Ed. Prac. 21. Physics.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 23. Spanish.—(5).

Ed. Prac. 24. Stenography and Typewriting.—(3 to 5).*

Ed. Prac. 25. Elementary Education.—(5). Students must be registered in Ed. 10, Section H.

Ed. Prac. 26. Bookkeeping.—(5).

Ed. Prac. 27. Economics.—(5).

Ed. Prac. 28. German.—(5).

D. AGRICULTURAL EDUCATION

Agr. Ed. 1. Introduction to Agricultural Education.—*Prerequisite:* Sophomore standing and 10 hours of technical agriculture. (2). 11 TT; 122 Agr. Associate Professor NOLAN.

Agr. Ed. 50. Teaching.—*Prerequisite:* Ed. 10 and senior standing. (Same as Ed. Prac. 5.)

Credits	Section	Hours	Days	Room	Instructor
2 to 5*	A	Conference 4	TT	Tolono H.S.	HENDERSON
		Teaching to be arranged			
	B	Conference 4	TT	St. Joseph H.S.	RUCKER
		Teaching to be arranged			
	C	Apprentice teaching in state			NOLAN

Agr. Ed. 51. Teachers' Course in Agriculture.—*Prerequisite:* Ed. 10, 25, and senior standing. (3). 4 MWF; 122 Agr. Associate Professor NOLAN.

Agr. Ed. 92. Adult Education in Vocational Agriculture.—*Prerequisite:* 25 hours of technical agriculture, Ed. 25, Ed. 10, and senior standing. (Subject-matter and methods in part-time and evening classes, and other extension service in vocational agriculture.) (2). 11 MW; 122 Agr. Associate Professor NOLAN.

E. INDUSTRIAL EDUCATION

Ind. Ed. 1. Industrial Arts.—First Course.

4	Lect.	10	TT	304 Adm.(E)	BRAUCHER and
	Shop	10–12	MWF	Pat. Lab.	assistant

Ind. Ed. 2. Advanced Industrial Arts.—

4	Lect.	3	TT	304 Adm.(E)	BRAUCHER and
	Shop A	2–4	MWF	Pat. Lab.	assistant

Note: The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 25 hours in Industrial Education.

G.E.D. 1. Elements of Drawing.—(4). (See General Engineering Drawing).

G.E.D. 2. Descriptive Geometry.—(4). (See General Engineering Drawing).

G.E.D. 4. Advanced Drawing.—(4). (See General Engineering Drawing).

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Journ. 9a. **History and Practice of Printing and Publishing.**—(2 or 3). (See Journalism).

M.E. 85. **Pattern and Foundry Laboratory.**—(3). (See Mechanical Engineering).

M.E. 87. **Machine Laboratory.**—(3). (See Mechanical Engineering).

Courses for Advanced Undergraduates and Graduates

Ind. Ed. 41. **Survey of Vocational Education.**—(Same as Ed. 41 and Ind. Ed. E. 41.) *Prerequisite:* Senior standing. (3). 9 MWF; 304 Adm.(E). Professor Mays.

Ind. Ed. 53. **Problems of Industrial Education.**—(Same as Ed. 53.) *Prerequisite:* Junior standing or consent of instructor. (3). 10 MWF; 304 Adm.(E). Professor Mays.

Ind. Ed. 54. **Problems and Methods of the Part-Time School.**—(Same as Ed. 54.) *Prerequisite:* Senior standing. (2). 9 TT; 304 Adm.(E). Professor Mays.

Ind. Ed. 57. **Methods of Trade Teaching.**—(3). Arrange. 310 Adm.(E). Professor Mays.

Ind. Ed. 62. **History and Organization of Industrial Arts.**—(3). 11 MWF; 310 Adm.(E). Professor Mays.

Extra-mural Courses

Ind. Ed. E. 41. **Survey of Vocational Education.**—(Same as Ed. 41 and Ind. Ed. 41). Extra-mural. Dr. Bawden.

Ind. Ed. E. 52. **Teaching Related Trade Subjects.**—Extra-mural. Dr. Bawden.

Ind. Ed. E. 53. **Problems of Industrial Education.**—(Same as Ed. 53 and Ind. Ed. 53). Extra-mural. Dr. Bawden.

Ind. Ed. E. 54. **Problems and Methods of the Part-Time School.**—(Same as Ed. 54 and Ind. Ed. 54). Extra-mural. Dr. Bawden.

Ind. Ed. E. 54a. Continuation of Ind. Ed. E. 54.

Ind. Ed. E. 55. **Problems of Vocational Guidance.**—(Same as Ed. 55 and Ind. Ed. 55). Extra-mural. Dr. Bawden.

Ind. Ed. E. 55a. Continuation of Ind. Ed. E. 55.

Ind. Ed. E. 56. **Teaching Shopwork.**—*Prerequisite:* (a) Two years of trade or industrial experience beyond apprenticeship; (b) completion of elementary school curriculum. Extra-mural. Dr. Bawden.

Ind. Ed. E. 56a. Continuation of Ind. Ed. E. 56.

ELECTRICAL ENGINEERING

Note: Certain courses in this department require laboratory fees of $2.00.

Courses for Undergraduates

E.E. 11. **Direct Current Apparatus.**—*Prerequisite:* Physics 1a, 1b, 3a, 3b; Math. 8 or 9; registration in E.E. 61.

Credits	Section	Hours	Days	Room	Instructor
3	X1	8	MWF	305 E.H.	
	X2	8	MWF	111 E.H.	
	C1	8	TTS	305 E.H.	
	C2	8	TTS	111 E.H.	
	Q1	10	MWF	305 E.H.	
	Q2	10	MWF	111 E.H.	
	J	11	MWF	305 E.H.	
	P1	1	MWF	305 E.H.	
	P2	1	MWF	109 E.H.	

E.E. 25. **Direct Current Apparatus.**—*Prerequisite:* Math. 9; registration in E.E. 75 and Physics 44a.

4	K	1	MTWTF	111 E.H.
	L	9	MTWTF	111 E.H.
	M	11	MTWTF	111 E.H.
	N	11	MTWTF	111 E.H.

E.E. 35. **Alternating Current Apparatus.**—*Prerequisite:* E.E. 26 and 76; registration in E.E. 85.

4	K	8	MTWTF	400 E.H.
	L	8	MTWTF	109 E.H.
	M	11	MTWTF	101 E.H.
	N	11	MTWTF	109 E.H.

E.E. 51. **Radio Communication.**—*Prerequisite:* E.E. 26 or consent of instructor.

3	Quiz	10	TT	111 E.H.
	K Lab.	2–5	Tu	311a E.E.L.
	L Lab.	2–5	Th	311a E.E.L.

E.E. 55. Electrical Design.—*Prerequisite:* E.E. 26; registration in E.E. 35.

Credits	Section	Hours	Days	Room	Instructor
2	[1]Lect. L1	9	Th	305 E.H.	
	Lect. L2	9	Th	215 E.E.L.	
	Lab. K2	10–12	MF	312 E.H.	
[1]Section L1 is open only to those having a grade of "B" or better in mathematics or by special permission of the instructor.	[1]Lab. L1	2–4	TT	312 E.H.	
	Lab. L2	2–4	TT	314 E.H.	
	Lab. M	1–3	MF	312 E.H.	
	Lab. N	3–5	M	312 E.H.	
		9–11	W	312 E.H.	
	Lab. Y	1–3	W	312 E.H.	
		8–10	S	312 E.H.	

E.E. 61. Direct Current Laboratory.—*Prerequisite:* Registration in E.E. 11.

1	Q1	9–12	Tu	200 E.E.L.
	Q2	9–12	Tu	214 E.E.L.
	R1	2–5	Tu	200 E.E.L.
	R2	2–5	Tu	214 E.E.L.
	X	1–4	W	214 E.E.L.
	P	9–12	Th	214 E.E.L.
	S1	2–5	Th	200 E.E.L.
	S2	2–5	Th	214 E.E.L.
	C1	2–5	F	214 E.E.L.
	C2	9–12	S	214 E.E.L.

E.E. 71. Special Electrical Engineering Laboratory.—(Elective). *Prerequisite:* Registration or credit in E.E. 25. (1 to 3).* Arrange.

E.E. 75. Electrical Engineering Laboratory.—*Prerequisite:* Registration in E.E. 25.

2	KL	11	Th	215 E.E.L.
	MN	1	W	215 E.E.L.
	K	8–11	W	200 E.E.L.
	L1	8–11	M	200 E.E.L.
	L2	8–11	Th	200 E.E.L.
	M	2–5	W	200 E.E.L.
	N1	2–5	F	200 E.E.L.
	N2	9–12	S	200 E.E.L.

E.E. 85. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 76; registration in E.E. 35.

2	KLMNY	9	Tu	215 E.E.L.
	K1	9–12	M	200 E.E.L.
	K2	8–11	W	200 E.E.L.
	L1	2–5	Tu	200 E.E.L.
	L2	2–5	Th	200 E.E.L.
	M	1–4	M	200 E.E.L.
	N	1–4	F	200 E.E.L.
	Y	1–4	W	200 E.E.L.

E.E. 90. Building Lighting.—*Prerequisite:* College physics. (1) Section K, for students in architecture, 10 Tu; 200 E.E.A. Section L, for students in industrial administration, 11 Tu; 200 E.E.A.

E.E. 92. Building Lighting and Wiring.—*Prerequisite:* College physics.

2	K	11	TT	200 E.E.A.
	L	1	TT	200 E.E.A.

E.E. 95. Seminar.—*Prerequisite:* Senior standing in E.E.

1	K	9	M	305 E.H.
	L	9	F	305 E.H.
	M	1	Tu	305 E.H.
	N	1	Th	305 E.H.
	Y	9	W	305 E.H.

E.E. 97. Thesis.—Arrange.

E.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

Note: Courses offered to junior and senior students in electrical engineering are open for minor credit to students majoring in other departments who have the proper prerequisites.

E.E. 101. Advanced Courses in Alternating Currents.—(A) Graduate seminar; (B) Circuit transients; (C) Machine transients; (D) Symmetrical components. (½ to 2 units).* Arrange. Professor PAINE, Associate Professor KNIGHT, Assistant Professors KRAEHENBUEHL, KEENER.

E.E. 102. Electric Waves, Oscillations, and Transients.—(A) Theory of electric waves, oscillations, and transients; (B) Demonstration lecture; (C) Theory of energy radiation; (D) Principle of television engineering. (½ to 2 units).* Arrange. Assistant Professors REICH, BROWN.

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

E.E. 103. Electric Design.—(A) Power plant design; (B) Machine design; (C) Illumination practice and design. (1 unit). Arrange. Associate Professor WALDO, Assistant Professor KRAEHENBUEHL.

E.E. 104. Courses in Electronics.—(A) Theoretical electronics; (B) Vacuum tubes and amplifiers; (C) Photoelectric cells, gaseous control tubes, and inverters. (1 unit). 10 MWF; 109 E.H. Laboratory to be arranged. Assistant Professor REICH.

E.E. 105. Electrical Engineering Research.—(A) Special problems; (B) Thesis. (1 to 3 units).* Arrange. Professors PAINE, TYKOCINER; Associate Professors WALDO, KNIGHT; Assistant Professors BROWN, REICH, KEENER, KRAEHENBUEHL.

ENGLISH

(Including Rhetoric, Speech, and Scandinavian Languages)

Major: 20 hours in English *excluding* Rhetoric 1, 2, 10, 12, 21, 22, English 10a, 10b, 20a, 20b, 41, 42, and *including* at least 10 hours in English literature, at least 3 hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours in (a) Latin or Greek or French or German or Spanish; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history; or (e) in history and philosophy. No language courses may be regarded as satisfying the minor requirement if they are excluded from the majors of the language departments (excepting elementary courses in Greek, Latin, French 2a, and Spanish 2a). At least eight hours must be offered in each subject.

Major in Speech

Major: 10 hours in speech, inclusive of Speech 7 and 8 and either 4 or 6; and 10 hours of English, exclusive of English 10a, 10b, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, 22, and inclusive of one course in English literature from the advanced group.

Minors: 20 hours, in any one or two of the following subjects: psychology, philosophy, Greek, Latin, French, German, history, political science, economics, law, or sociology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in English 10 and Rhetoric 1-2.

A. ENGLISH LANGUAGE AND LITERATURE

Courses for Undergraduates

Engl. 10a. An Introduction to Literature.—Forms of poetry, mainly narrative. *Prerequisite:* The minimum entrance requirement in English. (Credit is not given for Engl. 10a in addition to 20a and 20b).

Credits	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	204a L.H.	KELSO
[1]Seniors will receive	A2	8	MWF	311 U.H.	GOLDMAN
only 2 hours credit.	B1	9	MWF	113 L.H.	FINNEY
	B2	9	MWF	204a L.H.	RINAKER
	B3	9	MWF	219 L.H.	TUPPER
	C1	10	MWF	104 L.H.	SECORD
	C2	10	MWF	235 L.H.	RINAKER
	C3	10	MWF	204a L.H.	RAPP
	D1	11	MWF	238 L.H.	LANDIS
	D2	11	MWF	213 U.H.	BUSEY
	E1	1	MWF	120 L.H.	WEIRICK
	F1	2	MWF	105 L.H.	PARRY

Engl. 10b. An Introduction to Literature.—Forms of poetry, mainly lyrical. (Credit is not given for Engl. 10b in addition to 20a and 20b). *Prerequisite:* Engl. 10a.

3[1]	A1	8	MWF	104 L.H.	SECORD
[1]Seniors will receive	B	9	MWF	204 U.H.	TEMPLEMAN
only 2 hours credit.	C	10	MWF	123 L.H.	ZEITLIN
	E	1	MWF	318 U.H.	

Engl. 12. American Literature.—*Prerequisite:* Sophomore standing, or exemption from Rhetoric 2.

2	A	1	TT	103 New Agr.	PAUL
	B	3	TT	103 New Agr.	PAUL

Engl. 20a. Chief English Writers of the Nineteenth Century.—Intended for students in professional and technical courses such as law, medicine, commerce, engineering, etc. *Prerequisite:* One year of college work. (Credit is not given for Engl. 20a in addition to Engl. 10a and 10b.)

4	A1	8	MTWT	203 U.H.	TEMPLEMAN
	A2	8	MTWT	302 U.H.	GLENN
	B1	9	MTWT	203 U.H.	JEFFERSON
	C1	10	MTWT	311 U.H.	TRELEASE
	C2	10	MTWT	340 L.H.	KELSO
	D1	11	MTWT	203a L.H.	WEIRICK
	D2	11	MTWT	219 L.H.	TUPPER
	E1	1	MTWT	207 U.H.	FRENCH

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Engl. 21. Literary Study of the Bible.—*Prerequisite:* Six hours of English literature. (3). 11 MWF; 103 New Agr. Professor E. C. BALDWIN.

Engl. 23. Introduction to Shakespeare.—*Prerequisite:* Sophomore standing, or exemption from Rhetoric 2.

Credits	Section	Hours	Days	Room	Instructor
3	B	9	MWF	109 L.H.	LANDIS
	F	2	MWF	109 L.H.	HILLEBRAND

Engl. 42. The Teaching of English Composition.—*Prerequisite:* Nine hours of composition. (2). 2 TT; 204 L.H. Professor PAUL.

Engl. 45. The Development of the Modern Drama.—*Prerequisite:* Junior standing. (3). 3 MWF; 109 L.H. Professor HILLEBRAND.

Engl. 56. Tennyson.—Intensive study of the principal poems of Tennyson and his contemporaries.—*Prerequisite:* Junior standing. (3). 10 MWF; 303 L.H. Professor GRAHAM.

Engl. 60a. Thesis.—(2). (Primarily for candidates for honors.) Arrange. Professor GRAHAM, Dr. TUPPER, and others.

Courses for Advanced Undergraduates and Graduates

Prerequisite: Junior standing except as otherwise specified.

Engl. 8. Old English (Anglo-Saxon).—*Prerequisite:* Ten hours of English literature, or consent of instructor. (3). 11 MWF; 206 L.H. Professor FLOM.

Engl. 25. Chaucer.—(3). 9 MWF; 114 L.H. Professor JONES.

Engl. 26. Spenser.—(3). 10 MWF; 114 L.H. Professor JONES.

Engl. 29. English Literature from 1557 to 1688, exclusive of the Drama.—(3). 9 MWF; 240 L.H. Professor E. C. BALDWIN.

Engl. 33. English Literature from 1789 to 1837.—(3). 9 MWF; 203 L.H. Professor ZEITLIN.

Engl. 34. Dr. Johnson and His Circle.—(3). 2 MWF; 123 L.H. Assistant Professor RINAKER.

Engl. 35. The English Drama (Previous to Shakespeare).—(3). 11 MWF; 204a L.H. Professor T. W. BALDWIN.

Engl. 39. Introduction to the Literature of the Middle Ages.—(3). 1 MWF; 104 L.H. Professor PARRY.

Engl. 54a. Introduction to Comparative Literature.—Introductory and comparative survey of the greatest Greek, Latin, Italian, Spanish, French, German, and English authors.

3	Lect.	10	WF	203 L.H.	OLDFATHER, VAN HORNE, HAMILTON
	A Disc.	10	M	211 L.H.	LANDIS
	B Disc.	10	M	308 L.H.	VAN HORNE
	C Disc.	10	M	227 L.H.	PARRY

Engl. 55a. Survey of English Literature.—*Prerequisite:* Senior standing.

3	B	9	MWF	110 L.H.	PARRY
	D	11	MWF	139 L.H.	FINNEY

Engl. 57. Great Foreign Novelists in Relation to the English Novel.—Goethe, Hugo, Manzoni, Balzac, Dumas, Flaubert, Zola, Turgenev, Dostoevski, Tolstoi. (3). 11 MW; 303 L.H. Professor BERNBAUM.

Courses for Graduates

Engl. 101. Research in Special Topics.—(1 to 2 units).* Professors GRAHAM, BERNBAUM, FLOM, PAUL, ZEITLIN, E. C. BALDWIN, T. W. BALDWIN, JONES, HILLEBRAND, JEFFERSON; Associate Professors SANDFORD, PARRY, FLETCHER; Assistant Professors RINAKER, SECORD, FINNEY.

Engl. 110. Old English (Anglo-Saxon) Poetry.—(1 unit). To be arranged; 209 L.H. Professor FLOM.

Engl. 128. Literature of the Sixteenth Century.—(1 unit). 10 TT; 104 L.H. Professor JONES.

Engl. 130. Tragedy.—(1 unit). 1 TT; 204a L.H. Professor HILLEBRAND.

Engl. 135. Problems in American Literature.—American essayists. (1 unit). 8 TT; 113 L.H Professor PAUL.

Engl. 137. Prose Writers of the Nineteenth Century.—(1 unit). 11 TT; 139 L.H. Professor ZEITLIN.

Engl. 138. The Romantic Movement.—(1 unit). 2 TT; 303a L.H. Professor BERNBAUM.

Engl. 140. Investigations in Modern English Literature.—(1 to 3 units).* Three hours once a week. To be arranged; 220 L.H. Professor BERNBAUM.

Engl. 141. Literature of the Seventeenth Century.—(1 unit). 3 TT; 302 L.H. Professor E. C. BALDWIN.

Engl. 143. Seminar in the History and Theory of Prose Fiction.—(1 unit). Two hours a week. Arrange; 220 L.H. Professor BERNBAUM.

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Engl. 145. Studies in Eighteenth Century Literature.—(1 unit). 2 MW; 113 L.H. Professor GRAHAM.

Engl. 147. Shakespeare and Elizabethan Drama.—(1 unit). 10 MW; 303a L.H. Professor T. W. BALDWIN.

Engl. 149. The Development of Tudor Drama.—(1 unit). Arrange. Professor T. W. BALDWIN.

B. RHETORIC

Courses for Undergraduates

Rhet. 1. Rhetoric and Composition.—*Prerequisite:* The minimum entrance requirements in English. Frequent individual conferences, to be arranged.

Credits	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	404 U.H.	MOOD
	A2	8	MWF	321 L.H.	GETTMANN
[1]Seniors will receive only 2 hours credit.	A3	8	MWF	413 U.H.	DAVIDSON
	A4	8	MWF	204 U.H.	HURLEY
	A5	8	MWF	407 U.H.	BLAIR
	A6	8	MWF	212 U.H.	CHARLES
	A7	8	MWF	203a L.H.	
	[2]A8	8	MWF	403 U.H.	RIEBEL
[2]Special sections.	[2]A9	8	MWF	207 U.H.	GRISWOLD
	B1	9	MWF	207 U.H.	GLENN
	B2	9	MWF	315 U.H.	STUTZMAN
	B3	9	MWF	326 L.H.	PETERSON
	B4	9	MWF	213 U.H.	FRENCH
	B5	9	MWF	302 U.H.	TRELEASE
	B6	9	MWF	412 U.H.	GRISWOLD
	[2]B7	9	MWF	407 U.H.	MOOD
	[2]B8	9	MWF	406 U.H.	CHARLES
	C1	10	MWF	203 U.H.	GETTMANN
	C2	10	MWF	213 U.H.	DAVIDSON
	C3	10	MWF	211 U.H.	FRENCH
	C4	10	MWF	403 U.H.	KELLEY
	C5	10	MWF	412 U.H.	JEFFERSON
	C6	10	MWF	413 U.H.	BRAWNER
	[2]C7	10	MWF	109 L.H.	STUTZMAN
	[2]C8	10	MWF	302 U.H.	PETERSON
	D1	11	MWF	311 U.H.	HARRIS
	D2	11	MWF	318 U.H.	SECORD
	D3	11	MWF	413 U.H.	GOLDMAN
	D4	11	MWF	406 U.H.	
	D5	11	MWF	235 L.H.	RAPP
	D6	11	MWF	411 U.H.	PETERSON
	[2]D7	11	MWF	412 U.H.	TEMPLEMAN
	[2]D8	11	MWF	212 U.H.	GETTMANN
	E1	1	MWF	123 L.H.	SANDIN
	E2	1	MWF	213 U.H.	FISHER
	E3	1	MWF	204 U.H.	HAMILTON
	E4	1	MWF	302 U.H.	BLOOM
	E5	1	MWF	407 U.H.	
	[2]E6	1	MWF	406 U.H.	NOBLE
	[2]E7	1	MWF	203 U.H.	DOLK
	F1	2	MWF	204 U.H.	ROBERTS
	F2	2	MWF	213 U.H.	NOBLE
	F3	2	MWF	203 U.H.	DOLK
	F4	2	MWF	412 U.H.	
	F5	2	MWF	404 U.H.	
	[2]F6	2	MWF	104 L.H.	FISHER
	[2]F7	2	MWF	411 U.H.	WHEELER
	G1	3	MWF	406 U.H.	SWENEY
	G2	3	MWF	311 U.H.	WHEELER
	G3	3	MWF	403 U.H.	
	G4	3	MWF	212 U.H.	HASKELL
	[2]G5	3	MWF	404 U.H.	SANDIN
	[2]G6	3	MWF	203a L.H.	BLOOM
	H1	4	MWF	204 U.H.	BLOOM
	H2	4	MWF	404 U.H.	WHEELER
	[2]H3	4	MWF	311 U.H.	RIEBEL
	K1	8	TTS	202 U.H.	JOHNSON
	[2]K2	8	TTS	315 U.H.	ORLOVICH
	L1	9	TTS	315 U.H.	JOHNSON
	L2	9	TTS	211 L.H.	GRESS
	M1	10	TTS	413 U.H.	ORLOVICH
	[2]M2	10	TTS	213 U.H.	OSENBURG
	N1	11	TTS	207 U.H.	FIELDER
	N2	11	TTS	212 U.H.	OSENBURG

Rhet. 2. Rhetoric and Composition.—Frequent individual conferences, to be arranged. *Prerequisite:* Rhet. 1.

Credits	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	213 U.H.	Brawner
[1]Seniors will receive only 2 hours credit.	A2	8	MWF	315 U.H.	Harris
	A3	8	MWF	310 U.H.	Washburn
	B1	9	MWF	411 U.H.	Kelley
	B2	9	MWF	211 U.H.	Harris
	B3	9	MWF	123 L.H.	Martin
	C1	10	MWF	212 U.H.	Blair
	C2	10	MWF	207 U.H.	Hurley
	D1	11	MWF	123 L.H.	Davidson
	D2	11	MWF	203 U.H.	Brawner
	E1	1	MWF	312 U.H.	Haskell
	E2	1	MWF	208 U.H.	Roberts
	F	2	MWF	203 L.H.	Hamilton
	G	3	MWF	204 U.H.	Roberts
	K	8	TTS	207 U.H.	Gress
	M	10	TTS	404 U.H.	Fielder

Rhet. 3. Exposition.—Individual conferences, to be arranged. *Prerequisite:* Rhet. 1 and 2.

3	B	9	MWF	104 L.H.	Goldman
	D	11	MWF	104 L.H.	Kelso
	G	3	MWF	104 L.H.	Landis

Rhet. 4. Narration and Description.—Elements of narrative writing. Individual conferences, to be arranged. (Not a course in short-story writing.) *Prerequisite:* Rhet. 1 and 2.

3	B	9	MWF	304 L.H.	Rapp
	C	10	MWF	232 L.H.	Finney
	D	11	MWF	407 U.H.	Trelease
	F	2	MWF	407 U.H.	Busey

Rhet. 6. Advanced Narrative Composition.—*Prerequisite:* Two years of college work and consent of instructor. (3). 3 MWF; 204a L.H. Assistant Professor Weirick.

Rhet. 10. Business Letter Writing.—Individual conferences, to be arranged. *Prerequisite:* Rhet. 1 and 2.

2	A1 LAS, Agr., Ed.	8	MW	113 L.H.	Coleman
	B1 Com.	9	TT	328 Com.	Coleman
	B2 LAS, Agr., Ed.	9	MW	206 L.H.	Anderson
	C1 Com.	10	MW	224 Com.	Anderson
	C2 Com.	10	TT	222 Com.	Lang
	C3 LAS, Agr., Ed.	10	TT	204 U.H.	
	D1 Com.	11	TT	224 Com.	Anderson
	D2 Eng.	11	TT	203 U.H.	Coleman
	E1 LAS, Agr., Ed.	1	MW	211 U.H.	Coleman
	E2 Com.	1	MW	305 Com.	Saunders
	F1 Com.	2	MW	305 Com.	Saunders
	F2 LAS, Agr., Ed.	2	TT	211 U.H.	
	F3 Com.	2	TT	305 Com.	Saunders
	F4 Eng.	2	TT	204 U.H.	Lang

Rhet. 17. Advanced Composition.—Theory and practice. (Open to a limited number of students and only on recommendation). (3). *Prerequisite:* Junior standing. 10 MWF; 302 L.H. Dr. Tupper.

Rhet. 21. Advanced Business Writing.—Sales letter campaigns and advertising copy. *Prerequisite:* Grade of "A" or "B" in Rhet. 10. (2). 11 TT; 305 Com. Associate Professor Saunders.

Rhet. 22. Special Types of Business Writing.—Business reports and articles for business magazines. *Prerequisite:* Rhet. 10. (2). 10 TT; 224 Com. Assistant Professor Anderson.

C. SPEECH

Courses for Undergraduates

Speech 1. Principles of Effective Speaking.—*Prerequisite:* Rhet. 1 and 2.

3	A1	8	MWF	136 L.H.	Huston
	A2	8	MWF	142 L.H.	Sandford
	B1	9	MWF	136 L.H.	Huston
	B2	9	MWF	202 Entom.	
	C1	10	MWF	136 L.H.	Nelson
	C2	10	MWF	202 Entom.	Henderson
	D1	11	MWF	136 L.H.	Nelson
	D2	11	MWF	202 Entom.	Henderson
	E1	1	MWF	136 L.H.	Swanson
	E2	1	MWF	202 Entom.	Huston
	F1	2	MWF	136 L.H.	Waltz
	G1	3	MWF	136 L.H.	Henderson

Speech 2. Business and Professional Speaking.—*Prerequisite:* Speech 1.

Credits	Section	Hours	Days	Room	Instructor
2	K	9	TT	142 L.H.	SANDFORD
	L	10	TT	142 L.H.	WALTZ
	N	1	TT	142 L.H.	HUSTON

Speech 3. Elements of Debating.—*Prerequisite:* Speech 1.

3	C	10	MWF	142 L.H.	WALTZ
	E	1	MWF	142 L.H.	WALTZ

Speech 10. Oral Interpretation of Literature.—*Prerequisite:* Speech 1.

2	K	9	TT	136 L.H.	HENDERSON
	L	10	TT	136 L.H.	NELSON
	N	1	TT	136 L.H.	NELSON

Courses for Advanced Undergraduates

Speech 4. Advanced Debating.—*Prerequisite:* Speech 3 and junior standing. (3). 9 MWF; 142 L.H. Associate Professor SANDFORD.

Speech 6. Persuasion and the Forms of Public Address.—*Prerequisite:* Speech 2 and junior standing. (3). 11 MWF; 142 L.H. Associate Professor SANDFORD.

Speech 8. Dramatization.—*Prerequisite:* Speech 9 or 10, and junior standing. (3). 2 MWF; L.H. Theatre. Mr. SWANSON.

Speech 9. The Acting of Shakespearean Plays.—*Prerequisite:* Speech 10 and junior standing. (2). 1 TT; L.H. Theatre. Miss NELSON.

Speech 16. Advanced Study of Acting.—*Prerequisite:* Speech 11 and junior standing. (2). 11 TT; L.H. Theatre. Mr. Swanson.

D. SCANDINAVIAN LANGUAGES AND LITERATURE

Courses for Undergraduates

Scand. 11. Swedish Literature.—Study of the chief writers from 1800 to 1925, read in English translation. *Prerequisite:* Sophomore standing. 10 TT; 114 L.H. Mr. JOHNSON.

Scand. 12. Norse Mythology.—Primitive religion; religions in the North in Pre-Christian times; interpretation of the principal myths; beginnings of literature. *Prerequisite:* Junior standing. 9 TT; 304 L.H. Professor FLOM.

Scand. 22a. Elementary Swedish.—*Note:* No credit is given for 22a without 22b. To be arranged; 201 U.H. Mr. JOHNSON.

Courses for Graduates

Scand. 110. Advanced Old Norse (Old Norse Poetry).—(1 unit). To be arranged; 209 L.H. Professor FLOM.

Scand. 150. Research.—(1 unit). To be arranged; 209 L.H. Professor FLOM.

ENTOMOLOGY

Note: Certain courses in this department require laboratory fees varying from $1.50 to $5.

Major: 20 hours exclusive of Entomology 1, 2, 31. At least five hours must be offered from the advanced group.

Minors: 20 hours in not more than two of the following, with not less than eight hours in either department, if two subjects are chosen: zoology, botany, chemistry, physiology, horticulture, and agronomy.

Entomology 1 is open to freshmen, without prerequisite. It is prerequisite to all other courses in the department except 2, 31, and 32, and may be followed by any of the other courses for undergraduates or by 6, 10, 20, or 21 in the senior year. Agricultural students and others desiring strictly practical work may take 1, 8, and 20 in sequence. Students majoring in entomology should take as many of the courses offered as possible, including some work in classification, morphology, and control, and should consult the head of the department. Seniors receive reduced credit in Entomology 1.

Courses for Undergraduates

Entom. 1. Destructive and Useful Insects.—Two discussion periods and four hours laboratory a week.

3[1]	A	8–10	MWF	309 Entom.	HAYES, MILUM
[1]Seniors will receive only 2 hours credit.	B	10–12	MWF	309 Entom.	METCALF, BALDUF, KEARNS
	C	1–3	MWF	309 Entom.	METCALF, MILUM, KEARNS

Entom. 2. Insects: Their Ways and Their Relations to Man.—A non-technical, cultural course of illustrated lectures. *Prerequisite:* 30 hours of university work. (Not open to students who have taken Entom. 1.)

Credits	Section	Hours	Days	Room	Instructor
2	A	11	TT	202 Entom.	BALDUF and others
	B	2	TT	202 Entom.	

Entom. 3a. Classification of Insects: Orders with gradual metamorphosis and principles of systematic entomology.—*Prerequisite:* Entom. 1, and 30 hours of university work. (5). Lab., 8-10 MWF; lect. to be arranged; 310 Entom. Assistant Professor BALDUF.

Entom. 8a. Economic Entomology.—*Prerequisite:* Entom. 1, and 30 hours of university work. (3 or 5).* (For 5 hours credit additional work on an insect collection is assigned). 8-11 TT; 312 Entom. Associate Professor HAYES.

Entom. 31. Essentials of Beekeeping.—*Prerequisite:* 30 hours of university work. (1 or 2).* Lect. 4 Tu; for 2 hours credit include lab. 3-5 Th; 104 Vivarium. Assistant Professor MILUM.

Courses for Advanced Undergraduates and Graduates

Entom. 6. Special Problems.—*Prerequisite:* Any of the following: Entom. 3, 7, 8, 10, 20, 21, 22, or 31; senior standing. (2 to 5).* Saturday morning; additional hours to be arranged. Members of the department.

Entom. 10a. Morphology of Immature Insects.—*Prerequisite:* Entom. 7a and senior standing. (3). 10-12 MWF; 310 Entom. Associate Professor HAYES.

Entom. 20. Insect Control.—*Prerequisite:* Entom. 1 and senior standing. (4). 1-4 TT; 109 Entom. Professor METCALF.

Courses for Graduates

Note: The prerequisite for graduate work in entomology is two years of undergraduate biology, including zoology and entomology.

Entom. 100. Research.—(½ to 4 units).* Time to be arranged.

(a) **Morphology and Embryology of Insects.**—Associate Professor HAYES.
(b) **Economic Entomology.**—Professor METCALF.
(c) **Systematic Entomology.**—Professor METCALF, Assistant Professor BALDUF.
(d) **Biology and Ecology of Insects.**—Professor METCALF.

GAS ENGINEERING

Courses for Undergraduates

Gas E. 41. Design.—*Prerequisite:* Senior standing in Gas Engineering. (3). 9, 1-4 Th, 1-4 F; 207 T.B. Assistant Professor MITCHELL.

Gas E. 51. Manufacture of Gas.—*Prerequisite:* Senior standing in Gas Engineering. (2). Arrange. 206 T.B. Professor CALLEN, Assistant Professor MITCHELL.

Gas E. 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

GENERAL ENGINEERING DRAWING

Note: All courses in this department require laboratory fees of $1.50.

Courses for Undergraduates

G.E.D. 1. Elements of Drawing.—*Prerequisite:* Plane Geometry.

4	A	8-11	MF	To be assigned at registration
		8-10	W	
	B	1-4	MF	
		1-3	W	
	C	8-11	TT	
		8-10	S	
	D	1-4	TT	
		10-12	S	

G.E.D. 2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry.

4	B	1-4	MF	To be assigned at registration
		1-3	W	
	C	8-11	TT	
		8-10	S	
	D	1-4	TT	
		10-12	S	

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

G.E.D. 4. **Advanced Drawing.**—*Prerequisite:* Three years of work in the better high schools or equivalent in commercial practice necessary basis for consideration. (To be determined by the department at registration time.)

Credits	Section	Hours	Days	Room	Instructor
4	B	1–4	MF	303 T.B.	
		1–3	W	303 T.B.	
	C	8–11	TT	303 T.B.	
		8–10	S	303 T.B.	

G.E.D. 6. **Elements of Drawing.**—*Prerequisite:* Plane geometry. (For students in chemical engineering).

3	B	1–4	WF	316 T.B.	WALKER
	D	1–4	TT	316 T.B.	JORGENSEN

G.E.D. 7. **Architectural Projections.**—*Prerequisite:* Plane and solid geometry.

2	A	8–11	MF	103 T.B.
	B	2–5	MF	103 T.B.
	D	2–5	TT	103 T.B.

G.E.D. 10. **Pictorial Drawing.**—*Prerequisite:* G.E.D. 2. (Required of students in the City Planning Option in Civil Engineering; and "approved elective" in all other curricula of the College of Engineering).

4	C	8–11	TT	316 T.B.	LENDRUM
		8–10	S		

GEOLOGY

(Including Geography)

Note: Certain courses in this department require a laboratory fee varying from $1 to $2.50.

A. GEOLOGY

Major: 20 hours in geology, exclusive of Geol. 1, 43, and 44, and inclusive of at least 5 hours of courses not open to freshmen or sophomores.

Minors: 20 hours of courses in one or two of the following departments: astronomy, botany, chemistry, economics, geography, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology. At least eight hours must be offered in each subject, if two are chosen.

Note: Certain geology courses are offered only in alternate years: 4, 15, 16, 17, 24, 38, 95, 96, 122, 125, 142, 143, 151, 160, 161, 163.

Students desiring training which leads to executive positions with companies engaged in the development of various mineral industries should select appropriate courses in geology and also: Accountancy 1a, 1b; Economics 2, 3, and 35; B.O.O. 11; and Business Law 1a, 1b. A minimum of one year's work after graduation should be included in the student's program.

Courses for Undergraduates

Geol. 1. **General Geology.**—Cultural Course. Lectures; one or two field trips.

3[1]	A	9	MWF	247 N.H.	DEWOLF, SUTTON,
[1]Seniors receive only 2	B	10	MWF	247 N.H.	SAVAGE
hours credit; students	C	11	MWF	247 N.H.	DEWOLF and
who have credit for Geog. 1 receive only 1 hour credit for Geol. 1.					SUTTON

Geol. 1a. **General Geology Laboratory.**—*Prerequisite:* Geol. 1 or concurrent registration in it. (Not open to students who received credit for Geol. 1 prior to September, 1932.)

2	Lab. 1	8–10	TT	251 N.H.	WANLESS
	Lab. 2	10–12	TT	251 N.H.	SAVAGE
	Lab. 3	1–3	TT	251 N.H.	SUTTON
	Lab. 4	10–12	WF	251 N.H.	QUIRKE

Geol. 2a. **Historical Geology.**—*Prerequisite:* Geol. 1.

4[1]		10	TWTF	241 N.H.	SUTTON

[1]Seniors receive only 3 hours credit.

Geol. 9. **Invertebrate Paleontology.**—*Prerequisite:* Geol. 2a and junior standing, except by special permission. (3). 8 MWF; 236 N.H. Laboratory hours to be arranged. Professor SAVAGE.

Geol. 20. **General Mineralogy.**—*Prerequisite:* One semester of chemistry. (3). 10-12 TTS; 147 N.H. Professor QUIRKE.

Geol. 43. **Engineering Geology.**—*Prerequisite:* Sophomore standing in the College of Engineering. (3). Lect. and quiz, 11 TT, 9 S; 241 N.H. Lab., 10-12 S; 251 N.H. Associate Professor HOWARD.

Geol. 44. **Agricultural Geology.**—*Prerequisite:* Sophomore standing in the College of Agriculture.

3	Lect.	1	MW	247 N.H.	WANLESS
	A Quiz	10	Tu	247 N.H.	WANLESS
	B Quiz	1	F	247 N.H.	WANLESS
	Lab. 1	1–3	Th	147 N.H.	WANLESS
	Lab. 2	10–12	F	147 N.H.	WANLESS

Courses for Advanced Undergraduates and Graduates

Geol. 38. Regional Geology of the United States.—*Prerequisite:* Geol. 2a. (3). 3 MWF; 134 N.H. Associate Professor HOWARD.

Geol. 60a. Introduction to Research.—Limited to seniors majoring in geology. (2). Members of the department.

Geol. 95. Economic Geology.—*Prerequisite:* Geol. 2a, or 43, and 20 or 48 or 49. (3). 1 MWF; 150 N.H. Professor DEWOLF.

Courses for Graduates

Geol. 102. Igneous Petrography.—(1 unit). Twice a week. Hours to be arranged. 253 N.H. Professor QUIRKE.

Geol. 134. Advanced Studies in Geology.—(½ to 2 units).* Hours to be arranged. Members of the department.

Geol. 135. Research.—(½ to 4 units).* Once a week. Hours to be arranged. Members of the department.

Geol. 143. Stratigraphic Paleontology: Mesozoic and Cenozoic.—(1 unit). Hours to be arranged. 134 N.H. Assistant Professor SUTTON.

Geol. 161. Applied Petroleum Geology.—(1 unit). Three times a week. Hours to be arranged. Associate Professor HOWARD.

B. GEOGRAPHY

Major: 20 hours of courses in geography, exclusive of Geography 1, and including at least 5 hours of courses not open to freshmen.

Minors: 20 hours selected from not more than two of the following named departments: botany, economics, education, geology, history, and zoology. At least eight hours must be offered in each subject, if two are chosen.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, or 10 or 11, or 12 or 8 or 53.

Note: Certain geography courses are offered only in alternate years: 6, 9, 10, 14a.

Courses for Undergraduates

Geog. 1. Elements of Geography.—Lectures and discussions; two or three field trips.

Credits	Section	Hours	Days	Room	Instructor
5[1]	A	8	MTWTF	435 N.H.	BURGY
[1]Seniors receive only 4 hours credit; students who have credit for Geol. 1 receive only 3 credits for Geog. 1.	B	9	MTWTF	435 N.H.	BURGY
	C	10	MTWTF	435 N.H.	PAGE
	D	11	MTWTF	435 N.H.	POGGI
	E	1	MTWTF	435 N.H.	PAGE

Geog. 2. Economic Geography.—*Prerequisite:* Geog. 1. Lectures and discussion.

5[1]	A	8	MTWTF	434 N.H.	BLANCHARD
[1]Seniors will receive only 4 hours credit.	B	9	MTWTF	434 N.H.	POGGI

Geog. 4. Geography of North America.—*Prerequisite:* Geog. 2. (3). 2 MWF; 435 N.H. Dr. BURGY.

Geog. 14. Weather and Climate.—*Prerequisite:* Geog. 1. (3). 9 MWF; 422 N.H. Assistant Professor PAGE.

Courses for Advanced Undergraduates and Graduates

Geog. 8. Geography of Europe.—*Prerequisite:* Geog. 2 and senior standing. (3). 1 MWF; 422 N.H. Professor BLANCHARD.

Geog. 53a. Production of the Great World Staples.—*Prerequisite:* Geog. 2, one regional course, and senior standing. (3). 10 MWF; 422 N.H. Professor BLANCHARD.

Geog. 60a. Introduction to Research.—Limited to seniors majoring in Geography. (2). Arrange. Dr. POGGI.

Course for Graduates

Geog. 135. See Geology 135.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

GERMAN

Major: 20 hours in German, excluding courses 1 and 2, and including 6 hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list, with not less than eight hours in each subject: Education, English (excluding Rhetoric 1 and 2), French (excluding French 1a), Greek, History, Italian, Latin, Philosophy, Spanish (excluding Spanish 1a).

Elementary and Intermediate Courses

German 1. Elementary Course.—

Credits	Section	Hours	Days	Room	Instructor
4[1]	A1	8	MTWT	224 L.H.	Bald
[1]Seniors will receive only 3 hours credit.	A2	8	MTWT	205 L.H.	Ittner
	A3	8	MTWT	206 L.H.	Krauss
	B1	9	MTWT	205 L.H.	Brooks
	B2	9	MTWT	302 L.H.	Jehle
	C1	10	MTWT	233 L.H.	Robinson
	C2	10	MTWT	206 L.H.	Ittner
	D1	11	MTWT	204 U.H.	Genschmer
	D2	11	MTWT	211 U.H.	Memming
	E	1	MTWT	224 L.H.	Bald
	F	2	MTWT	205 L.H.	Jehle
	G	3	MTWT	206 L.H.	Moore
	H	4	MTWT	205 L.H.	Moore

German 2. Elementary Course (continued).—*Prerequisite:* German 1 or one year of high school German.

4[1]	A	8	MTWT	233 L.H.	Moore
[1]Seniors will receive only 3 hours credit.	B	10	MTWT	238 L.H.	Koller
	C	1	MTWT	205 L.H.	Robinson
	D	4	MTWT	206 L.H.	Krauss

German 4. Intermediate Course.—*Prerequisite:* German 2 or two years of high school German, or equivalent.

4	A1	8	MTWT	232 L.H.	Robinson
	A2	8	MTWT	219 L.H.	Williams
	B	9	MTWT	227 L.H.	Geissendoerfer
	C	10	MTWT	214 U.H.	Genschmer
	D	11	MTWT	211 L.H.	Williams
	E	1	MTWT	206 L.H.	Moore
	F	3	MTWT	205 L.H.	Jehle
	G	4	MTWT	204a L.H.	Koller

German 5. Intermediate Course (continued).—Literary reading. *Prerequisite:* German 4, or three years of high school German, or equivalent.

4	A	8	MTWT	114 L.H.	Geissendoerfer
	B	10	MTWT	205 L.H.	Jehle
	C	3	MTWT	203 U.H.	Koller

Courses for Advanced Undergraduates

German 14. Introductory Schiller Course.—*Prerequisite:* German 5 or equivalent. (3). 11 MWF; 205 L.H. Professor Aron.

German 16a. Conversation and Writing.—*Prerequisite:* German 5 or equivalent. (2). 2 TT; 203 U.H. Assistant Professor Koller.

German 24a. Nineteenth Century Drama.—*Prerequisite:* German 5 or equivalent. (2). 3 TT; 204a L.H. Assistant Professor Geissendoerfer.

German 28a. Lyrics and Ballads.—*Prerequisite:* German 5 or equivalent, and sophomore standing. (2). 9 TT; 204a L.H. Associate Professor Williams.

German 29a. Advanced Conversation and Writing.—*Prerequisite:* German 16b or equivalent. (2). 2 TT; 211 L.H. Assistant Professor Geissendoerfer.

German 30a. Senior Thesis and Honors Course.—*Prerequisite:* Senior standing; three years of college German or equivalent. (2). Arrange. Professor Aron and others.

Courses for Advanced Undergraduates and Graduates

German 19a. Goethe's Faust 1.—*Prerequisite:* Three years of college German or equivalent. (2). 11 TT; 425 Lib. Professor Brooks.

German 26a. German Literature to 1800.—*Prerequisite:* Three years of college German or equivalent. (3). 9 MWF; 233 L.H. Professor ARON.

German 31. Middle High German.—*Prerequisite:* Senior or graduate standing; three years of college German or equivalent. (2). Arrange. Associate Professor WILLIAMS.

German 54. Introduction to Comparative Literature.—See English 54.

Courses for Graduates

German 101. Seminar in the Modern German Drama.—(1 unit). Twice a week. Arrange. Professor ARON.

German 102. Thesis.—(½ to 2 units).* Arrange. Professors ARON, BROOKS; Associate Professor WILLIAMS; Assistant Professor GEISSENDOERFER.

German 103. Introduction to the Historical Study of the Germanic Languages.—(1 unit). Twice a week. Arrange. Associate Professor WILLIAMS.

German 113. German Literature of the Fifteenth and Sixteenth Centuries.—(1 unit). Twice a week. Arrange. Professor BROOKS.

HISTORY

Major: 20 hours, including (a) ten hours in courses having junior standing as a prerequisite, and (b) any other courses offered by the department (except courses taken in the freshman year).

Minors: 20 hours selected from one or two of the following subjects: economics, political science, geography, philosophy, law, sociology, and English and American literature (except such courses as are taken in the freshman year). Courses in one modern language (except such as are primarily designed for freshmen) will be accepted as one of two minor subjects.

Note: Seniors receive reduced credit in History 1 and 2.

Courses for Undergraduates

Hist. 1a. Continental European History.—

Credits	Section	Hours	Days	Room	Instructor
4[1]	[2]Lect. 1	10	TT	Morrow Hall	JONES
[1]Seniors will receive only 3 hours credit.	A Disc.	8	WF	335 L.H.	KING
	B Disc.	9	WF	334 L.H.	SHAY
	C Disc.	10	WF	335 L.H.	JONES
[2]Students in Lecture 1 must elect a discussion in the A-F group.	D Disc.	10	WF	211 L.H.	SHAY
	E Disc.	10	WF	308 L.H.	KING
	F Disc.	1	WF	305 L.H.	JONES
Students in Lecture 2 must elect a discussion in the G-L group.	[2]Lect. 2	2	MW	228 N.H.	RONALDS
	G Disc.	10	TT	329 L.H.	RONALDS
	H Disc.	11	TT	321 L.H.	RONALDS
	I Disc.	1	TT	305 L.H.	RONALDS
	J Disc.	2	TT	335 L.H.	
	K Disc.	2	TT	321 L.H.	SHAY
	L Disc.	3	TT	308 L.H.	RONALDS

Hist. 2a. English History.—

3[1]	Lect. 1	11	M	L.H. Theatre	DIETZ
	Lect. 2	2	M	Morrow Hall	DIETZ
[1]Seniors will receive only 2 hours credit.	A Disc.	10	WF	321 L.H.	DIETZ
	B Disc.	11	WF	321 L.H.	DIETZ
	C Disc.	11	WF	329 L.H.	SHAY
	D Disc.	11	WF	224 L.H.	
	E Disc.	11	WF	335 L.H.	
	F Disc.	11	WF	240 L.H.	
	G Disc.	1	WF	303a L.H.	ERICKSON
	H Disc.	2	WF	340 L.H.	ERICKSON
	I Disc.	2	WF	311 L.H.	
	J Disc.	2	WF	329 L.H.	SHAY
	K Disc.	2	TT	203 L.H.	ERICKSON
	L Disc.	3	TT	305 L.H.	SHAY

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hist. 3a. History of the United States to 1828.—*Prerequisite:* One year of college work.

Credits	Section	Hours	Days	Room	Instructor
3	[1]Lect. 1	8	MF	218 U.H.	WERNER
	A Disc.	8	Tu	305 L.H.	WERNER
[1]Students in Lecture 1	B Disc.	8	W	305 L.H.	WERNER
must elect a discus-	C Disc.	8	W	311 L.H.	
sion in the A-E group.	D Disc.	8	W	303a L.H.	
Students in Lecture 2	E Disc.	8	Th	305 L.H.	WERNER
must elect a discus-	[1]Lect. 2	11	WF	L.H. Theatre	DUNBAR
sion in the F-J group.	F Disc.	10	Tu	305 L.H.	DUNBAR
Students in Lecture 3	G Disc.	11	Tu	334 L.H.	DUNBAR
must elect a discus-	H Disc.	11	W	334 L.H.	DUNBAR
sion in the K-O group.	I Disc.	11	W	300 L.H.	KING
	J Disc.	11	Th	300 L.H.	DUNBAR
	[1]Lect. 3	2	MF	218 U.H.	HANSEN
	K Disc.	2	Tu	235 L.H.	HANSEN
	L Disc.	2	W	321 L.H.	HANSEN
	M Disc.	2	W	304 L.H.	KING
	N Disc.	2	W	335 L.H.	DUNBAR
	O Disc.	2	Th	311 L.H.	HANSEN

Hist. 5a. The Ancient World.—*Prerequisite:* Sophomore standing.

3	Lect.	2	MF	303 L.H.	SWAIN
	A Disc.	2	Tu	240 L.H.	
	B Disc.	2	W	240 L.H.	
	C Disc.	2	W	211 L.H.	SWAIN
	D Disc.	2	Th	240 L.H.	

Hist. 14. The American Colonies in the Seventeenth Century.—*Prerequisite:* Junior standing. (3). 11 MWF; 305 L.H. Assistant Professor WERNER.

Hist. 18. The Teaching of History.—*Prerequisite:* One year of college history and senior standing. (2). 3 TT; 303 L.H. Assistant Professor WERNER.

Hist. 22a. History of the West, 1634-1778.—*Prerequisite:* History 3a and junior standing. (2). 10 TT; 410 U.H. Professor PEASE.

Hist. 23a. The Puritan Revolution in England and America, 1603-1642.—*Prerequisite:* One year of college history. (2). 11 TT; 410 U.H. Professor PEASE.

Hist. 33a. History of Russia and Her Slavic Neighbors (to 1856).—*Prerequisite:* Junior standing and one year of college history. (3). 8 MWF; 105 L.H. Associate Professor RODKEY.

Hist. 34a. Development of Modern Europe: Absolutism and Colonial Expansion, 1648-1789.—*Prerequisite:* Junior standing and one year of college history. (3). 11 MWF; 109 L.H. Dr. ERICKSON.

Hist. 40. History of the British Empire.—*Prerequisite:* One year of college history. (2). 1 TT; 204 L.H. Dr. ERICKSON.

Hist. 41. The Middle Ages: The Formation and the Development of the European States.—*Prerequisite:* Sophomore standing. (3). 2 MWF; 302 L.H. Professor LARSON.

Hist. 45a. History of England in the Later Seventeenth and the Eighteenth Century (1688-1760).—*Prerequisite:* Junior standing and one year of college history. (2). 2 TT; 303 L.H. Assistant Professor RONALDS.

Hist. 51a. Hebrew History: Origins to 586 B.C.—*Prerequisite:* Junior standing. (2). 2 TT; 305 L.H. Associate Professor SWAIN.

Hist. 90a. Thesis: Special training in Historical Investigation.—*Prerequisite:* Senior standing. (2). Arrange. Associate Professor RODKEY.

Hist. 91a. Honors Course: Readings in Selected Fields in Consultation with the Instructor.—*Prerequisite:* Senior standing. (2). Arrange. Professor LYBYER.

Courses for Advanced Undergraduates and Graduates

(Open to seniors and juniors of high standing)

Hist. 16a. The Foundations of American Society: The Colonies in the Eighteenth Century (to 1763).—*Prerequisite:* History 3a. (3). 10 MWF; 311 L.H. Assistant Professor DUNBAR.

Hist. 17a. Social and Economic Forces in the Nineteenth Century (to 1860).—*Prerequisite:* History 3b. (3). 9 MWF; 303 L.H. Professor HANSEN.

Hist. 19a. The History of American Immigration to the Civil War.—*Prerequisite:* History 3. (2). 9 TT; 203 L.H. Professor HANSEN.

Hist. 20a. History of the Old South.—*Prerequisite:* History 3a-3b. (2). 8 TT; 335 L.H. Professor RANDALL.

Hist. 21. The Recent History of the United States (1877-1933).—*Prerequisite:* History 3b. (3). 9 TT; 303 L.H. Professor ROBERTSON.

Hist. 25. The Civil War and Reconstruction.—*Prerequisite:* History 3b. (3). 11 MWF; 204 L.H. Professor RANDALL.

Hist. 26. History of the Latin American Colonies.—*Prerequisite:* One year of college history. (3). 2 MWF; 305 L.H. Professor ROBERTSON.

Hist. 32a. Recent European History (1878-1914).—*Prerequisite:* One year of college history, economics, or political science. (3). 8 MWF; L.H. Theatre. Professor LYBYER.

Hist. 36a. History of the German People to the Close of the Seventeenth Century.—*Prerequisite:* One year of college history. (3). 9 MWF; 305 L.H. Associate Professor RODKEY.

Hist. 37a. Introduction to the History of Eastern and Southern Asia (to 1500).—*Prerequisite:* One year of college history. (3). 10 MWF; 305 L.H. Professor LYBYER.

Hist. 39a. Europe in the Renaissance (to 1500).—*Prerequisite:* One year of college history. (3). 9 MWF; 329 L.H. Professor JONES.

Hist. 44a. The Constitutional History of England.—*Prerequisite:* One year of college history or political science. (3). 3 MWF; 303 L.H. Professor LARSON.

Hist. 47a. History of England in the Later Middle Ages (1377-1485).—*Prerequisite:* One year of college history or economics. (3). 9 MWF; 335 L.H. Professor DIETZ.

Hist. 55. History of the Ancient Greek States.—*Prerequisite:* One year of college history. (3). 1 MWF; 202 L.H. Professor OLDFATHER.

Hist. 57a. Ancient Imperialism: Alexander the Great and His Successors.—*Prerequisite:* One year of college history. (3). 11 MWF; 203 L.H. Associate Professor SWAIN.

Hist. 62a. Political and Constitutional Development of the United States (to 1809).—*Prerequisite:* One year of college history or political science. (3). 10 MWF; 329 L.H. Professor RANDALL.

Courses for Graduates

Hist. 101a. Seminar in American History: Introduction to Research.—(1 unit). 4-6 Tu. Professor ROBERTSON.

Hist. 102a. Seminar in English History.—(1 unit). Arrange. Professor DIETZ.

Hist. 103. Studies in Historical Method.—(1 unit). 3 TT. Professor RANDALL.

Hist. 104a. Seminar in European History.—(1 unit). 4-6 W. Professor LYBYER.

Hist. 105. Research in Special Topics (Thesis Course).—(1 to 2 units).* Professors LARSON, LYBYER, ROBERTSON, PEASE, JONES, RANDALL, DIETZ, HANSEN; Associate Professors SWAIN, RODKEY; Assistant Professors DUNBAR, RONALDS, WERNER.

Hist. 106a. Seminar in the History of the Later Middle Ages.—(1 unit). Arrange. Professor LARSON.

Hist. 122a. The Westward Movement.—(1 unit). Two hours. 4 MTh. Professor PEASE.

Hist. 126. Spain in Europe and America, 1750-1870.—(1 unit). Arrange. Professor ROBERTSON.

Hist. 133a. Studies in the History of Europe in the Nineteenth Century, 1815-1848.—(1 unit). 9-11 S. Associate Professor RODKEY.

Hist. 138a. History of France in the First Half of the Sixteenth Century, 1515-1547.—(1 unit). Arrange. Professor JONES.

Hist. 150a. Seminar in Ancient History.—(1 unit). 3-5 M. Associate Professor SWAIN.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

HOME ECONOMICS

Note: Certain courses in this department require laboratory fees varying from $1 to $16.

College of Agriculture

Curriculum in General Home Economics. (See *Directions for Registration*, page 48.)

Curriculum in Nutrition and Dietetics. (See *Directions for Registration*, page 49.)

College of Education

Curriculum in Home Economics Education. (See *Directions for Registration*, page 55.)

Curriculum in Home Economics Education—Smith-Hughes. (See *Directions for Registration*, page 55.)

College of Liberal Arts and Sciences

Major A.—General Home Economics: 20 hours from courses offered by the department, excluding Home Economics 7 and 58, and including Home Economics 2, 5, 10, 29, 59, and two or more of the following: Home Economics 14, 20, 28, 31, 33, 35, 41, 43a or b, 48, 55, 57a or b.

Major B.—Nutrition: 20 hours excluding Home Economics 58, and including Home Economics 5, 39a and b, 41, 59, and two or more of the following: Home Economics 20, 33, 35, 45, 47.

Minor A.—20 hours chosen from one or two of the following subjects: chemistry, bacteriology. At least eight hours must be offered in each subject, if two are chosen.

Minor B.—20 hours chosen from one or two of the following subjects: economics, sociology. At least eight hours must be offered in each subject, if two are chosen.

Transfer Students: To satisfy the requirements for graduation, students transferring home economics credits from other institutions must take five hours in residence from the following: Home Economics 20, 28, 31, 33, 35, 39a, 39b, 41, 43a, 43b, 47, 48, 50, 51, 55, 57a, 57b.

Electives: In addition to the required subjects in each college, it is expected that students will choose electives in accord with their special interests, as follows:

1. Textiles, clothing and costume design: Home Economics 19, 30, 31, 42, 43a, 43b, 50, 51.
2. Institution management and hospital dietetics: Home Economics 20, 33, 35, 46, 47, 48, 55.
3. Household management: Home Economics 14, 28, 57a, 57b, and additional courses in economics.
4. House planning and furnishing: Art 11, 12; Architecture 11, 12; Home Economics 3, 43a, 43b, and additional courses in art and history.
5. Nutrition: Chemistry 24, 50a; Zoology 1; Home Economics 20, 33, 35, 39a, 39b, 41, 45.
6. Teaching of home economics: Home Economics 11, 13, 45; Education 6, 10, 25.

Courses for Undergraduates

Home Econ. 2. Home Architecture.—*Prerequisite:* Art 1a and sophomore standing. *Prerequisite or concurrent:* Art 1b.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	9	TT	117 W.B.	Foster
	Quiz	11	F	117 W.B.	Weaver
	E Conf.	1	F	300 Arch.	
	F Conf.	2	F	300 Arch.	
	G Conf.	3	F	300 Arch.	
	Q Conf.	4	Th	309 W.B.	

Home Econ. 3. Home Decoration.—*Prerequisite:* Art 1a, 1b, or the equivalent.

3	Lect.	10	S	117 W.B.	Weaver
	L Lab.	10–12	TT	309 W.B.	
	N Lab.	1–3	TT	309 W.B.	

Home Econ. 5. Dietetics.—*Prerequisite:* Chem. 33; Home Econ. 58; Physiol. 4. *Prerequisite or concurrent:* Home Econ. 59.

4	Lect.	9	M	121 W.B.	Barto
	B1 Quiz	9	W	121 W.B.	Barto
	B2 Quiz	9	F	121 W.B.	Barto
	C Lab.	10–12	MW	229 W.B.	Barto
	L Lab.	10–12	TT	229 W.B.	Barto
	P Lab.	3–5	TT	229 W.B.	Munger

Home Econ. 7. Textiles.—

3[1]	Lect.	10	M	210 W.B.	Jacobsen
	B Quiz	9	W	117 W.B.	Jacobsen
	C1 Quiz	10	W	117 W.B.	Jacobsen
	C2 Quiz	10	F	121 W.B.	Jacobsen
	D Quiz	11	F	121 W.B.	Beam
	L1 Lab.	10–12	Tu	304 W.B.	Jacobsen
	C Lab.	10–12	W	304 W.B.	Beam
	L2 Lab.	10–12	Th	304 W.B.	Jacobsen
	E Lab.	1–3	W	304 W.B.	Jacobsen
	N Lab.	1–3	Th	304 W.B.	Jacobsen

[1]Seniors will receive only 2 hours credit.

Home Econ. 10. Organization and Management of the Home.—*Prerequisite:* Econ. 1 or 2; Home Econ. 7, 59.

Credits	Section	Hours	Days	Room	Instructor
3	A Quiz	8	MWF	121 W.B.	NICKELL
	E Quiz	1	MWF	121 W.B.	NICKELL

Home Econ. 11. The Teaching of Home Economics.—*Prerequisite:* Home Econ. 59 (or 6), 29. *Prerequisite or concurrent:* Education 10; Home Econ. 5, 10, 19. One inspection trip (approximate cost $3). Required of all who wish to be recommended to teach home economics. (3). Lecture and discussion, 3 TT; 121 W.B. Miss ROBINSON.

Home Econ. 13. Home Economics in Education.—*Prerequisite or concurrent:* Home Econ. 10, 29. Recommended for all seniors in Home Economics. (3). 2 TT; 117 W.B. Miss TODD.

Home Econ. 14. Home Management House.—Conferences and laboratory work in the home management apartment and laundry. The students reside in the home management apartment four weeks during the semester. This course is required of all students expecting to meet the Smith-Hughes requirements. *Prerequisite:* Home Econ. 5, 10; consent of the instructor. (3). Conference, 4 Th, 117 W.B.; laboratory to be arranged with instructor, 317-319 W.B. Assistant Professor NICKELL.

Home Econ. 19. Costume Design.—*Prerequisite:* Art 1a, 1b, or the equivalent.

3	Lect.	1	F	210 W.B.	BARNES
	C Lab.	10–12	MW	309 W.B.	
	E Lab.	1–3	MW	309 W.B.	

Home Econ. 29. Clothing.—*Prerequisite:* Art 1a or 1b; Home Econ. 7.

4	Lect.	9	F	210 W.B.	WHITLOCK
	K Quiz	9	Th	121 W.B.	WHITLOCK
	M Quiz	11	Th	121 W.B.	WHITLOCK
	C Lab.	10–12	MW	203-5 W.B.	WHITLOCK
	L Lab.	10–12	TT	327 W.B.	BEAM
	N Lab.	1–3	TT	327 W.B.	BEAM

Home Econ. 30. Clothing.—*Prerequisite:* Art 1a, 1b; Home Econ. 29. *Prerequisite or concurrent:* Home Econ. 19.

3	Lect.	2	F	121 W.B.	WHITLOCK
	E Lab.	1–3	MW	203-5 W.B.	
	N Lab.	1–3	TT	203-5 W.B.	

Home Econ. 38. Elementary Nutrition.—*Prerequisite:* Junior standing. (Open only to students not majoring in home economics.) (2). E Lect., (for women), 2 MW, 121 W.B.; K Lect., (for men), 9 TT, 231 W.B. Assistant Professor BARTO.

Home Econ. 42. History of Costume.—(1). Lect., 3 Tu; 210 W.B. Miss BARNES.

Home Econ. 46. Quantity Cookery.—*Prerequisite:* Home Econ. 59. (3). Quiz, 4 W, 117 W.B.; Lab., 8-11 two mornings a week, to be arranged with instructor; students advised not to have eleven o'clock classes as they are required to serve at noon at least two days a week. Assistant Professor SMITH, Mrs. PRUDENT.

Home Econ. 47. Institution Management.—*Prerequisite:* Econ. 1 or 2. *Prerequisite or concurrent:* Home Econ. 46. (3). Lect. and disc., 2 MWF; 117 W.B. Assistant Professor SMITH.

Home Econ. 58. Foods.—*Prerequisite:* Chemistry 1, 5.

5	Lect.	9	MW	210 W.B.	WOODRUFF
	B1 Quiz	9	F	117 W.B.	WOODRUFF
	B2 Quiz	9	F	208 W.B.	PICKENS
	D Quiz	11	F	210 W.B.	MUNGER
	C Lab.	10–12	MWF	235 W.B.	PICKENS
	E Lab.	1–3	MWF	235 W.B.	PICKENS
	N Lab.	1–3	TT	235 W.B.	MUNGER
		10–12	S		

Home Econ. 59. Food Economics.—*Prerequisite:* Home Econ. 58.

2	Lect.	11	Th	210 W.B.	WOODRUFF
	P1 Lab.	3–5	Tu	235 W.B.	PICKENS
	G Lab.	3–5	W	229 W.B.	MUNGER

Home Econ. 60. Food Problems of Student Groups.—(A course for commissaries). Selection, buying, and managerial problems connected with the preparation and serving of food for student groups. *Prerequisite:* 30 hours of university work. (1). Lect., 4 Tu; 121 W.B. Assistant Professors SMITH, BARTO.

Courses for Advanced Undergraduates and Graduates

Home Econ. 20. Infant Nutrition.—*Prerequisite:* Home Econ. 5, senior standing. (2). Lect. and disc., 1 MW; 117 W.B. Assistant Professor OUTHOUSE.

Home Econ. 28. Organization and Management of the Home.—*Prerequisite:* Home Econ. 10. (2). Disc., 8 TT; 117 W.B. Assistant Professor NICKELL.

Home Econ. 39a. Readings in Food and Nutrition.—*Prerequisite:* Home Econ. 5, senior standing. *Prerequisite or concurrent:* Chem. 50a, or Home Econ. 20, 33, 41, or 55. (1). Seminar, 4-5:30 Th; 203-5 W.B. Associate Professor WOODRUFF, Assistant Professors OUTHOUSE and BARTO.

Home Econ. 43a. Problems in Textiles and Clothing.—*Prerequisite:* Econ. 1 or 2; Home Econ. 30 or 51. Individual problems in some cases involve prerequisites of chemistry and physics. (3). Lect., 3 Tu; 304 W.B. Lab. to be arranged. Assistant Professor JACOBSEN, Miss BARNES, Miss WHITLOCK.

Home Econ. 55. Food and Nutrition.—*Prerequisite or concurrent:* Home Econ. 5; senior standing. (5). Lect., 1 TT, 117 W.B.; Lab., 2-5 Tu, 2-4 Th, and 8-11 S; 215 W.B. Assistant Professor OUTHOUSE, Mrs. MEYER.

Home Econ. 57a. Problems in Home Management.—*Prerequisite:* Home Econ. 10; consent of instructor. (3). Arrange. Assistant Professor NICKELL.

Courses for Graduates

Home Econ. 101. Home Economics.—(1 unit). Professor WARDALL.

Home Econ. 102. Research in Nutrition.—(½ to 3 units).* Assistant Professor OUTHOUSE.

Home Econ. 103. Seminar in Nutrition.—(½ unit). Once a week. Assistant Professor OUTHOUSE.

Home Econ. 104. Research in Foods.—(½ to 3 units).* Associate Professor WOODRUFF.

Home Econ. 105. Seminar in Foods.—(½ unit). Associate Professor WOODRUFF.

HORTICULTURE

Note: Certain courses in this department require laboratory fees varying from $0.75 to $2.50.

Courses for Undergraduates

Hort. 1. Introductory Horticulture.—(No credit allowed to juniors and seniors.)

Credits	Section	Hours	Days	Room	Instructor
3	S Disc.	1	WF	111 New Agr.	KELLEY
	Lab.	1–3	M	H. F. Lab.	
	J Disc.	8	TT	127 New Agr.	MCCOLLUM
	Lab.	8–10	S	H. F. Lab.	
	A Disc.	8	WF	127 New Agr.	COLBY
	Lab.	8–10	M	H. F. Lab.	
	V Disc.	8	MW	111 New Agr.	RUTH
	Lab.	8–10	F	H. F. Lab.	

Hort. 5. Plant Propagation.—(3). 1-3 MWF; F.G. Professor DORNER.

Hort. 8a. Orcharding.—*Prerequisite:* Hort. 1. (Inspection trip requirement waived for 1933-34.) (3). Lect., 10 Th; 111 New Agr. Lab., 10-12 TuS; 106 H. F. Lab. Mr. MCMUNN.

Hort. 15b. Commercial Floricultural Crops.—*Prerequisite:* Hort. 15a. (3). 10-12 MWF; F.G. Associate Professor HALL.

Hort. 22a-g. Investigation with Thesis.—This course is continuous throughout the year; credit is not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem, and the approval of the head of the department. (5). Arrange.

(a) **Pomology.**—Professors DORSEY, RUTH, COLBY, ANDERSON; Assistant Professor KELLEY.
(c) **Olericulture.**—Professor LLOYD.
(e) **Floriculture.**—Professor DORNER, Associate Professor WEINARD.
(g) **Plant Breeding.**—Professor DORSEY.

Hort. 32a. Floral Decoration.—(For floriculture students.) (3). 8-10 TTS; F.G. Professor DORNER.

Hort. 33. Systematic Pomology.—*Prerequisite:* Junior standing. (2). 3-5 TT; H. F. Lab. Mr. MCMUNN.

Hort. 49. Systematic Vegetable Crops.—*Prerequisite:* Hort. 9. (2). 3-5 TT; 203 V.G. Professor LLOYD, Mr. WEAVER.

Hort. 53. Viticulture.—*Prerequisite:* Hort. 1. (2). 1-3 TT; H. F. Lab. Professor COLBY.

Courses for Advanced Undergraduates and Graduates

Hort. 12. Evolution of Horticultural Plants.—*Prerequisite:* Zoology 15 or Botany 20. (3). Arrange. 203 V.G. Professor DORSEY.

Hort. 43. Greenhouse Fertilizers.—*Prerequisite:* Botany 3; Agron. 28; Hort. 3 or 15a; senior standing. (3). 3 MWF; F.G. Associate Professor WEINARD.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hort. 44. Current Pomological Literature.—*Prerequisite:* Senior standing. (1). 4 W; 111 New Agr. Professor RUTH.

Hort. 46. Marketing Horticultural Products.—See Agricultural Economics 36.

Courses for Graduates

Hort. 103. Olericulture.—(1 to 2 units).* Arrange. Professor LLOYD.

Hort. 105. Marketing Fruits and Vegetables.—See Agricultural Economics 135.

Hort. 106. Olericulture Seminar.—(¼ unit). Arrange. Professor LLOYD.

Hort. 108. Pomology.—(1 to 4 units).* Arrange.

(a) **Pomological Problems.**—Professor BLAIR.
(b) **Pomology and Fruit Breeding.**—Professor DORSEY.
(c) **Pomological Physiology.**—Professor RUTH, Assistant Professor KELLEY.
(d) **Small Fruits.**—Professor COLBY.
(e) **Pomological Pathology.**—Professor ANDERSON.

Hort. 115. Floriculture.—(1 to 2 units).* Arrange.

(a) **Floricultural Problems.**—Professor DORNER.
(b) **Floricultural Physiology and Pathology.**—Associate Professor WEINARD.

Hort. 120. Pomology Seminar.—(¼ unit). Arrange. Professors DORSEY, RUTH, ANDERSON.

Hort. 125. Fruit Development.—(1 unit). Arrange. Professor DORSEY.

Hort. 130. Physiology of Fruit Production.—(1 unit). Arrange. Professor RUTH.

Hort. 135. Fruit Disease Research.—(1 unit). Arrange. Professor ANDERSON.

HYGIENE

Hygiene 2. Essentials of Hygiene and Sanitation.—Required of all undergraduate women during their first year of residence. Names beginning with the letters from A through L should register the first semester.

Credits	Section	Hours	Days	Room	Instructor
2	A1	8	WF	106 L.H.	MILLBROOK
	B1	9	TT	106 L.H.	ETHEREDGE
	C1	10	TT	106 L.H.	WHEELER
	C2	10	WF	106 L.H.	WHEELER
	F1	2	TT	106 L.H.	MILLBROOK
	G1	3	MW	106 L.H.	ETHEREDGE

Hygiene 5. Elementary Hygiene and Sanitation.—Required of all undergraduate men during their first year of residence. Students in the colleges of Agriculture and Liberal Arts and Sciences should register in the first semester. All other students should register in the second semester. Those whose schedules will not permit registration in this order will, with the proper approval, be accepted in either semester.

2	A1	8	TT	128 New Agr.	JUDAH
	A2	8	WF	128 New Agr.	JUDAH
	B1 (Agr.)	9	TT	128 New Agr.	BEARD
	B2	9	WF	128 New Agr.	BEARD
	B3	9	MW	313 New Agr.	ROSS
	B4	9	TT	127 New Agr.	GEBHART
	C1 (Eng.)	10	TT	305 Eng. Hall	CAIN
	C2	10	WF	128 New Agr.	CAIN
	C3 (Agr.)	10	MW	127 New Agr.	BLACKSTONE
	C4	10	TT	128 New Agr.	BLACKSTONE
	D1	11	TT	128 New Agr.	LEWIS
	D3	11	MW	128 New Agr.	LEWIS
	F1 (Eng.)	2	TT	305 Eng. Hall	JUDAH
	F2	2	WF	127 New Agr.	ROSS
	F3	2	MW	128 New Agr.	BEARD
	G1	3	TT	128 New Agr.	BLACKSTONE
	G2	3	WF	127 New Agr.	LEWIS
	G3 (Agr.)	3	MW	128 New Agr.	CAIN

Hygiene 10. Advanced Hygiene.—Especially suited to the needs of teachers, coaches, and social workers. *Prerequisite:* Hygiene 2 or 5.

2	F	2	MW	313 New Agr.	GEBHART

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

JOURNALISM

Note: Certain courses in this department require laboratory fees varying from $1 to $2.

Credit in journalism will be given for Rhet. 6; Engl. 45; Pol. Sci. 22, 27, 28; Law 2, 5; Hist. 21.

Courses for Undergraduates

Journ. 3. The Newspaper and the News.—A non-laboratory survey course for beginners and students outside of the School of Journalism. Not open to students with credit in Journalism 1-2, or to students registered in Journalism 5. *Prerequisite:* Freshman standing in the University. (2). 11 MW; 410 U.H. Professor MURPHY and staff.

Journ. 4. Newspaper Reference Service.—*Prerequisite:* Freshman standing in the University.

Credits	Section	Hours	Days	Room	Instructor
2	L	10	TT	318 U.H.	DICKINSON
	M	11	TT	213 U.H.	DICKINSON

Journ. 5. Reporting.—*Prerequisite:* Sophomore standing in the University. (Students register for one lecture and one laboratory section.)

3	Lect. M	11	Tu	304 Adm.(E)	LEITER
	Lab. C	10–12	MW	118 U.H.	LEITER
	Lab. E	1–3	MW	122 U.H.	LEITER
	Lect. O	2	Th	315 U.H.	LEITER
	Lab. K	9–11	TT	118 U.H.	LEITER
	Lab. P	3–5	TT	122 U.H.	LEITER

Journ. 5a. Reporting (Advertising News).—For students primarily interested in advertising and management. Counts toward the six hours required in reporting. *Prerequisite:* Sophomore standing in the University. (3). 1 MTW; 113 U.H. Professor MURPHY and Dr. DICKINSON.

Journ. 7. Sports Writing.—(For students in Physical Education.) *Prerequisite:* Sophomore standing.

3	B	9	MWF	212 U.H.	DICKINSON
	E	1	MWF	310 U.H.	SCHOOLEY

Journ. 9a. History and Practice of Printing and Publishing.—*Prerequisite:* Sophomore standing.

2 or 3[1]	Lect.	11	Th	218 U.H.	ALLEN
[1]Students registering for 3 credits should sign for two laboratory periods, making three entries on their study lists and filling out three class cards.	Lab. A1	8–10	M	126 U.H.	ALLEN
	Lab. J1	8–10	Tu	126 U.H.	ALLEN
	Lab. A2	8–10	W	126 U.H.	ALLEN
	Lab. J2	8–10	Th	126 U.H.	ALLEN
	Lab. A3	8–10	F	126 U.H.	ALLEN
	Lab. C1	10–12	M	126 U.H.	ALLEN
	Lab. C2	10–12	W	126 U.H.	ALLEN
	Lab. G1	3–5	M	126 U.H.	ALLEN
	Lab. P	3–5	Tu	126 U.H.	ALLEN

Courses for Advanced Undergraduates

Journ. 10. Newspaper Advertising.—(Same as B.O.O. 10). (Offered first semester only.) *Prerequisite:* Journ. 5-6.

3	B	9	MWF	306 Com.	RUSSELL
	D	11	MWF	306 Com.	RUSSELL

Journ. 12. Publicity Methods.—*Prerequisite:* Junior standing. (2). 9 TT; 113 U.H. Associate Professor WRIGHT.

Journ. 13. Copyreading.—*Prerequisite:* Journ. 5 and 9a or equivalent, and junior standing.

3	Lect. G	3	M	315 U.H.	SIEBERT
[1]Section G1 is for students with desk experience. Consult adviser before registering.	Lab. N	1–3	TT	118 U.H.	SIEBERT
	Lab. E	1–3	WF	118 U.H.	SIEBERT
	Lab. P	3–5	TT	118 U.H.	SIEBERT
	[1]Lab. G1	3–5	WF	118 U.H.	SIEBERT

Journ. 15. Special and Feature Articles.—*Prerequisite:* Junior standing. (2). 9 TT; 204 U.H. Dr. DICKINSON.

Journ. 17. History of Journalism.—*Prerequisite:* Junior standing. (3). 10 MWF; 315 U.H. Professor MURPHY.

Journ. 21. Community and Country Journalism.—*Prerequisite:* Junior standing. (3). Lecture and discussion, 10 TT; 2 hours laboratory to be arranged; 126 U.H. Associate Professor ALLEN.

Journ. 29. Advanced Reporting.—*Prerequisite:* Journ. 5-6 or equivalent, and junior standing. (3). 2 MWF; 113 U.H. (Section E, General news and correspondence.) Associate Professor BARLOW.

Journ. 33. Newspaper Advertising Copy and Layouts.—*Prerequisite:* Junior standing.

2	Lect.	1	Tu	126 U.H.	ALLEN
	Lab. N	1–3	Th	126 U.H.	ALLEN

Journ. 35. Contemporary Affairs.—*Prerequisite:* Junior standing and 6 hours of journalism. (2). 11 TT; 113 U.H. Assistant Professor SIEBERT.

Journ. 39. Special Problems.—(For seniors not writing theses in journalism.) (2). 3 W; 113 U.H. Associate Professor BARLOW and members of the staff.

Journ. 43. Newspaper Accounting.—*Prerequisite:* Junior standing. (3). 9 MWF; 113 U.H. (Offered first semester only.) Mr. KRANNERT.

Journ. 47. Teaching of Journalism.—A study of class and laboratory. *Prerequisite:* Junior standing and one course in journalism. (2). 1 MW; 311 U.H. Associate Professor BARLOW.

Journ. 58. Comparative Journalism.—*Prerequisite:* Junior standing and 6 hours of journalism. (2). 10 TT; 113 U.H. Associate Professor BARLOW.

Journ. 60a. Thesis Course.—Open to seniors with consent of the Director. (2). Arrange. Professor MURPHY and staff.

LANDSCAPE ARCHITECTURE

Note: Certain courses in this department require laboratory fees varying from $0.50 to $2.00.

Courses for Undergraduates

L.A. 11. History of Landscape Architecture.—(3). 11 MWF; 214 New Agr. Assistant Professor PETERSON.

L.A. 31. Landscape Design.—*Prerequisite:* Arch. 72a. (3). 8-11 MWF; 200 New Agr. Professor WHITE.

L.A. 33. Intermediate Landscape Design.—*Prerequisite:* L.A. 32. (3). 9-12 TTS; 200 New Agr. Professor WHITE.

L.A. 35. Advanced Landscape Design.—*Prerequisite:* L.A. 34. (5). 9-12 MWF, other hours to be arranged; 203 New Agr. Professor LOHMANN.

L.A. 37. Civic Design.—*Prerequisite:* Senior standing in the City Planning Option. (4). 9-11 M, 9-12 WF; 203 New Agr. Professor LOHMANN.

L.A. 43. Landscape Construction.—*Prerequisite:* C.E. 18. (3). Lect., 9 MF; 211 New Agr. Lab., 10-12 MF, 9-12 W; 200 New Agr. Professor SCHAFFER.

L.A. 51. Trees and Shrubs.—*Prerequisite:* Bot. 5. (Open only to students in Landscape Architecture and Floriculture). (3). Lect., 3 W; 214 New Agr. Lab., 3-5 MF; 211 New Agr. Assistant Professor ROBINSON.

L.A. 53. Planting Design.—*Prerequisite:* L.A. 34, 52, and Hort. 31. (3). Lect., 1 Tu, 211 New Agr. Lab., 2-5 Tu, 1-5 Th; 203 New Agr. Assistant Professor ROBINSON.

L.A. 55. Care of Plant Materials.—*Prerequisite:* L.A. 52. (2). 11 TT; 211 New Agr. Professor SCHAFFER.

L.A. 71. City Planning.—*Prerequisite:* 60 hours of university work. (2). 10 TT; 214 New Agr. Professors BARTHOLOMEW and LOHMANN.

LAW

Note: Students other than those registered in the College of Law are required to pay fees at the rate of $1 per semester hour for courses in law.

First-Year Courses

Note: In addition to the program for which a first-year student registers, he is asked to hold open the eleven o'clock hour on Tuesday during the first semester for quizzes to be scheduled during the course of the semester in room 300 Law Building.

Law 1a. Contracts.—Costigan: *Cases on Contracts.*

Credits	Section	Hours	Days	Room	Instructor
3	A	2	MWF	103 Law	GOBLE
	B	3	MWF	103 Law	GOBLE

Law 2a. Torts.—Bohlen: *Cases on Torts* (3d ed.).

4	A	9	MTWT	103 Law	WEISIGER
	B	10	MTWT	103 Law	WEISIGER

Law 3. Personal Property and Introduction to Law.—Casebook to be announced.

3	A	8	TTF	106 Law	MCDOUGAL
	B	9	TTF	106 Law	MCDOUGAL

Law 4. Actions.—McCaskill: *Cases on Actions and Suits.*

2	A	2	TT	103 Law	MCCASKILL
	B	3	TT	103 Law	MCCASKILL

Law 5. Criminal Law.—Harno: *Cases on Criminal Law and Procedure.* (3). 11 MWF; 300 Law. Professor HARNO.

Second-Year and Third-Year Courses

Note: In addition to the program for which a second- or third-year student registers, he is asked to hold open the one o'clock hour on Monday and Wednesday during the first semester for quizzes which may be scheduled during the course of the semester in room 300 Law Building.

Law 6a. International Law.—Law of Peace. (3). 2 MWF; 202 L.H. Professor GARNER.

Law 7. Persons.—McCurdy: *Cases on Domestic Relations.* (2). 11 MTu; 103 Law. Professor HOLT.

Law 9. Sales.—Williston and McCurdy: *Cases on Sales.*

Credits	Section	Hours	Days	Room	Instructor
3	A	2	MTW	303 Law	BRITTON
	B	3	MTW	303 Law	BRITTON

Law 14. Carriers and Warehousemen.—Green: *Cases on Carriers* (2d ed.). (2). 2 ThF; 106 Law. Professor GREEN.

Law 18. Wills and Administration.—Costigan: *Cases on Wills, Descent, and Administration* (2d ed.). (3). 11 WTF; 103 Law. Professor SUMMERS.

Law 19. Business Organizations II.—Richards: *Cases on Private Corporations* (2d ed.). (3). 8 MTW; 300 Law. Professor JOHNSON.

Law 21a. Credit Transactions I.—Accommodation contracts. Sturges: *Cases on Credit Transactions* (2). 4 MW; 106 Law. Assistant Professor MCDOUGAL.

Law 22a. Constitutional Law.—Government and the Individual. Rottschaefer: *Cases on Constitutional Law.* (3). 10 WTF; 106 Law. Professor GREEN.

Law 25. Bankruptcy.—Britton: *Cases on Bankruptcy.* (2). 11 MTu; 306 Law. Professor BRITTON.

Law 27. Real Property III.—Future interests. Powell: *Cases on Future Interests.* (3). 9 MWF; 306 Law. Professor SCHNEBLY.

Law 28b. Insurance.—Property insurance. Goble: *Cases on Insurance.* (2). 4 TT; 103 Law. Professor GOBLE.

Law 29. Real Property II.—Rights in land. Bigelow: *Cases on Rights in Land.*

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	303 Law	SUMMERS
	B	9	MWF	303 Law	SUMMERS

Law 30. Equity II.—Cook: *Cases on Equity* (2d ed.; one-volume ed.).

2	A	8	TT	303 Law	SCHNEBLY
	B	9	TT	303 Law	SCHNEBLY

Law 31. Conflict of Laws.—Lorenzen: *Cases on Conflict of Laws* (2d ed.). (3). 2 MTW; 306 Law. Professor HOLT.

Law 35. Procedure III.—Trial practice. Hinton: *Cases on Trial Practice.* (3). 1 TTF; 103 Law. Professor MCCASKILL.

Law 39a. Thesis Course.—This course is open to students who are candidates for the J.D. degree during the academic year next preceding their graduation. (1). Credit deferred until completion of Law 39b. Members of the staff.

Law 49. Industrial Relations I.—Trade regulation. Oliphant: *Cases on Trade Regulation.* (2). 3 ThF; 303 Law. Professor WEISIGER.

Law 54. Legal Problems I.—Comments on recent decisions. *Prerequisite:* One year of law work and at least an average grade of "B" (4.) in law courses. (1). Arrange. Professor HOLT.

Law 56. Legal Problems III.—Comments on recent decisions. *Prerequisite:* Legal Problems I or II, two years of law work, and at least an average grade of "B" (4.) in law courses. (1). Arrange. Professor HOLT.

Law 60. Public Utilities.—Robinson: *Cases on Public Utilities.* (2). 10 MTu; 106 Law. Professor GREEN.

LIBRARY SCIENCE

Course for Freshmen and Sophomores

Lib. Sci. 12. General Reference.—

2	A	9	TT	118 Lib.	BLACK
	B	10	TT	118 Lib.	
	C	11	TT	118 Lib.	PHELPS
	D	2	TT	118 Lib.	SINGLETON
	E	9	WF	118 Lib.	SIGNOR

Courses for First-Year Library School Students

Lib. Sci. 2b. Reference.—

3	A	8	MWF	227 Lib.	SINGLETON
	B	10	MWF	314 Lib.	SINGLETON

Lib. Sci. 3a. Selection of Books.—

2	A	9	TT	227 Lib.	BOYD
	B	10	TT	227 Lib.	BOYD

Lib. Sci. 31a. Cataloging.—

2	A	2–5	TT	314-306 Lib.	BOND
	B	2–5	TT	227-306 Lib.	KRIEG

Lib. Sci. 34. Library Administration and Extension.—

3	A	9	MWF	227 Lib.	GRAMESLY
	B	8	MWF	314 Lib.	GRAMESLY

Lib. Sci. 35. Order and Accessions.—

3	A	11	MWF	314 Lib.	HOSTETTER
	B	9	MWF	314 Lib.	HOSTETTER

Lib. Sci. 36. Classification.—

2	A	10	TT	314 Lib.	BOND
	B	9	TT	314 Lib.	BOND

Courses for Advanced Library School Students and Graduates

Lib. Sci. 13a. U. S. Government Publications.—*Prerequisite:* Lib. Sci. 2a-2b. (2 hours or ½ unit). 10 TT; 328 Lib. Miss PHELPS.

Lib. Sci. 24a. Book Selection for Special Groups.—*Prerequisite:* Lib. Sci. 3a and 38. (2 hours or ½ unit). 11 TT; 328 Lib. Miss HOSTETTER.

Lib. Sci. 44. Book-buying for the Large Library.—*Prerequisite:* Lib. Sci. 35. (2 hours or ½ unit). 10 WF; 328 Lib. Miss GARVER.

Lib. Sci. 48. Public Library Administration.—*Prerequisite:* Lib. Sci. 34 and 33b. (3 hours or ½ unit). 11 MWF; 328 Lib. Miss GRAMESLY.

Courses for Graduates

Lib. Sci. 101. Thesis.—(1 to 2 units). Professor WINDSOR and others.

Lib. Sci. 102. Seminar. Techniques of the Study of Reading Interests.—(1 unit). 3-5 M; 328 Lib. Assistant Professor BOYD.

Lib. Sci. 103a. Advanced Reference.—*Prerequisite:* Lib. Sci. 2a-2b. (½ unit). 9 MW; 328 Lib. Miss PHELPS.

Lib. Sci. 104a. Advanced Cataloging and Classification.—*Prerequisite:* Lib. Sci. 31a, 36, and 37. (½ unit). 3-5 W; 328 Lib. Assistant Professor BOND.

MATHEMATICS

Major: 20 hours exclusive of Math. 2, 3, 4, 5, 6, 6a, 8a, 8b, and all courses taken during the freshman year, and inclusive of Mathematics 7 and 9, and two semesters of Math. 70, 71, 72.

Note: For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: first semester, Math. 2 (or 3) and 4 (or 5); second semester, Math. 6. Sophomore year: first semester, Math. 7; second semester, Math. 9 and 19. In certain courses Math. 6 may be replaced by Math. 6a, and Math. 7 and 9 by Math. 8a and 8b.

Minors: 20 hours exclusive of courses taken during the freshman year selected from one or two of the following subjects: astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), philosophy, theoretical and applied mechanics, surveying. If two subjects are chosen, at least eight hours must be offered in each.

Note: Seniors receive reduced credit in Mathematics 2, 3, 4, 5, 6, or 6a.

Mathematics 32, 35, 36, and 40 are suggested as desirable courses for students preparing to teach high school mathematics.

Courses for Undergraduates

Math. 2. College Algebra.—*Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit.

Credits	Section	Hours	Days	Room	Instructor
3[1]	[2]A1	8	MWF	102 Entom.	SCHILLING
	[2]A2	8	MWF	202 U.H.	WALDEN
	R	8	MWF	103 Entom.	LANG
	[2]B1	9	MWF	154 Math.	PETERS
	[2]B2	9	MWF	208 U.H.	BIRD
	S1	9	MWF	158 Math.	EMCH
	S2	9	MWF	156 Math.	MOORE
	T1	10	MWF	156 Math.	BOWER
	T2	10	MWF	208 U.H.	LANG
	[2]D	11	MWF	110 L.H.	MILES
	[3]U1	11	MWF	158 Math.	COOLEY
	U2	11	TTS	102 Entom.	SCHILLING
	U3	11	MWF	202 U.H.	BROWN
	E	1	MWF	202 U.H.	HUFF
	W1	1	MWF	159 Math.	WILSON
	[3]W2	1	MWF	156 Math.	DENNIS
	W3	1	MWF	206 U.H.	RUMSEY
	[2]F1	2	MWF	158 Math.	ROGERS
	[2]F2	2	MWF	206 U.H.	CHANLER
	X1	2	MWF	105 Entom.	BRISTOW
	X2	2	MWF	202 U.H.	RUMSEY
	G1	3	MWF	159 Math.	DENNIS
	G2	3	MWF	155 Math.	BURDETTE
	Y1	3	MWF	158 Math.	ROGERS
	Y2	3	MWF	202 U.H.	CELL
	H	4	MWF	158 Math.	CELL
	Z	4	MWF	155 Math.	CLARK

[1]Seniors will receive only 2 hours credit.

[2]Sections A1, A2, B1, B2, D, F1, and F2 are for freshman engineers.

[3]Sections U1 and W2 are for architects and architectural engineers.

Math. 3. Algebra.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit.

Credits	Section	Hours	Days	Room	Instructor
5[1]	R	8	MTWTF	110 L.H.	Cooley
	S	9	MTWTF	202 U.H.	Walden
[1]Students having 1½ entrance units in algebra will receive only 3 hours credit for this course. Seniors will receive only 4 hours credit.	T	10	MTWTF	202 U.H.	Brown
	[2]D	11	MTWTF	208 U.H.	Huff
	U	11	MTWTF	103 Entom.	Clark
	W	1	MTWTF	158 Math.	Burdette
	X1	2	MTWTF	155 Math.	Levy
	X2	2	MTWTF	154 Math.	Hoersch
	Y1	3	MTWTF	110 L.H.	Steimley
[2]Section D is for freshman engineers.	Y2	3	MTWTF	206 U.H.	Chanler

Math. 4. Plane Trigonometry.—*Prerequisite:* Entrance algebra, 1½ units, or registration in Math. 3; plane geometry, 1 unit.

2[1]	[2]A	8	TT	206 U.H.	Miles
	R1	8	TT	155 Math.	Lang
[1]Seniors will receive only 1 hour credit.	[4]R2	8	TT	102 Entom.	Schilling
	[2]B1	9	TT	208 U.H.	Bird
	S1	9	TT	155 Math.	Hazlett
[2]Sections A1, B1, C, D, E, F1, F2, G1, and G2 are for freshman engineers.	S2	9	TT	158 Math.	Brahana
	S3	9	TT	154 Math.	Peters
	[4]S4	9	TT	156 Math.	Moore
	[2]C	10	TT	154 Math.	Peters
[3]Sections U4 and W1 are for architects and architectural engineers.	T1	10	TT	156 Math.	Bower
	T2	10	TT	158 Math.	Walden
	[2]D	11	TT	155 Math.	Crathorne
	U1	11	TT	159 Math.	Armstrong
[4]Sections R2, S4, T2, U3, X3, and Y3 are for pre-medical students.	U2	11	TT	156 Math.	Bower
	[4]U3	11	TT	110 L.H.	Miles
	[3]U4	11	TT	206 U.H.	Cooley
	[2]E	1	TT	110 L.H.	Dennis
	[3]W1	1	TT	159 Math.	Wilson
	W2	1	TT	206 U.H.	Rumsey
	W3	1	TT	156 Math.	Lytle
	[2]F1	2	TT	156 Math.	Bourgin
	[2]F2	2	TT	206 U.H.	Chanler
	X1	2	TT	105 Entom.	Bristow
	X2	2	TT	158 Math.	Clark
	[4]X3	2	TT	202 U.H.	Huff
	[2]G1	3	TT	154 Math.	Hoersch
	[2]G2	3	TT	159 Math.	Wilson
	Y1	3	TT	202 U.H.	Burdette
	Y2	3	TT	158 Math.	Rogers
	[4]Y3	3	TT	155 Math.	Clark

Math. 5. Advanced Trigonometry.—Intended for students having entrance credit in trigonometry. The course will include such topics as trigonometric equations, De Moivre's theorem, complex numbers with applications to more complicated problems in plane trigonometry, and a brief introduction to spherical trigonometry. *Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit; solid geometry, ½ unit; entrance trigonometry, ½ unit (or Math. 4).

2[1]	A	8	TT	103 Entom.	Bailey
[1]Seniors will receive only 1 hour credit.	D	11	TT	202 U.H.	Brown
	E	1	TT	202 U.H.	Huff
	F	1	TT	208 U.H.	Cell

Math. 6. Analytic Geometry.—*Prerequisite:* Math. 2 (or 3) and Math. 4.

5[1]	[2]A	8	MTWTF	208 U.H.	Bird
[1]Seniors will receive only 4 hours credit.	S1	9	MTWTF	206 U.H.	Pepper
	S2	9	MTWTF	159 Math.	Armstrong
[2]Sections A, D1, and D2 are for freshman engineers.	[2]D1	11	MTWTF	105 Entom.	Bristow
	[2]D2	11	MTWTF	154 Math.	Moore
	X	2	MTWTF	159 Math.	Wilson
	Y	3	MTWTF	156 Math.	Bourgin

Math. 7. Calculus.—First course for students of mathematics and engineering. *Prerequisite:* Math. 6 (or 6a).

5	A1	8	MTWTF	159 Math.	Armstrong
	A2	8	MTWTF	154 Math.	Peters
	A3	8	MTWTF	158 Math.	Bower
	A4	8	MTWTF	156 Math.	Moore
	C1	10	MTWTF	155 Math.	Hazlett
	C2	10	MTWTF	159 Math.	Brahana
	C3	10	MTWTF	206 U.H.	Pepper
	C4	10	MTWTF	105 Entom.	Bristow
	C5	10	MTWTF	110 L.H.	Miles
	E1	1	MTWTF	155 Math.	Ketchum
	E2	1	MTWTF	154 Math.	Hoersch
	F	2	MTWTF	110 L.H.	Steimley

Math. 9. Calculus.—Second course for students of mathematics and engineering. *Prerequisite:* Math. 7.

Credits	Section	Hours	Days	Room	Instructor
3	B	9	MWF	155 Math.	Bailey
	D	11	TTS	158 Math.	Levy
	F	2	MWF	156 Math.	Bourgin
	G	3	MWF	154 Math.	Hoersch
	H	4	MWF	159 Math.	Wilson

Math. 8a. Calculus.—For students of chemistry and chemical engineering, and insurance. *Prerequisite:* Math. 6a or 6.

3	A	8	MWF	206 U.H.	Miles
	C1	10	MWF	158 Math.	Emch
	C2	10	MWF	154 Math.	Peters
	D1	11	MWF	159 Math.	Armstrong
	D2	11	MWF	156 Math.	Bower

Courses for Advanced Undergraduates and Graduates

Math. 16. Differential Equations and Advanced Calculus.—*Prerequisite:* Math. 7 and 9 (or 8).

3	A	8	MWF	155 Math.	Bailey
	E	1	MWF	110 L.H.	Steimley
	H	4	MWF	254 Math.	Ketchum

Math. 22. Statistics.—*Prerequisite:* Math. 2 (or 3) and 6, junior standing. (3). 11 MWF; 155 Math. Associate Professor Crathorne.

Math. 30. Actuarial Theory.—*Prerequisite:* Math. 7 and 9 (or 8). (3). 10 MWF; 254 Math. Associate Professor Crathorne.

Math. 35. Teachers' Course.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 10 MWF; 102 Entom. Associate Professor Lytle.

Math. 36. Advanced Aspects of Euclidean Geometry.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 9 MWF; 105 Entom. Associate Professor Lytle.

Math. 52a. Partial Differential Equations of Mathematical Physics.—*Prerequisite:* Math. 16 and 17. (3). 1 MWF; 254 Math. Dr. Bourgin.

Math. 70a. Introduction to Higher Algebra.—*Prerequisite:* Math. 7 and 9. (3). 9 MWF; 254 Math. Assistant Professor Brahana.

Math. 71a. Introduction to Higher Analysis.—*Prerequisite:* Math. 7 and 9. (3). 11 MWF; 206 U.H. Dr. Pepper.

Math. 72a. Introduction to Higher Geometry.—*Prerequisite:* Math. 7 and 9. (3). 10 TTS; 254 Math. Professor Coble.

Math. 90a. Undergraduate Thesis.—*Prerequisite:* 24 hours of college mathematics. (2). Arrange.

Courses for Graduates

Math. 100. Seminar and Thesis.—(1 to 2 units).* Arrange.

Math. 113. Linear Differential Equations.—(1 unit). 11 MWF; 254 Math. Professor Carmichael.

Math. 131. Algebraic Geometry.—(1 unit). 9 TTS; 254 Math. Professor Coble.

Math. 135. Differential Geometry.—(1 unit). 10 TTS; 366 Math. Assistant Professor Levy.

Math. 170. Algebra.—(1 unit). 9 MWF; 366 Math. Associate Professor Hazlett.

Math. 171. Analysis.—(1 unit). 2 MWF; 254 Math. Dr. Ketchum.

Math. 172. Geometry.—(1 unit). 8 MWF; 254 Math. Professor Emch.

MECHANICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $4.50.

Courses for Undergraduates

M.E. 1. Steam and Air Machinery.—*Prerequisite:* Math. 9, Physics 1 and 3.

3	E	1	MWF	208 M.E.L.
	F	8	MWF	208 M.E.L.
	GU	10	MWF	216 M.E.L.

M.E. 3. Steam Engineering.—*Prerequisite:* M.E. 10, registration in M.E. 61.

3	MN	10	TTS	216 M.E.L.
	JKLV	11	TTS	216 M.E.L.

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

M.E. 7. Internal Combustion Engines.—*Prerequisite:* M.E. 6.

Credits	Section	Hours	Days	Room	Instructor
3	PQ	11	MWF	208 M.E.L.	

M.E. 10. Thermodynamics.—*Prerequisite:* Math. 9, Physics 1 and 3.

3	LV	8	MWF	217 M.E.L.
	KN	2	MWF	217 M.E.L.

M.E. 13. Thermodynamics.—*Prerequisite:* Math. 9, Physics 1 and 3.

3	PS	10	MF	202 T.B.
		3–5	W	218 Cer.
	QRW	11	TT	202 T.B.
		3–5	W	218 Cer.

M.E. 17. Refrigeration Engineering.—*Prerequisite:* M.E. 16.

3	PQ	11	MW	202 T.B.
		8–10	S	112 T.B.

M.E. 21. Mechanical Equipment of Buildings (Laboratory).—*Prerequisite:* Registration in M.E. 23.

1	C	8–11	W	M.E.L.

M.E. 23. Mechanical Equipment of Buildings.—*Prerequisite:* Senior standing.

4	C	11	MWFS	M.E.L.

M.E. 25. Heating and Ventilation for Architects.—*Prerequisite:* Senior standing.

2	A	11	TT	M.E.L.

M.E. 31. Mechanics of Machinery.—*Prerequisite:* Registration in T.A.M. 2.

5	PQ	8	MWF	216 T.B.
		8–11	TT	201, 216 T.B.
	RS	1	MWF	216 T.B.
		1–4	TT	201, 216 T.B.

M.E. 33. Aeronautical Engineering.—*Prerequisite:* Senior standing.

3	PQ	11	MWF	216 M.E.L.

M.E. 39. Industrial Relations.—*Prerequisite:* Junior or senior standing.

3	PQ	11	MWF	3 Wood Shop

M.E. 41. Mechanical Engineering Design.—*Prerequisite:* M.E. 40.

4	P	8	TT	112, 114 T.B.
		8–11	MWF	112, 114 T.B.
	Q	1	TT	112, 114 T.B.
		1–4	MWF	112, 114 T.B.

M.E. 61. Power Measurement.—*Prerequisite:* M.E. 1 or 2 or 3.

2	LMCh1	1–4	MF	M.E.L.
	KVCh2	1–4	W	M.E.L.
		8–11	S	M.E.L.
	N	8–11	MF	M.E.L.

M.E. 65. Heat and Power Laboratory.—*Prerequisite:* M.E. 64.

3	P	1–5	TT	M.E.L.
	Q	8–12	TT	M.E.L.

M.E. 85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing.

3	J2KP	8–11	TT	Pat. Lab.
	LQ	8–11	MF	Pat. Lab.
	MR	1–4	TT	Pat. Lab.
	J1NS	1–4	MF	Pat. Lab.

M.E. 87. Machine Laboratory.—*Prerequisite:* M.E. 85 and junior standing.

3	JKS	8–11	TT	Mach. Lab.
	LR	8–11	MF	Mach. Lab.
	MPV	1–4	TT	Mach. Lab.
	NQW	1–4	MF	Mach. Lab.

M.E. 89. Heat Treatment of Metals.—*Prerequisite:* Senior standing in Mechanical or Railway Mechanical Engineering.

3	P	2–4	MWF	Mach. Lab.
	QW	8–10	MWF	Mach. Lab.

M.E. 98. Thesis.—*Prerequisite:* Senior standing. (3). Arrange.

M.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

Entrance on graduate work in Mechanical Engineering presupposes the full undergraduate course in that subject.

M.E. 107. Thermodynamics.—Application of thermodynamics to the solution of physical and engineering problems. (1 unit). Twice a week. Arrange. Associate Professor Goff.

M.E. 108. The Flow of Fluids and Heat Transfer.—The application of dimensional analysis and other rational formulas. Special problems. (1 unit). Twice a week. Arrange. Professor MacIntire.

M.E. 109. Machine Design.—Rational design; the application of mechanics of materials. Individual problems. (1 unit). Twice a week. Arrange. Professor LEUTWILER.

M.E. 112. Laboratory Investigation.—Combustion of fuel, boiler economy; steam engines and turbines; gas engines and producers; explosive mixtures; mechanical refrigeration; heating and ventilation. Original work. (1½ units). Three times a week. Arrange. Professors WILLARD, POLSON, KRATZ, HAM, and MACINTIRE.

MILITARY BANDS

Note: The following courses are open only to those who have passed the examination for admittance to one of the bands. All new students who play band instruments and who desire to try for places in the bands should make application at the Band Office, in the Band Building, at the earliest possible time. Those who are accepted for membership will be given a slip indicating the band to which they have been assigned, together with their rehearsal days and hours. Assignments are made according to proficiency. Service in the bands takes the place of the required military courses.

Mil. Bands 1. Freshman Band.—(1). Twice a week, by assignment. Director HARDING, Assistant Director DVORAK, Mr. OVERGARD.

Mil. Bands 3. Sophomore Band.—(1). Twice a week, by assignment. Director HARDING, Assistant Director DVORAK, Mr. OVERGARD.

Mil. Bands 5. Junior Band.—Twice a week, by assignment. Director HARDING, Assistant Director DVORAK, Mr. OVERGARD.

Mil. Bands 7. Senior Band.—Twice a week, by assignment. Director HARDING, Assistant Director DVORAK, Mr. OVERGARD.

MILITARY SCIENCE

All military courses consist of two parts designated by the same number: a practical course lettered with "a" and a theoretical course lettered with "b". Students who have had training in a senior R. O. T. C. unit are permitted to register for work one year advanced for each year they have had in the senior unit. All students who register for junior and senior courses are required to sign a contract with the Government to take five hours of military per week during two years in the University and to attend one summer camp of six weeks.

INFANTRY

Mil. Sci. 1a. Freshman Infantry.—

Credits	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	M	Arm.	TABACHNIK
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 1b. Freshman Infantry.—

½	1	10	M	150 Arm.	TABACHNIK
	2	11	M	150 Arm.	
	3	1	Tu	150 Arm.	
	4	2	Tu	150 Arm.	
	5	10	Th	150 Arm.	
	6	9	F	150 Arm.	
	7	10	F	150 Arm.	

Mil. Sci. 3a. Sophomore Infantry.—

½	1st Bn.	3–5	M	Arm.	LUMMIS
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 3b. Sophomore Infantry.—

½	51	10	M	148 Arm.	LUMMIS
	52	11	M	148 Arm.	
	53	10	Tu	148 Arm.	
	54	11	Tu	148 Arm.	
	55	9	W	148 Arm.	
	56	3	Th	148 Arm.	
	57	9	S	148 Arm.	

Mil. Sci. 5a. Junior Infantry.—*Prerequisite:* First and second year basic credits.

½	Group I	10–12	W	Arm.	MILAN
		4	F	Arm.	
	Group II	1–3	Th	Arm.	
		4	F	Arm.	

Mil. Sci. 5b. Junior Infantry.—*Prerequisite:* First and second year basic credits.

1	81	1–3	Tu	148 Arm.	MILAN
	82	10–12	Th	148 Arm.	
	83	10–12	F	148 Arm.	

Mil. Sci. 7a. Senior Infantry.—(Cadet Officers only.)

½	Co.'s A-M	(See 1a and 3a for hours.)			STEVENS
		4	F	Arm.	

Mil. Sci. 7b. Senior Infantry.—(Cadet Officers only.)

1	91	9	TT	150 Arm.	STEVENS
	92	2	WF	150 Arm.	

FIELD ARTILLERY

Mil. Sci. 11a. Freshman Field Artillery.—

Credits	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	M	Arm.	DALFERES
	2nd Bn.	1–3	Tu	Arm.	CLAY
	3rd Bn.	3–5	Th	Arm.	
	4th Bn.	1–3	F	Arm.	

Mil. Sci. 11b. Freshman Field Artillery.—

½	100	9	M	155 Arm.	DALFERES
	101	10	M	155 Arm.	CLAY
	102	2	M	155 Arm.	
	103	11	Tu	155 Arm.	
	104	9	Th	155 Arm.	
	105	10	Th	155 Arm.	
	106	2	Th	155 Arm.	
	107	11	F	155 Arm.	

Mil. Sci. 13a. Sophomore Field Artillery.—

½	1st Bn.	3–5	M	Arm.	BUSCH
	2nd Bn.	1–3	Tu	Arm.	CLAY
	3rd Bn.	3–5	Th	Arm.	
	4th Bn.	1–3	F	Arm.	

Mil. Sci. 13b. Sophomore Field Artillery.—

½	130	11	M	154 Arm.	BUSCH
	131	9	Tu	154 Arm.	CLAY
	132	10	Tu	154 Arm.	
	133	11	Th	154 Arm.	
	134	9	F	154 Arm.	
	135	10	F	154 Arm.	

Mil. Sci. 15a. Junior Field Artillery.—*Prerequisite:* Mil. Sci. 14a.

½	1st Bn.	3–5	M	Arm.	WEILAND
	2nd Bn.	1–3	Tu	Arm.	
	3rd Bn.	3–5	Th	Arm.	
	4th Bn.	1–3	F	Arm.	

Mil. Sci. 15b. Junior Field Artillery.—*Prerequisite:* Mil. Sci. 14b.

1	160	11	M	153 Arm.	WEILAND
		11	W	153 Arm.	
		4	F	154 Arm.	
	161	10	Tu	153 Arm.	
		10	Th	153 Arm.	
		4	F	154 Arm.	

Mil. Sci. 17a. Senior Field Artillery.—*Prerequisite:* Mil. Sci. 16a.

½	1st Bn.	3–5	M	Arm.	MCCLEAVE
	2nd Bn.	1–3	Tu	Arm.	
	3rd Bn.	3–5	Th	Arm.	
	4th Bn.	1–3	F	Arm.	

Mil. Sci. 17b. Senior Field Artillery.—*Prerequisite:* Mil. Sci. 16b.

1	190	10	M	153 Arm.	MCCLEAVE
		10	W	153 Arm.	
		4	F	153 Arm.	
	191	11	Tu	153 Arm.	
		11	Th	153 Arm.	
		4	F	153 Arm.	

CAVALRY

Mil. Sci. 21a. Freshman Cavalry.—

½	1A	8–10	T	Arm.	STRAWN
	1B	8–10	W	Arm.	
	1C	10–12	Th	Arm.	
	1D	10–12	F	Arm.	

Mil. Sci. 21b. Freshman Cavalry.—

½	201	3	M	146 Arm.	STRAWN
	202	4	M	146 Arm.	
	203	3	Tu	146 Arm.	
	204	4	Tu	146 Arm.	
	205	10	W	146 Arm.	
	206	9	Th	146 Arm.	
	207	2	Th	146 Arm.	
	208	2	F	146 Arm.	
	209	3	F	146 Arm.	

Mil. Sci. 23a. Sophomore Cavalry.—

Credits	Section	Hours	Days	Room	Instructor
½	2A	10–12	M	Arm.	CONARD
	2B	10–12	Tu	Arm.	
	2C	8–10	S	Arm.	

Mil. Sci. 23b. Sophomore Cavalry.—

½	221	9	M	147 Arm.	FEATHERSTONE
	222	9	Tu	147 Arm.	STRAWN
	223	1	W	147 Arm.	
	224	2	W	147 Arm.	
	225	8	F	147 Arm.	
	226	9	F	147 Arm.	
	227	1	F	147 Arm.	

Mil. Sci. 25a. Junior Cavalry.—*Prerequisite:* Mil. Sci. 24a.

½	3A	8–10	Th	Arm.	FEATHERSTONE
	3B	8–10	S	Arm.	

Mil. Sci. 25b. Junior Cavalry.—*Prerequisite:* Mil. Sci. 24b.

1	241	1–3	M	146 Arm.	FEATHERSTONE
		4	F	146 Arm.	
	242	1–3	Tu	146 Arm.	
		4	F	146 Arm.	
	243	3–5	Th	146 Arm.	
		4	F	146 Arm.	

Mil. Sci. 27a. Senior Cavalry.—*Prerequisite:* Mil. Sci. 26a.

½	1A-1E incl. 2A-2C incl.	(See 21a and 23a for hours.)	CONARD

Mil. Sci. 27b. Senior Cavalry.—*Prerequisite:* Mil. Sci. 26b.

1	251	3–5	M	147 Arm.	CONARD
		4	F	147 Arm.	
	252	3–5	T	147 Arm.	
		4	F	147 Arm.	
	253	1–3	Th	147 Arm.	
		4	F	147 Arm.	

ENGINEERS

Mil. Sci. 31a. Freshman Engineers.—

½	1st Bn.	3–5	W	Arm.	MATTHEWS
	2nd Bn.	3–5	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 31b. Freshman Engineers.—

½	301	10	Tu	144 Arm.	MATTHEWS
	302	11	Tu	144 Arm.	
	303	1	Tu	144 Arm.	
	304	2	Tu	144 Arm.	
	305	3	Tu	144 Arm.	
	306	8	W	144 Arm.	

Mil. Sci. 33a. Sophomore Engineers.—

½	2nd Bn.	3–5	Th	Arm.	MATTHEWS
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 33b. Sophomore Engineers.—

½	321	9	W	145 Arm.	MATTHEWS
	322	10	W	145 Arm.	
	323	11	Th	145 Arm.	
	324	1	Th	145 Arm.	

Mil. Sci. 35a. Junior Engineers.—*Prerequisite:* Mil. Sci. 34a.

½	1st-3rd Bn. incl.	(See 31a for hours.)	Arm.	MATTHEWS

Mil. Sci. 35b. Junior Engineers.—*Prerequisite:* Mil. Sci. 34b.

1	341	4	Tu	144 Arm.	MATTHEWS
		10	Th	144 Arm.	
		4	F	144 Arm.	
	342	2–5	F	144 Arm.	

Mil. Sci. 37a. Senior Engineers.—*Prerequisite:* Mil. Sci. 36a.

½	1st-3rd Bn. incl.	(See 31a for hours.)	Arm.	MATTHEWS

Mil. Sci. 37b. Senior Engineers.—*Prerequisite:* Mil. Sci. 36b.

1	351	9–11	F	145 Arm.	MATTHEWS
		4	F	145 Arm.	
	352	10–12	S	145 Arm.	
		4	F	145 Arm.	

SIGNAL CORPS

Mil. Sci. 41a. Freshman Signal Corps.—

Credits	Section	Hours	Days	Room	Instructor
½	A	3–5	Tu	Arm.	James
	B	3–5	W	Arm.	Engerud
	C	2–4	F	Arm.	

Mil. Sci. 41b. Freshman Signal Corps.—

½	400	10	Tu	222 Arm.	Engerud
	401	8	W	222 Arm.	
	402	1	W	222 Arm.	
	403	1	Th	222 Arm.	
	404	10	F	222 Arm.	

Mil. Sci. 43a. Sophomore Signal Corps.—

½	A-C incl.	(See 41a for hours.)			Engerud James

Mil. Sci. 43b. Sophomore Signal Corps.—

½	410	9	Tu	222 Arm.	James
	411	11	Tu	222 Arm.	
	412	1	Tu	222 Arm.	
	413	9	W	222 Arm.	
	414	9	F	222 Arm.	
	415	11	F	222 Arm.	

Mil. Sci. 45a. Junior Signal Corps.—*Prerequisite:* Mil. Sci. 44a.

½	A-C incl.	(See 41a for hours.)			Engerud James

Mil. Sci. 45b. Junior Signal Corps.—*Prerequisite:* Mil. Sci. 44b.

1	420	3–5	M	222 Arm.	Engerud
		4	F	222 Arm.	
	421	10–12	W	222 Arm.	
		4	F	222 Arm.	

Mil. Sci. 47a. Senior Signal Corps.—*Prerequisite:* Mil. Sci. 46a.

½	A-C incl.	(See 41a for hours.)			Engerud James

Mil. Sci. 47b. Senior Signal Corps.—*Prerequisite:* Mil. Sci. 46b.

1	430	Radio Engineering registration in E.E. 51.			Brown
	431	3–5	M	143 Arm.	James
		4	F	143 Arm.	Engerud
	432	10–12	W	143 Arm.	
		4	F	143 Arm.	

COAST ARTILLERY (ANTI-AIRCRAFT)

Mil. Sci. 51a. Freshman Coast Artillery (AA).—

½	A	3–5	Tu	Arm.	Cary
	B	1–3	Th	Arm.	
	C	8–10	S	Arm.	

Mil. Sci. 51b. Freshman Coast Artillery (AA).—

½	501	9	M	151 Arm.	Cary
	502	1	M	151 Arm.	
	503	2	Tu	151 Arm.	
	504	11	Th	151 Arm.	
	505	4	Th	151 Arm.	
	506	11	F	151 Arm.	
	507	1	F	151 Arm.	

Mil. Sci. 53a. Sophomore Coast Artillery (AA).—

½	D	3–5	Tu	Arm.	Chapman
	E	1–3	Th	Arm.	
	F	8–10	S	Arm.	

Mil. Sci. 53b. Sophomore Coast Artillery (AA).—

½	521	2	M	151 Arm.	Cary
	522	9	Tu	151 Arm.	
	523	3	Th	151 Arm.	
	524	10	F	151 Arm.	
	525	2	F	151 Arm.	
	526	10	S	151 Arm.	

Mil. Sci. 55a. Junior Coast Artillery (AA).—*Prerequisite:* First and second year basic credits.

½	Group I	1–3	Tu	152 Arm.	Chapman
		4	F	152 Arm.	
	Group II	2–4	F	152 Arm.	
		4	F	152 Arm.	

Mil. Sci. 55b. Junior Coast Artillery (AA).—*Prerequisite:* First and second year basic credits.

Credits	Section	Hours	Days	Room	Instructor
1	531	1–3	M	152 Arm.	CHAPMAN
	532	4	TT	152 Arm.	
	533	10–12	S	152 Arm.	

Mil. Sci. 57a. Senior Coast Artillery (AA).—*Prerequisite:* Junior credits.

½	1st Bn.	3–5	Tu	Arm.	CHAPMAN
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 57b. Senior Coast Artillery (AA).—*Prerequisite:* Junior credits.

1	541	3–5	M	152 Arm.	CHAPMAN
	542	11	TT	152 Arm.	

MINING ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $7.50.

Courses for Undergraduates

Mining 1. Elements of Mining.—(For students in Mining Engineering only.) *Prerequisite:* Physics 1b-3b. (3). 9 TT, 8-10 S; 206 T.B. Mr. NICHOLSON.

Mining 2. Mining Principles.—(For students in courses other than mining.) *Prerequisite:* Chemistry; sophomore standing. (3). 11 TTS; 206 T.B. Mr. NICHOLSON.

Mining 6. Mechanical Engineering of Mines.—*Prerequisite:* Mining 4 and 10; M.E. 62; T.A.M. 2. (3). 10 MWF; 206 T.B. Professor CALLEN.

Mining 8. Mine Administration.—*Prerequisite:* Mining 4. (3). 10 TTS; 206 T.B. Mr. NICHOLSON.

Mining 9. Preparation of Coal and Ores.—*Prerequisite:* Chemistry 22, Physics 1b-3b, Geol. 20 or equivalent. (3). 11 TT; 1-4 W; 207 T.B. and Mining Lab. Assistant Professor MITCHELL.

Mining 13. Utilization of Fuels.—*Prerequisite:* Chem. 22; junior standing in College of Engineering. (3). 9 MF, 1-4 Tu; 206 T.B. and Mining Lab. Professor CALLEN.

Mining 41. Mining and Metallurgical Design.—*Prerequisite:* C.E. 88a, senior standing in Mining Engineering. (3). 9, 1-4 Th, 1-4 F; 207 T.B. Assistant Professor MITCHELL.

Mining 61. Elementary Mine Surveying.—*Prerequisite:* G.E.D. 1 or 4, Math. 4. (3). 1 M, 1-4 WF; 207 T.B. Mr. NICHOLSON.

Mining 69. Fire Assaying.—*Prerequisite:* Chem. 22, Geol. 20. (2). 1-5 M, 9 Tu; 207 T.B. and Mining Lab. Assistant Professor MITCHELL.

Mining 97. Thesis.—Hours arranged when thesis is permitted, in accordance with the regulations of the College of Engineering.

Mining 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

Mining 101. Advanced Mining Practice.—(1 unit). Arrange. Professor CALLEN.

Mining 102. Advanced Preparation of Coal and Ores.—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 104.[1] **Mining Reports.**—(1 unit). Arrange. Professor CALLEN.

Mining 105.[1] **Welfare Work and Education among Mine Employees.**—(1 unit). Arrange. Professor CALLEN.

Mining 106.[1] **Advanced Coal, Ore, and Metallurgical Plant Design.**—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 107.[1] **Advanced Non-Ferrous Metallurgical Projects.**—(1 unit). Arrange. Assistant Professor MITCHELL.

MUSIC

Music 1. History of Music.—*Prerequisite:* One year of university work. (2). 11 MWF; Lecture Room, S.M.H. Professor SCHWARTZ.

Music 3. Theory of Music (Harmony).—*Prerequisite:* Music 8 or the consent of the instructor.

3	A	8	MWF	106 S.M.H.	KESSLER
[1]Section G is for students from other colleges.	E	1	MWF	103 S.M.H.	KESSLER
	[1]G	3	MWF	106 S.M.H.	MILES

[1]Of courses 104 and 105, only one will be given, according to election of students; the same applies to courses 106 and 107.

Music 5. Theory of Music (Advanced Harmony).—*Prerequisite:* Music 4. (3). 3 MWF; 103 S.M.H. Mr. KESSLER.

Music 7. Strict Counterpoint.—*Prerequisite:* Consent of instructor.

Credits	Section	Hours	Days	Room	Instructor
3	C	10	MWF	103 S.M.H.	KESSLER
	O	2	TT	103 S.M.H.	KESSLER
		9	F	106 S.M.H.	
	D	11	MWF	106 S.M.H.	

Music 9. Analysis, Musical Form.—*Prerequisite:* Music 6 and 8.

2	T	9	MTh	103 S.M.H.	SCHWARTZ
	K	9	TT	103 S.M.H.	SCHWARTZ

Music 11a. Composition.—*Prerequisite:* Music 9-10. (2). Arrange. Associate Professor MILES.

Music 12a. Advanced Composition.—*Prerequisite:* Music 11a-11b. (4). Arrange. Associate Professor MILES.

Music 13. Music Appreciation.—Attendance at Star Course concerts is required.

2	L	10	TT	Lecture Room, 3rd floor, S.M.H.	STIVEN
	P (P.S.M.)	3	TT	106 S.M.H.	KITCHELL

Music 15. Instrumentation.—*Prerequisite:* Junior standing. (1 or 2).* 2 TT; Band Building. Professor HARDING.

Music 17. Advanced Orchestration.—*Prerequisite:* Music 10, 15, and 16. (4). Arrange. Professor HARDING.

Music 21. Ear Training and Sight Singing.—

1	B	9	MW	106 S.M.H.	PERCIVAL
	W	11	MTh	106 S.M.H.	PERCIVAL
	J	8	TT	106 S.M.H.	PERCIVAL

Music 23. Ear Training and Sight Singing.—*Prerequisite:* Music 22.

1	K	9	TT	106 S.M.H.	PERCIVAL
	C	10	MW	106 S.M.H.	PERCIVAL
	L	10	TT	106 S.M.H.	PERCIVAL

Music 25a. Public School Music Methods (Grade School).—*Prerequisite:* Junior standing. (3). 2 MWTF; 106 S.M.H. Mr. HOLMES.

Music 26a. Public School Music Methods (High School Vocal and Theoretical).—*Prerequisite:* Music 25a and 25b. (3). 1 MTWT; 106 S.M.H. Miss KITCHELL.

Music 27. Thesis.—Arrange.

Music 30a. Ensemble.—*Prerequisite:* Junior standing or consent of instructor.

½-1	A (Piano)	3	MTh	209 S.M.H.	WATT
	B (Vocal group ensemble)	4	MW	210 S.M.H.	HAMP
	C (Chorus)	7	Th	Recital Hall	STIVEN and DEMMING
			Arrange other hour		
	D (Opera)	3	TT	207 S.M.H.	SUTHERLIN
	E (Woman's Glee Club)	10	TT	Auditorium	DVORAK
	F (Orchestra)	4	TW	Orchestra Room	STIVEN

Music 31a. Ensemble.—*Prerequisite:* Music 30a and Music 30b. Sections same as in Music 31a. Time to be arranged.

Music 32. Advanced History of Music.—*Prerequisite:* Music 1 and 2.

2	B	9	MF	103 S.M.H.	SCHWARTZ
	L	10	TT	103 S.M.H.	SCHWARTZ

Music 35. Recital Course in Applied Music.—(Required of seniors in Instrumental major). (4). Arrange.

Music 36. Recital Course in Applied Music.—(Required of seniors in Voice major). (3). Arrange.

Music 37. Recital Course in Composition.—(Required of seniors in Theory major). (4). Arrange.

Music 38a. Conducting and Organization.—*Prerequisite:* Music 16. (2). 2 M; 1 TT. Band Building. Professor HARDING.

Music 68a. String Instruments.—(2). 8 MTWTF; Orchestra Room. Mr. COHEN.

Music 98a. Wind Instruments.—(2). 9 MTWTF; Band Building. Mr. DVORAK.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Applied Music Courses

Note: Students other than those registered in the curricula in Music are required to pay fees of $25 for each course in applied music.

Students in music curricula will receive 4 to 5 hours credit for their major subject in Applied Music. They will ordinarily receive 2½ hours credit for their minor subject. Students from other colleges will ordinarily receive 2 hours credit if in accordance with the regulations of their college.

Courses in Applied Music which require one half-hour lesson per week of recitation and one hour daily of preparation receive 2 hours credit.

Courses in Applied Music which require two 20-minute lessons per week of recitation and *one* hour daily of preparation receive 2½ hours credit.

Courses in Applied Music which require two half-hour lessons per week of recitation and *two* hours daily of preparation receive 4 hours credit.

Courses in Applied Music which require two half-hour lessons per week of recitation and *three* hours daily of preparation receive 5 hours credit.

Music 42a, b to 47a, b. Piano.—(2 to 5).* Time to be arranged. Professor VAN DEN BERG, Assistant Professors WATT, SCHOONMAKER, Mrs. SULLIVAN, Miss USRY, Mr. HILL.

Music 52a-d to 57a-d. Voice.—(1 to 4).* Time to be arranged. Mr. JOHNSON, Mr. HAMP, Miss SUTHERLIN. (Parts *a* and *b* in each course indicate individual instruction in Voice (2-3), and parts *c* and *d* indicate classes in Singing Diction (1), required of voice major students.)

Music 62a, b to 67a, b. Violin.—(2 to 5).* Time to be arranged. Assistant Professor ROOSA, Mr. COHEN.

Music 72a, b to 77a, b. Violoncello.—(2 to 5).* Time to be arranged. Mrs. SULLIVAN.

Music 82a, b to 87a, b. Organ.—(2 to 5).* Time to be arranged. Associate Professor MILES, Mr. DEMMING.

Music 92a-d to 97a-d. Band and Orchestral Instruments.—(2 to 4).* All these courses are required for major work in this group. Parts *a* and *b* in each course are concerned with professional instruments, and parts *c* and *d* with supplementary instruments. Professor HARDING, Mr. DVORAK.

PHILOSOPHY

Major: 20 hours from any courses offered by the department, including Phil. 2, 3, 4, and 7. Six hours in psychology may be counted toward a major in philosophy.

Minors: 20 hours in (a) psychology (at least 6 additional hours if psychology is counted toward a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) astronomy, botany, chemistry, mathematics, physics, zoology, geology. At least 8 hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Phil. 1. Logic.—*Prerequisite:* One year of university work.

Credits	Section	Hours	Days	Room	Instructor
3	A	8	MWF	117 L.H.	KUBITZ
	B	9	MWF	117 L.H.	DELARGY
	C	10	MWF	128 L.H.	DELARGY
	D	10	MWF	219 L.H.	KUBITZ
	E	11	MWF	117 L.H.	KUBITZ
	F	1	MWF	117 L.H.	
	G	1	MWF	133 L.H.	DELARGY
	H	2	MWF	133 L.H.	
	I	11	TTS	117 L.H.	

Phil. 20. Honors Course.—*Prerequisite:* Senior standing. (2). Arrange.

Courses for Advanced Undergraduates and Graduates

Phil. 3. History of Ancient and Medieval Philosophy.—*Prerequisite:* Junior standing.

4	Lect.	10	TT	300 Math.	NICHOLSON
	A Disc.	2	W	114 L.H.	DELARGY
	B Disc.	11	Th	123 L.H.	KUBITZ
	C Disc.	1	Th	117 L.H.	NICHOLSON
	D Disc.	2	Th	133 L.H.	
	E Disc.	2	Th	148 L.H.	NICHOLSON
	F Disc.	3	F	117 L.H.	NICHOLSON

Phil. 7. Ethics.—*Prerequisite:* Three hours in philosophy and junior standing. (3). 10 MWF; 120 L.H. Professor TAWNEY.

Phil. 8. Philosophy of the Recent Past.—*Prerequisite:* Philosophy 4. (3). 2 MWF; 204a L.H. Assistant Professor NICHOLSON.

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Phil. 10. Philosophy of Science.—*Prerequisite:* Three hours in philosophy and junior standing. (3). 11 MWF; 128 L.H. Assistant Professor GOTSHALK.

Phil. 12. Philosophy of Art.—*Prerequisite:* Three hours in philosophy. (3). 9 MWF; 133 L.H. Assistant Professor GOTSHALK.

Courses for Graduates

Phil. 105. Seventeenth Century Continental Thought.—(1 unit). Arrange. Assistant Professor GOTSHALK.

Phil. 108. Plato.—(1 unit). Arrange. Professor TAWNEY.

Phil. 119. Seminar in Ancient Philosophy.—(1 unit). Arrange. Professor MCCLURE.

PHYSICAL EDUCATION FOR MEN

Note: The University requires each student to secure 4 hours of credit in Physical Education. Men students may secure this credit in the following ways:

1. Passing courses selected from the list presented below—1 hour for each course.
2. Passing proficiency examinations in courses selected from the list presented below—1 hour of credit for each course. Each activity included in a double activity course (e.g., Golf and Skating) will be counted as ½ hour of credit. Students passing a proficiency examination in two such activities placed in different courses (e.g., Golf and Handball) will receive 1 hour of credit toward meeting the requirement. Proficiency examinations will be offered in the following courses: P.E. 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, and 37. The dates for these examinations will be announced. Proficiency examinations will not be offered in the following courses: P.E. 20, 21, 22, 23, 38, 39, 40, 41, and 42.
3. Securing a numeral or letter in any varsity sport—1 hour of credit for each separate sport.

Students who possess organic defects are required to take the courses entitled Individual Corrective Activities until exempted by the University Health Officer. A student may secure 1, 2, 3, or 4 semester hours in this manner.

For information, late registration, changing sections, call at Room 201, Men's Old Gymnasium.

Courses for Undergraduates

P.E. 20-21-22-23. Individual Corrective Activities.—(These courses are open only to students who fail to pass the health examination. Students enrolling for the first time should register for P.E. 20. Students enrolling for the second, third, or fourth time should register for P.E. 21, 22, and 23, respectively.)

Credits	Section	Hours	Days	Room	Instructor
1	C	10	MWF	New Gym	STAFFORD
	D	11	MWF	New Gym	STAFFORD
	F	2	MWF	New Gym	MCCRISTAL
	G	3	MWF	New Gym	MCCRISTAL
	H	4	MWF	New Gym	MCCRISTAL
	L	10	MWF	Old Gym	DERR
	M	11	MWF	Old Gym	DERR
	P	3	MWF	Old Gym	DERR
	Q	4	MWF	Old Gym	DERR

P.E. 24. Swimming and Water Stunts.—

1	C	10	MW	Old Pool	TREECE
	D	11	MW	Old Pool	TREECE
	F	2	MW	Old Pool	CRAIG
	G	3	MW	Old Pool	————
	K	9	TT	Old Pool	CRAIG
	L	10	TT	Old Pool	CRAIG
	M	11	TT	Old Pool	CRAIG
	N	1	TT	Old Pool	TREECE
	O	2	TT	Old Pool	CRAIG
	P	3	TT	Old Pool	————

P.E. 25. Individual Tumbling Stunts.—

1	K	9	TT	Old Gym	MCCRISTAL
	L	10	TT	Old Gym	MCCRISTAL
	M	11	TT	Old Gym	MCCRISTAL
	N	1	TT	Old Gym	MCCRISTAL
	P	3	TT	Old Gym	TREECE

P.E. 26. Double Tumbling Stunts.—

1	B	9	MW	Old Gym	MCCRISTAL
	C	10	MW	Old Gym	MCCRISTAL
	D	11	MW	Old Gym	MCCRISTAL

P.E. 27. Apparatus Stunts.—

1	O	2	TT	Old Gym	TREECE
	P	3	TT	Old Gym	TREECE

P.E. 28. Boxing.—

Credits	Section	Hours	Days	Room	Instructor
1	F	2	MW	Old Gym	Kenney
	L	10	TT	Old Gym	Law
	M	11	TT	Old Gym	Law
	O	2	TT	Old Gym	Law

P.E. 29. Wrestling.—

1	C	10	MW	Old Gym	Law
	D	11	MW	Old Gym	Law
	F	2	MW	Old Gym	Law
	G	3	MW	Old Gym	Law
	L	10	TT	Old Gym	Kenney
	M	11	TT	Old Gym	Kenney
	N	1	TT	Old Gym	Kenney
	O	2	TT	Old Gym	Kenney
	P	3	TT	Old Gym	Law

P.E. 30. Fencing.—

1	G	3	MW	Old Gym Annex	Craig
	H	4	MW	Old Gym Annex	Craig
	P	3	TT	Old Gym Annex	Craig
	Q	4	TT	Old Gym Annex	Craig

P.E. 31. Soccer and Handball.—

1	C	10	MW	New Gym	Kenney
	D	11	MW	New Gym	Kenney
	H	4	MW	New Gym	Paterson
	K	9	TT	New Gym	Treece
	L	10	TT	New Gym	Treece
	M	11	TT	New Gym	Treece
	Q	4	TT	New Gym	Paterson

P.E. 32. Golf and Volley Ball.—

1	C	10	MW	New Gym	Brown
	D	11	MW	New Gym	Brown
	F	2	MW	New Gym	Brown
	G	3	MW	New Gym	Brown

P.E. 33. Tennis and Squash.—

1	E	1	MW	New Gym	Gelwick
	F	2	MW	New Gym	Gelwick
	G	3	MW	New Gym	Gelwick
	N	1	TT	New Gym	Gelwick
	O	2	TT	New Gym	Gelwick
	P	3	TT	New Gym	Gelwick

P.E. 34. Playground Ball and Skating.—(A fee of $2.25 payable to University for all skating sections.)

1	B	9	MW	New Gym	Craig
	C	10	MW	New Gym	Craig
	D	11	MW	New Gym	Craig
	K	9	TT	New Gym	Paterson
	L	10	TT	New Gym	Paterson
	M	11	TT	New Gym	Paterson

P.E. 35. Tap Dancing.—

1	F	2	MW	New Gym	Treece
	G	3	MW	New Gym	Treece
	K	9	TT	New Gym	Brown
	L	10	TT	New Gym	Brown
	M	11	TT	New Gym	Brown
	P	3	TT	New Gym	Brown

P.E. 36. Clog Dancing.—

1	N	1	TT	New Gym	Derr
	O	2	TT	New Gym	Derr

P.E. 37. Individual Athletics.—

1	B	9	MW	Old Gym	Treece
	K	9	TT	Old Gym	Derr
	L	10	TT	Old Gym	Derr
	M	11	TT	Old Gym	Derr

P.E. 38. Circus Stunts.—

1	H	4	MW	Old Gym	Jackson
	Q	4	TT	Old Gym	Jackson

P.E. 39. Advanced Circus Stunts.—

1	H	4	MW	Old Gym	Jackson
	Q	4	TT	Old Gym	Jackson

P.E. 40. Games, Contests, and Relays.—

Credits	Section	Hours	Days	Room	Instructor
1	A	8	MW	Old Gym Annex	TREECE
	E	1	MW	Old Gym Annex	LAW
	F	2	MW	Old Gym Annex	DERR
	K	9	TT	Old Gym Annex	LAW
	N	1	TT	Old Gym Annex	LAW

P.E. 41. Advanced Swimming.—

1	B	9	MW	New Pool	PATERSON
	C	10	MW	New Pool	PATERSON
	D	11	MW	New Pool	PATERSON
	F	2	MW	New Pool	PATERSON
	G	3	MW	New Pool	PATERSON
	L	10	TT	New Pool	————
	M	11	TT	New Pool	————

P.E. 42. Life Saving and Diving.—

1	O	2	TT	New Pool	PATERSON
	P	3	TT	New Pool	PATERSON

PROFESSIONAL COURSES FOR MEN

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

First Year

P.E. 1 (formerly 80). **Basketball.**—(Second half of the semester).

2	C	1–3	MTWTF	New Gym	Department staff
	D	1–3	MTWTF	New Gym	

P.E. 2. **Calisthenics, Dancing, Tumbling, and Marching.**—

4		8–10	MTWTF	New Gym.	PRICE

P.E. 4 (formerly 30). **Football.**—(First half of the semester).

2	C	1–3	MTWTF	Armory Field	Department staff
	D	1–3	MTWTF	Armory Field	

Second Year

P.E. 5 (formerly 31). **Football.**—(First half of the semester). *Prerequisite:* P.E. 4.

2	A	8–10	MTWTF	Armory Field	Department staff
	B	8–10	MTWTF	Armory Field	

P.E. 6 (formerly 7). **Boxing and Wrestling.**—(Second half of the semester). *Prerequisite:* Sophomore standing.

2	A	8–10	MTWTF	Wrestling Rm.	KENNEY and assistants
	B	8–10	MTWTF	Wrestling Rm.	

P.E. 8 (formerly 58). **Baseball.**—*Prerequisite:* Sophomore standing.

4	A	10–12	MTWTF	Illinois Field	LUNDGREN, JORDAN
	B	1–3	MTWTF	Illinois Field	

Third Year

P.E. 9 (formerly 70). **Health Education and Corrective Gymnastics.**—*Prerequisite:* Anat. 1 and 2, Physiol. 1 and 2.

4		9	MTWTF	209 New Gym.	STAFFORD

P.E. 12 (formerly 20). **Track and Field Athletics.**—*Prerequisite:* Junior standing.

4	A	10–12	MTWTF	Field and Armory	WERNER
	B	1–3	MTWTF	Field and Armory	WERNER

P.E. 15 (formerly 5). **Recreational Activities.**—(Second half of the semester). *Prerequisite:* Junior standing.

2		10–12	MTWTF	New Gym.	STALEY

P.E. 19 (formerly 81). **Basketball.**—(First half of the semester). *Prerequisite:* P.E. 1 and junior standing.

2		10–12	MTWTF	204 New Gym.	RUBY

Fourth Year

P.E. 7 (formerly 6). **Training and First Aid.**—*Prerequisite:* Senior standing or consent of instructor.

2	K	9	TT	119-22 New Gym.	BROWN
	L	10	TT	119-22 New Gym.	BULLOCK

P.E. 10 (formerly 4). **Apparatus Stunts and Double Tumbling.**—*Prerequisite:* P.E. 2 and senior standing.

Credits	Section	Hours	Days	Room	Instructor
4		1–3	MTWTF	Old Gym.	PRICE

P.E. 11 (formerly 63). **Swimming.**—*Prerequisite:* Senior standing or consent of instructor.

2		8	MTWTF	Pool, Old Gym.	MANLEY

P.E. 13 (formerly 8). **Organization and Administration.**—*Prerequisite:* Senior standing.

3		10	MWF	204 New Gym.	HUFF, OLANDER

P.E. 18a (formerly Ed. 7). **School Program of Physical Education.**—*Prerequisite:* Senior standing or consent of instructor.

3		1	MWF	209 New Gym.	STALEY

P.E. 18b (formerly Ed. 8). **History, Systems, and Theories of Physical Education.**—*Prerequisite:* Senior standing or consent of instructor.

2		1	TT	209 New Gym.	STALEY

PHYSICAL EDUCATION FOR WOMEN

Freshmen and Sophomores: Of the four required semesters in physical education, the department requires: one semester of gymnastics (P.E. 42); one semester of swimming (P.E. 45, 46, 54); one semester of dancing (P.E. 47, 49, 51); and one semester of an elective.

Proficiency examinations may be taken in semester courses at times specified by the department. These will be given each semester.

Major: See Curriculum in Physical Education for Women, in *Directions for Registration.*

Courses for Undergraduates

P.E. 40a. Soccer and Gymnastics.—For freshmen intending to specialize in physical education. (1). 3 TT. Miss HUELSTER, Miss KITZINGER. Freshmen will also register for P.E. 45, 46, 54 or 55 on recommendation of adviser. Pool, W.B. Miss SMITH.

P.E. 41a. Hockey, Folk Dancing, Gymnastics.—For sophomores majoring in physical education. (1). 2 MTWTF; W.Gym. Assistant Professor ROBERTSON, Miss JOHNSON, Miss KITZINGER.

P.E. 42. Sports and Gymnastics.—

1	B	9	MWF	North Room; W.Gym.	KITZINGER
	C	10	MWF	North Room; W.Gym.	HUELSTER
	F	2	MWF	North Room; W.Gym.	KITZINGER
	V	11	TT	North Room; W.Gym.	LAWSON
		4	M		

P.E. 43. Seasonal Sports.—(For Skating, Sections C and D, there is a laboratory fee of $3, payable to the University.)

1					
Skating and Tennis....C		10	MWF	129 W.Gym.	ROBERTSON
Elementary Skating and Tennis.....D		11	MWF	129 W.Gym.	ROBERTSON
Volleyball and Golf[1]...G		3	MW	North Room; W.Gym.	LAWSON

P.E. 45. Elementary Swimming.—

1	D	11	MWF	Pool; W.B.	SMITH
	F	2	MWF	Pool; W.B.	SMITH

P.E. 46. Intermediate Swimming.—

1	C	10	MWF	Pool; W.B.	SMITH
	G	3	MWF	Pool; W.B.	SMITH

P.E. 47. Elementary Clog and Tap Dancing.—

1	F	2	MWF	W.B.	HUELSTER
	G	3	MWF	W.B.	HUELSTER

P.E. 48. Intermediate Clog and Tap Dancing.—

		11	MWF	W.B.	KITZINGER

P.E. 49. Elementary Folk Dancing.[1]—

1	S	9	TT	South Room; W.Gym.	FREER
	T	10	TT	South Room; W.Gym.	JOHNSON
	X	3	TT	South Room; W.Gym.	JOHNSON

P.E. 51. Elementary Rhythms.--

1	B	9	MWF	South Room; W.Gym.	JOHNSON
	D	11	MWF	South Room; W.Gym.	JOHNSON

[1]This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

P.E. 54. Diving and Swimming.—*Prerequisite:* P.E. 46 or equivalent.

Credits	Section	Hours	Days	Room	Instructor
1		11	TT	Pool; W.B.	SMITH

P.E. 55. Life Saving.[1]—*Prerequisite:* P.E. 46 or equivalent.

1		3	TT	Pool; W.B.	SMITH

P.E. 56. Individual Gymnastics.—

1	B	9	MWF	Corr. Room; W.Gym.	SCHNAUBER
	C	10	MWF	Corr. Room; W.Gym.	SCHNAUBER
	D	11	MWF	Corr. Room; W.Gym.	SCHNAUBER
	F	2	MWF	Corr. Room; W.Gym.	SCHNAUBER

P.E. 57. Modified Sports and Dancing.[1]—

1		10	TT	North Room; W.Gym.	HUELSTER

P.E. 60. Handball and Tenikoit.—

1		11	TT	South Room; W.Gym.	HUELSTER

P.E. 66. Elective Athletic Activities.—(Participation in W.A.A. sports; registration on recommendation of department. (1). Two forty-five minute periods to be arranged.

P.E. 83. Folk Dancing.—National folk dances. For juniors and seniors in the School of Physical Education. (Elective.) (1). 9 TT; North Room; W.Gym. Miss JOHNSON.

P.E. 84. Therapeutics and First Aid.—For juniors in the School of Physical Education. (2). 2 TT; 129 W.Gym. Miss SCHNAUBER.

P.E. 85. Pageantry and Festivals.—For seniors in the School of Physical Education. Open to students of other colleges with consent of the instructor. (2). 2 TT; 129 W.Gym. Miss JOHNSON.

P.E. 90a. History of Physical Education.—For seniors in the School of Physical Education. (2). 11 TT; 129 W.Gym. Professor FREER.

P.E. 95a. Methods of Teaching.—For juniors in the School of Physical Education. (4). 1 MTWTF; 128 W.Gym. Assistant Professor ROBERTSON.

P.E. 96a. Kinesiology.—For juniors in the School of Physical Education. (3). 8 MWF; 129 W.Gym. Miss KITZINGER.

P.E. 97a. Educational Practice.—For seniors in the School of Physical Education. (3). 1 MWF; 129 W.Gym. Assistant Professor LAWSON.

PHYSICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $4.50.

Major: 20 hours from courses offered in the department. At least 5 hours must be offered from the group of courses for advanced undergraduates and graduates.

Minors: 20 hours in one or two of the following subjects, with not less than 8 hours in each department if two subjects are chosen: mathematics (courses in calculus and beyond), astronomy, chemistry (except Chem. 1, 2, 3, 4, 5, or 6), or education.

For undergraduate students taking advanced work or a major in physics, the following courses are suggested:

Freshman year: Trigonometry and analytic geometry.
Sophomore year: Physics 1a-1b, 3a-3b, and calculus.
Junior year: Physics 14, 44, 60, 61.
Senior year: Physics 23, 30, 62, 71, 72, 78.

Physics 7a-7b and 8a-8b are recommended to students not specializing in physics, mathematics, chemistry, or engineering.

The general physics prerequisite for certain courses may be satisfied by either Physics 1a-1b and 3a-3b or by 7a-7b and 8a-8b. The calculus prerequisite may be satisfied either by Mathematics 7 and 9 or by Mathematics 8a-8b.

Introductory Courses for Undergraduates

Physics 1a. General Physics.—*Prerequisite:* Credit in Math. 2 and 4; registration in Math. 6 and Physics 3a.

3	Lect. A	11	M	100 P.L.	KRUGER, ALMY, and others
	Lect. B	2	M	100 P.L.	
	Quiz A	8	MWF	305, 406 P.L.	
	Quiz B	9	MWF	305, 406 P.L.	
	Quiz D	11	MWF	302, 305, 108 P.L.	
	Quiz E	1	MWF	305, 406 P.L.	
	Quiz G	8	TTS	305, 406 P.L.	

Physics 3a. General Physics Laboratory.—*Prerequisite:* Physics 1a or registration therein.

2	B	2–5	M	302, 305 P.L.	KRUGER and others
	C	9–12	Tu	302, 305 P.L.	
	D	2–5	Tu	302, 305 P.L.	
	F	2–5	W	302, 305 P.L.	
	G	9–12	Th	302, 305 P.L.	
	H	2–5	Th	302, 305 P.L.	
	K	9–12	S	302, 305 P.L.	

[1]This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

Physics 1b. General Physics.—*Prerequisite:* Math. 2, 4, and 6; Physics 1a and registration in Physics 3b.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	11	W	119 P.L.	SCHULZ and others
	Quiz	11	TTF	306, 406 P.L.	

Physics 3b. General Physics Laboratory.—*Prerequisite:* Physics 1b or registration therein.

2	D	2–5	Tu	406 P.L.	SCHULZ and others
	F	2–5	W	406 P.L.	

Physics 7a. General Physics.—*Prerequisite:* Math. 4; registration in Physics 8a.

3	Lect. A	9	TT	100 P.L.	WATSON and others
	Lect. B	11	TT	100 P.L.	
	Quiz A	8	WF	104, 208 P.L.	
	Quiz B	9	WF	104, 208, 302 P.L.	
	Quiz C	10	WF	208, 302 P.L.	
	Quiz D	11	WF	104, 208 P.L.	

Physics 8a. General Physics Laboratory.—*Prerequisite:* Physics 7a or registration therein.

2	A	9–12	M	208 P.L.	SANDERS and others
	B	1–4	M	208, 302 P.L.	
	C	8–11	Tu	208 P.L.	
	D	2–5	Tu	204, 208 P.L.	
	F	1–4	W	208, 302 P.L.	
	J	1–4	F	208 P.L.	
	K	9–12	S	208 P.L.	

Intermediate Course for Undergraduates

Physics 17. Light.—*Prerequisite:* General Physics.

3	Quiz	9	TT	208 P.L.	SCHULZ
	Lab.	2–5	Th	313 P.L.	

Courses for Advanced Undergraduates and Graduates

Physics 14a. Theoretical Mechanics.—*Prerequisite:* General physics and calculus.

3		8	TTS	306 P.L.	MOTT-SMITH

Physics 23. Sound.—*Prerequisite:* General physics.

3		10	MWF	204 P.L.	F. R. WATSON

Physics 30. Introduction to Theoretical Electricity.—*Prerequisite:* General physics and calculus.

3		9	MWF	204 P.L.	WILLIAMS

Physics 44a. Electric and Magnetic Measurements.—*Prerequisite:* General physics and calculus.

3	A	8–11	MF	108 P.L.	KNIPP, WILLIAMS, and others
	B	1–4	MF	104, 108 P.L.	
	C	8–11	TT	104, 108 P.L.	
	D	1–4	TT	104, 108 P.L.	

Physics 60. Heat.—*Prerequisite:* General physics and calculus.

3		10	TTS	208 P.L.	SANDERS

Physics 61. Heat Laboratory.—*Prerequisite:* Registration in Physics 60.

1		2–5	Tu	213 P.L.	SANDERS

Physics 71a. Light.—*Prerequisite:* General physics and calculus.

2		11	TT	208 P.L.	ALMY

Physics 72a. Light Laboratory.—*Prerequisite:* Registration in Physics 71a.

2		2–5	MW	313 P.L.	ALMY

Courses for Graduates

Physics 128a. Problems and Methods in Theoretical Physics.—(1 unit). 10 TTS; 306 P.L. Dr. MOTT-SMITH.

Physics 131a. Physical Laboratory Technique.—(½ to 1 unit).* Arrange. Professor KNIPP.

Physics 146a. Electrodynamics.—(1 unit). 8 MWFS; 302 P.L. Professor KUNZ.

Physics 170a. Light.—(1 to 2 units).* 11 TT, 208 P.L.; 2-5 MW, 313 P.L. Dr. ALMY.

Physics 184. Line Spectra and Atomic Structure.—(1 unit). 10 MWF; 305 P.L. Professor LOOMIS.

Physics 186a. Quantum Mechanics.—(1 unit). 9 TTS; 306 P.L. Assistant Professor BARTLETT.

Physics 190. Research.—(1 to 3 units).* Arrange. Professors in the department.

Physics 198. Seminar.—(1 to 2 units).* Arrange. Professors in the department.

Physics 199. Physics Colloquium.—(No credit). 4:45 Th; 119 P.L. Professor LOOMIS.

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

PHYSIOLOGY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $5.00.

Major: 20 hours from courses offered in the department, exclusive of Physiology 1.

Minors: 20 hours in not more than two of the following: botany, bacteriology, chemistry, entomology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Physiol. 1. Elements of Physiology.—A survey of the field of mammalian physiology.

Credits	Section	Hours	Days	Room	Instructor
2[1]	Lect. A	10	TT	228 N.H.	BURGE
[1]Seniors will receive	Lect. B	8	TT	228 N.H.	
only 1 hour credit.	Quiz A	8	M	425 N.H.	ORTH
	Quiz B	1	Tu	425 N.H.	
	Quiz C	9	W	425 N.H.	
	Quiz D	2	W	425 N.H.	
	Quiz E	11	F	425 N.H.	
	Quiz F	10	S	425 N.H.	

Physiol. 3. Physiological Anatomy.—(For Physical Education students).

5[1]	Lect.	11	MW	217 Chem.	ELHARDT
[1]Seniors will receive	Lab. A	8–10	TT	405 N.H.	WRIGHT
only 4 hours credit.	Lab. B	10–12	TT	413 N.H.	
	Quiz A	11	F		
	Quiz B	2	F		

Physiol. 4. General Physiology.—(Not open to students who have had Physiology 1).

5[1]	Lect. A	8	TT	228 N.H.	BURGE and
[1]Seniors will receive	Lect. B	10	TT	228 N.H.	assistants
only 4 hours credit.	Lab. A	8–10	MW	413 N.H.	
	Lab. B	1–3	MW	413 N.H.	
	Lab. C	10–12	TT	413 N.H.	
	Lab. D	3–5	TT	413 N.H.	
	Lab. E	10–12	FS	413 N.H.	
	Quiz A	11	M	425 N.H.	
	Quiz B	10	W	425 N.H.	
	Quiz C	1	Th	425 N.H.	
	Quiz D	8	F	425 N.H.	
	Quiz E	2	F	425 N.H.	
	Quiz F	9	S	425 N.H.	

Physiol. 4a. General Physiology.—Lecture and quiz. (3). Sections same as for lecture and quiz in Physiology 4.

Physiol. 4b. General Physiology.—Laboratory. (2). *Prerequisite:* Physiology 1 or 4a. Sections same as for laboratory in Physiology 4.

Physiol. 6. Advanced Physiology.—(Recommended for the general student). *Prerequisite:* Physiology 1 or 4.

5	Lect.	10	TT	423 N.H.	WICKWIRE
	Quiz A	3	Tu	423 N.H.	
	Quiz B	10	F	423 N.H.	
	Lab. A	10–12	MW	413 N.H.	
	Lab. B	1–3	TT	413 N.H.	
	Lab. C	8–10	WF	413 N.H.	
	Lab. D	3–5	WF	413 N.H.	

Courses for Advanced Undergraduates and Graduates

Physiol. 8. Thesis.—*Prerequisite:* Senior standing and 15 hours of physiology. (3 to 5).* Time to be arranged before registration.

Physiol. 9. Physiology of the Special Senses.—*Prerequisite:* Senior standing; Physiology 1 and 6. (3). Lect., 9 Tu; Quiz, 9 Th; Lab., arrange. Mr. WICKWIRE.

Courses for Graduates

Physiol. 101. Journal Club.—Review of literature. (¼ unit). Arrange. Members of the staff.

Physiol. 102. Research.—(1 to 2 units).* Arrange. Associate Professor BURGE.

Physiol. 103. Experimental Physiology.—(½ to 1 unit).* Arrange. Associate Professor BURGE.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

POLITICAL SCIENCE

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 44 or 62).

Minors: 20 hours selected from one or two of the following subjects: history, economics, law, sociology, philosophy, and education. At least eight hours must be offered in each subject, if two are chosen.

Courses 1 and 3 give a general survey of national, state, and local government in the United States. Undergraduates beginning the study of political science are advised to take first, course 1, 3, or 16, and those planning for advanced work should take course 1 and either 3 or 16 in their sophomore year. Course 3 is offered the second semester.

Courses for Undergraduates

Pol. Sci. 1. American National Government.—*Prerequisite:* Sophomore standing.

Credits	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	300 L.H.	Lenoir
	A2	8	MWF	204 L.H.	Hill
	B1	9	MWF	300 L.H.	Berdahl
	B2	9	MWF	204 L.H.	Lenoir
	B3	9	MWF	340 L.H.	Mathews
	C1	10	MWF	300 L.H.	
	C2	10	MWF	204 L.H.	Hill
	D1	11	MWF	340 L.H.	Hyneman
	D2	11	MWF	302 L.H.	Powell
	E1	1	MWF	340 L.H.	Hyneman
	E2	1	MWF	204 L.H.	Powell
	F	2	MWF	204 L.H.	Sikes
	G	3	MWF	204 L.H.	Sikes
	K	9	TTS	204 L.H.	Lenoir

Courses for Advanced Undergraduates and Graduates

Note: Junior standing is required for admission to the following courses:

Pol. Sci. 4. Municipal Government.—*Prerequisite:* Junior standing.

3	Lect.	9	TT	L.H. Theatre	Kneier
	A Quiz	11	Th	308 L.H.	Kneier
	B Quiz	2	Th	304 L.H.	Kneier
	C Quiz	3	Th	304 L.H.	Kneier
	D Quiz	9	F	302 L.H.	Kneier
	E Quiz	10	F	233 L.H.	Kneier
	F Quiz	11	F	308 L.H.	Kneier
	G Quiz	1	F	304 L.H.	Kneier
	H Quiz	2	F	304 L.H.	Kneier

Pol. Sci. 5. American Constitutional System.—*Prerequisite:* Pol. Sci. 1; junior standing. (3). 11 MWF; 233 L.H. Professor Mathews.

Pol. Sci. 6a. International Law.—*Prerequisite:* Open to seniors, graduate students, and second-year law students. (3). 2 MWF; 202 L.H. Professor Garner.

Pol. Sci. 8. International Organization: The League of Nations.—*Prerequisite:* Junior standing. (3). 11 TT; 304 L.H. Professor Berdahl.

Pol. Sci. 12. Public Administration.—*Prerequisite:* Pol. Sci. 1 or 3; junior standing. (3). 9 MWF; 308 L.H. Professor Fairlie.

Pol. Sci. 13. Government Regulation of Business.—*Prerequisite:* Senior standing, or junior standing with five hours of political science or of economics, or of both. (3). 10 MWF; 304 L.H. Assistant Professor Hyneman.

Pol. Sci. 21. British Government.—*Prerequisite:* Graduate or senior standing, or junior standing with six hours of political science. (2 to 3).* 2 TT; 308 L.H. Professor Fairlie.

Pol. Sci. 36a. Thesis and Honors Course.—*Prerequisite:* Senior standing. (2 to 4).* Arrange. Members of the department.

Courses for Graduates

Pol. Sci. 101. History of Political Theories.—(1 unit). 3 MWF; 308 L.H. Professor Garner.

Pol. Sci. 103. Seminar in Political Science and Public Law.—Once a week. Arrange. Members of the department.

Pol. Sci. 105. Constitutional Law: Research in Selected Topics.—(1 unit). Arrange. Professor Mathews.

Pol. Sci. 106a. Special Topics in International Law.—(1 unit). Twice a week. Arrange. Professor Garner.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Pol. Sci. 108. Problems of International Organization.—(1 unit). Twice a week. Arrange. Professor BERDAHL.

Pol. Sci. 112. Special Topics in Public Administration.—(1 unit). Twice a week. Arrange. Professor FAIRLIE.

Pol. Sci. 121. Problems in British Government.—(1 unit). Once a week. Arrange. Professor FAIRLIE.

PSYCHOLOGY

Note: Certain courses in this department require a laboratory fee of $1.

Major: 20 hours chosen from courses announced by the department, excepting Psych. 1. At least 8 hours must be offered in the advanced group.

Minors: 20 hours chosen from not more than two of the following subjects: education, mathematics, philosophy, sociology, physiology, and zoology. At least 8 hours must be offered in each, if two are chosen.

Courses for Undergraduates

Psych. 1. Introduction to Psychology.—*Prerequisite:* One year of university work.

Credits	Section	Hours	Days	Room	Instructor
4	Lect. A	9	MW	218 U.H.	CULLER
	Quiz A1	8	TT	403 U.H.	
	Quiz A2	9	TT	403 U.H.	
	Quiz A3	9	TuS	404 U.H.	
	Quiz A4	10	TT	403 U.H.	
	Quiz A5	10	TuS	406 U.H.	
	Quiz A6	11	TT	403 U.H.	
	Quiz A7	2	TT	403 U.H.	
	Quiz A8	3	TT	403 U.H.	
	Lect. B	11	MW	218 U.H.	YOUNG
	Quiz B1	8	TT	404 U.H.	
	Quiz B2	8	TuS	406 U.H.	
	Quiz B3	9	TuS	406 U.H.	
	Quiz B4	10	TT	412 U.H.	
	Quiz B5	11	TT	404 U.H.	
	Quiz B6	11	TT	406 U.H.	
	Quiz B7	2	TT	404 U.H.	
	Quiz B8	3	TT	404 U.H.	
	Lect. C	9	TT	218 U.H.	RUCH
	Quiz C1	8	MW	406 U.H.	
	Quiz C2	8	MW	411 U.H.	
	Quiz C3	9	MW	403 U.H.	
	Quiz C4	9	MW	404 U.H.	
	Quiz C5	10	MW	404 U.H.	
	Quiz C6	11	MW	403 U.H.	
	Quiz C7	2	MW	403 U.H.	
	Quiz C8	3	MW	407 U.H.	

Psych. 2. General Psychology.—*Prerequisite:* Psych. 1 or junior standing.

4	Lect.	10	MW	218 U.H.	HIGGINSON, ANDERSON
	Quiz A	9	TT	407 U.H.	
	Quiz B	10	TT	211 U.H.	
	Quiz C	11	TT	407 U.H.	
	Quiz D	2	TT	407 U.H.	

Psych. 3. Laboratory Practice.—*Prerequisite:* Psych. 1.

2	Lab. A	10–12	MW	417 U.H.	HIGGINSON, STOTT
	Lab. B	2–4	MW	417 U.H.	
	Lab. C	10–12	TT	417 U.H.	
	Lab. D	2–4	TT	417 U.H.	

Courses for Advanced Undergraduates and Graduates

Psych. 5. Comparative Psychology.—*Prerequisite:* Psych. 1 and either one other course in psychology or a course in zoology. (3). 10 MWF; 406 U.H. Dr. MCALLISTER.

Psych. 11. Learning and Comprehension.—*Prerequisite:* Psych. 1 and junior standing. (2). 10 TT; 315 U.H. Associate Professor CULLER.

Psych. 16. Genetic Psychology.—*Prerequisite:* Psych. 1 and junior standing. (2). 11 TT; 318 U.H. Dr. RUCH.

Psych. 21. Character and Personality.—*Prerequisite:* Psych. 1 and junior standing.

3	Lect.	11	MW	315 U.H.	SEARS
	Quiz A	10	F	410 U.H.	
	Quiz B	11	F	315 U.H.	

Psych. 27a. Thesis Course and Honors Course.—*Prerequisite:* Psych. 3 and consent of department. (2). Arrange; 419 U.H. Professor WOODROW.

Psych. 28. The Psychology of Motivation.—*Prerequisite:* Psych. 1 and junior standing. (2). 9 TT; 318 U.H. Associate Professor YOUNG.

Psych. 34. Individual Differences.—*Prerequisite:* Psych. 1 and senior standing. (3). 9 MWF; 413 U.H. Professor WOODROW.

Courses for Graduates

Psych. 102. Translation of Psychological Treatises.—(½ unit). Arrange; 419 U.H. Professor WOODROW.

Psych. 103. Research.—(½ to 2 units).* Arrange. Professor WOODROW, Associate Professors YOUNG and CULLER, Assistant Professor HIGGINSON.

Psych. 105. Seminar.—(1 unit). 7:15-9:15 p.m. M; 419 U.H. Professor WOODROW.

Psych. 106. Neural Theory of the Psychological Functions.—(1 unit). 4-6 Tu; 419 U.H. Associate Professor CULLER.

PUBLIC UTILITIES AND TRANSPORTATION

(See also Railway Engineering.)

A. PUBLIC UTILITIES

Course for Advanced Undergraduates and Graduates

Pub. Util. 81. Principles of Public Utilities.—*Prerequisite:* Econ. 1 or 2, and 3.

Credits	Section	Hours	Days	Room	Instructor
3	Lect.	10	F	215 Com.	GRAY
	C Quiz	10	MW	223 Com.	GRAY
	M Quiz	11	TT	223 Com.	GRAY

(See also B.O.O. 75. Management of Public Utilities.)

Courses for Graduates

Pub. Util. 118. Seminar for First-Year Graduate Students.—4-6 Th (alternate weeks); 420 Com. Dean THOMPSON, Assistant Professor GRAY, Dr. BEHLING.

Pub. Util. 180. Management of Public Utilities.—(1 unit). 4-6 W; 212 Com. Assistant Professor GRAY.

B. TRANSPORTATION

Courses for Undergraduates

Trans. 1. Economics of Transportation.—*Prerequisite:* Econ. 1 and junior standing.

3	A Quiz	8	MWF	123 Com.	COVER
	B Quiz	9	MWF	123 Com.	COVER
	C Quiz	10	MWF	101 Com.	LOCKLIN
	D Quiz	11	MWF	101 Com.	LOCKLIN
	E Quiz	1	MWF	328 Com.	FITZGERALD
	F Quiz	2	MWF	328 Com.	FITZGERALD

Courses for Advanced Undergraduates and Graduates

Trans. 10. Railroad Rates.—*Prerequisite:* Trans. 1. (3). 9 TTS; 100 Com. Assistant Professor LOCKLIN.

Trans. 22. Ocean Shipping.—*Prerequisite:* Trans. 1. (3). 9 MWF; 322 Com. Professor LITMAN.

Course for Graduates

Trans. 100. Economics of Transportation.—(1 unit). Arrange. Assistant Professor LOCKLIN.

RAILWAY ENGINEERING

(See also Public Utilities and Transportation.)

Note: Certain courses in this department require a laboratory fee of $3.

Courses for Undergraduates

R.E. 2. Locomotive Design.—*Prerequisite:* M.E. 16, 64; R.E. 4. (3). Sec. W, 1-4 MWF; 104 T.B.

R.E. 5. Railway Laboratory.—*Prerequisite:* M.E. 16, 64; R.E. 4. (3). Sec. W, 1-4 TT, 11 Tu; 104 T.B.

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

R.E. 9. Seminar.—*Prerequisite:* Open to seniors in railway courses only. (1). Sec. W, 9 Tu; 117 T.B.

R.E. 25. Railway Development.—*Prerequisite:* Sophomore standing. (2). Sec. UVW, 10 WF; 105 T.B.

R.E. 32. Railway Construction.—*Prerequisite:* Registration in C.E. 61a. (3). Sec. U, 9 MF, 1-4 W; 117 T.B.

R.E. 59. Electric Railway Principles.—*Prerequisite:* Registration in E.E. 25 and 75. (2). Sec. V, 10 MW; 117 T.B.

R.E. 97. Thesis.—(1 or 2).* Arrange. *Prerequisite:* Senior standing in railway engineering.

R.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Advanced Undergraduates and Graduates

R.E. 3. Locomotives.—*Prerequisite:* Junior standing in the College of Engineering. (2). Sec. W, 10 TT; 104 T.B.

R.E. 31. Railway Yards and Terminals.—*Prerequisite:* C.E. 3, or senior standing in R.E. (3). Sec. U, 11 TT, 9-12 S; 117 T.B.

R.E. 35. Railway Signaling.—*Prerequisite:* Senior standing in Engineering. (2). Sec. UV, 10 TT; 105 T.B.

R.E. 62. Electric Railway Laboratory.—*Prerequisite:* R.E. 60. (2). Sec. V, 1-4 TT; 117 T.B.

R.E. 64. Electric Railway Practice.—*Prerequisite:* E.E. 26 and 76; R.E. 60. (3). Sec. V, 9 MWF; 105 T.B.

Courses for Graduates

R.E. 102. Locomotive Design.—(1 unit). Arrange. Professor Young.

R.E. 106. Locomotive Operation.—(1 unit). Arrange. Professor Schmidt.

R.E. 110. Railway Location.—(1 unit). Arrange. Professor King.

ROMANCE LANGUAGES AND LITERATURE

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, and 6b, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: Education, English (excluding Rhet. 1 and 2), German, Greek, History, Italian, Latin, Philosophy, Spanish, provided that at least 8 hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, and 2a, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: Education, English (excluding Rhet. 1 and 2), French, German, Greek, History, Italian, Latin, Philosophy, provided that at least 8 hours be taken in any subject chosen.

A. FRENCH

Courses for Undergraduates

French 1a. Elementary Course.—For students who have no credit in French.

Credits	Section	Hours	Days	Room	Instructor
4[1]	A1	8	TWTF	211 U.H.	Alexander
[1]Seniors will receive	A2	8	TWTF	214 U.H.	Bussard
only 3 hours credit.	B1	9	TWTF	235 L.H.	Herdman
	B2	9	TWTF	122 New Agr.	Rowe
	B3	9	TWTF	123 New Agr.	Rew
	C1	10	TWTF	122 New Agr.	Rowe
	C2	10	TWTF	227 L.H.	Brown
	C3	10	TWTF	116 New Agr.	Dismukes
	D	11	TWTF	122 New Agr.	Carter
	E	1	MTWT	214 U.H.	Alexander
	F	2	MTWT	212 U.H.	Alexander
	G	3	MTWT	214 U.H.	Allen

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

French 1b. Elementary Course (continued).—*Prerequisite:* French 1a or one year of high school French.

Credits	Section	Hours	Days	Room	Instructor
4[1]	A	8	TWTF	235 L.H.	Goggin
[1]Seniors will receive only 3 hours credit.	B	9	TWTF	203a L.H.	Goggin
	C	10	TWTF	123 New Agr.	Carter
	F	2	MTWT	214 U.H.	Pietrangeli

French 2a. Modern French.—*Prerequisite:* French 1b, or two years of high school French.

4	[1]A1	8	TWTF	120 L.H.	Hilton
[1]Sections A1, B1, C1, D1 and E1 are primarily for students who expect to go beyond French 2b. More attention is paid to the speaking and hearing of French.	A2	8	TWTF	148 L.H.	Herdman
	[1]B1	9	TWTF	224 L.H.	Bussard
	B2	9	TWTF	214 U.H.	Dismukes
	[1]C1	10	TWTF	113 L.H.	Bussard
	C2	10	TWTF	133 L.H.	Rew
	[1]D1	11	TWTF	232 L.H.	Roche
	D2	11	TWTF	227 L.H.	Amiel
	[1]E1	1	MTWT	212 U.H.	Pietrangeli
	E2	1	MTWT	235 L.H.	Barnett
	F	2	MTWT	206 L.H.	Allen
	G	3	MTWT	139 L.H.	Ramsey

French 2b. Modern French.—*Prerequisite:* French 2a, or three years of high school French.

4	B	9	TWTF	311 L.H.	Ralph
	C	10	TWTF	240 L.H.	Ralph
	F	2	MTWT	139 L.H.	Amiel

French 3a. Introduction to French Literature.—*Prerequisite:* French 2b or the equivalent.

3	A	8	MWF	211 L.H.	Will
	B1	9	MWF	303a L.H.	Jacob
	B2	9	MWF	105 L.H.	Will
	C	10	MWF	224 L.H.	Oliver
(In French).....	E	1	MWF	128 L.H.	Roche
	F	2	MWF	303a L.H.	Jacob

French 6a. Second-Year Composition and Conversation.—*Prerequisite:* French 1b or the equivalent.

2	K	9	TT	232 L.H.	Hilton
	N	1	TT	407 U.H.	Hilton
	O	2	TT	208 U.H.	Hilton

French 7a. Intermediate Composition and Conversation.—*Prerequisite:* French 2b, or French 6b, or the equivalent (*Note:* Prospective teachers of French are strongly advised to take French 7a and 7b.)

2	J	8	TT	104 L.H.	Legrand
	K1	9	TT	300 L.H.	Amiel
	K2	9	TT	104 L.H.	Roche
	L	10	TT	211 L.H.	Roche
	M	11	TT	113 L.H.	Legrand
	N	1	TT	105 L.H.	Amiel
	F	2	MW	238 L.H.	Legrand

French 8a. Advanced Composition and Conversation.—*Prerequisite:* French 7b.

2	L	10	TT	204a L.H.	Amiel
	O	2	TT	105 L.H.	Roche

French 25. Methods of Teaching French.—Discussion and laboratory work in phonetics. *Prerequisite:* 20 hours in French, or 16 hours in French plus 20 in Spanish. Not open to students other than seniors except by permission of the instructor. (*Note:* French 25 will be given only in the first semester. Spanish 25 will be given in the second semester.) (3). 2 MWF; 310 U.H. Assistant Professor Gullette.

French 28a. Senior Thesis.—For candidates for honors in French. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in French have the following prerequisites: French 3b or the equivalent and junior standing; or senior standing and consent of the instructor.

French 10a. Survey of French Literature.—

3		9	MWF	232 L.H.	Carnahan

French 17a. French Drama of the Nineteenth Century.—

2	K	9	TT	206 L.H.	Hamilton
	L	10	TT	224 L.H.	Will

French 24a. French Drama of the Seventeenth and Eighteenth Centuries.—

3		11	MWF	306 L.H.	Oliver

French 32a. French Novel of the Nineteenth Century.—

3		8	MWF	128 L.H.	Jacob

French 34a. La Comédie Humaine de Balzac.—(In French).

2		11	TT	109 L.H.	Michaud

Courses for Graduates

French 101. Old French Literature.—(1 unit). 11 TT; 206 L.H. Professor OLIVER.

French 102. Villon, Rabelais, Montaigne, La Pléiade.—(1 unit). 4 MW; 425a Lib. Assistant Professor WILL.

French 103. Seventeenth Century Literature.—(1 unit). 9 TT; 219 L.H. Professor OLIVER.

French 128. Origin and Development of the Novel in France.—(1 unit). 3 TT; 425a Lib. Professor CARNAHAN.

French 133. La Poésie de Victor Hugo.—(1 unit). 2 MW; 148 L.H. Professor MICHAUD.

French 145. Doctrines Littéraires et Courants d'Idées Contemporains.—(In French.) (1 unit). 3-5 F; 120 L.H. Professor MICHAUD.

French 195. Seminar.—Research work in preparation for theses in French. (1 to 2 units).*

B. ITALIAN

Courses for Undergraduates

Italian 1a. Elementary Course.—For students who have no credit in Italian.

Credits	Section	Hours	Days	Room	Instructor
4[1]	C	10	TWTF	117 L.H.	PIETRANGELI
[1]Seniors will receive only 3 hours credit.	F	2	MTWT	117 L.H.	VAN HORNE

Italian 2a. Intermediate Italian.—*Prerequisite:* Italian 1b.

3		11	MWF	311 L.H.	PIETRANGELI

Course for Advanced Undergraduates and Graduates

Italian 3a. Dante: The Divine Comedy.—*Prerequisite:* Italian 1b; junior standing.

2		3	TT	219 L.H.	VAN HORNE

Courses for Graduates

Italian 146. Modern Italian Literature.—(1 unit). 1 TT; 216 L.H. Professor VAN HORNE.
Italian 195. Seminar.—Research work in preparation for theses in Italian. (1 to 2 units).* Professor VAN HORNE.

C. SPANISH

Courses for Undergraduates

Spanish 1a. Elementary Course.—For students who have no credit in Spanish.

4[1]	A1	8	TWTF	302 L.H.	AVILÉS
[1]Seniors will receive only 3 hours credit.	A2	8	TWTF	133 L.H.	YOUNG
	B	9	TWTF	148 L.H.	LODGE
	C	10	TWTF	105 L.H.	KIDDER
	D	11	TWTF	214 U.H.	HILTON
	E	1	MTWT	139 L.H.	UTLEY
	F	2	MTWT	227 L.H.	YOUNG
	G	3	MTWT	148 L.H.	KOZMA
	H	4	MTWT	214 U.H.	DALLERA

Spanish 1b. Elementary Course (continued).—*Prerequisite:* Spanish 1a or one year of high school Spanish.

4[1]	A	8	TWTF	139 L.H.	UTLEY
[1]Seniors will receive only 3 hours credit.	B	9	TWTF	321 L.H.	YOUNG
	C	10	TWTF	148 L.H.	LODGE
	D	11	TWTF	123 New Agr.	KIDDER
	F	2	MTWT	128 L.H.	DALLERA

Spanish 2a. Modern Spanish.—*Prerequisite:* Spanish 1b or two years of high school Spanish.

4	A	8	TWTF	240 L.H.	ADAM
	B	9	TWTF	139 L.H.	UTLEY
	C	10	TWTF	203a L.H.	BURNER
	D	11	TWTF	303a L.H.	HAMILTON
	E	1	MTWT	227 L.H.	YOUNG
	F	2	MTWT	233 L.H.	KOZMA

Spanish 2b. Modern Spanish.—*Prerequisite:* Spanish 2a or three years of high school Spanish.

4	C	10	TWTF	139 L.H.	ADAM
	F	2	MTWT	203a L.H.	BURNER

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Spanish 3a. Introduction to Spanish Literature.—*Prerequisite:* Spanish 2b or the equivalent.

Credits	Section	Hours	Days	Room	Instructor
3	C	10	MWF	204 U.H.	Burner
	D	11	MWF	133 L.H.	Adam
	E	1	MWF	203a L.H.	Ramsey

Spanish 5a. Commercial Spanish.—*Prerequisite:* Spanish 2b or the equivalent.

2	K	9	TT	133 L.H.	Avilés
	D	11	MW	308 L.H.	Avilés
	N	1	TT	113 L.H.	Avilés

Spanish 7a. Intermediate Composition and Conversation.—*Prerequisite:* Spanish 2b or the equivalent. (*Note:* Prospective teachers of Spanish are strongly advised to take Spanish 7a and 7b.)

2	A	8	WF	227 L.H.	Ellies
	M	11	TT	114 L.H.	Ellies
	O	2	TT	123 L.H.	Avilés

Spanish 8a. Advanced Composition and Conversation.—*Prerequisite:* Spanish 7b.

2		8	TT	123 L.H.	Ellies

Spanish 28a. Senior Thesis.—For candidates for honors in Spanish. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in Spanish have the following prerequisites: Spanish 3b or the equivalent and junior standing; or senior standing and permission of the instructor.

Spanish 10a. Survey of Spanish Literature.—

3		11	MWF	148 L.H.	Burner

Spanish 11a. Cervantes: Don Quijote.—

2		11	TT	205 L.H.	Van Horne

Spanish 17a. Modern Spanish Drama.—

2		10	TT	303a L.H.	Hamilton

Courses for Graduates

Spanish 131. Spanish Literature in the Seventeenth Century.—(1 unit). 5 MW; 425a Lib. Professor Van Horne.

Spanish 135. Modern Spanish Novel.—(1 unit). Arrange. 429 Lib. Associate Professor Hamilton.

Spanish 185. Old Spanish Readings.—(1 unit). Arrange. 214 L.H. Associate Professor Hamilton.

Spanish 195. Seminar.—Research work in preparation for theses in Spanish. (1 to 2 units).* Members of the department.

SOCIOLOGY

Major: 20 hours from any courses in the department.

Minors: 20 hours from one or two of the following subjects: history, philosophy, psychology, economics, political science. At least 8 hours must be offered in either minor subject, if two are chosen.

Courses for Undergraduates

Sociol. 1. Principles of Sociology.—*Prerequisite:* Junior standing, or sophomore standing with a course in either economics or psychology or history.

3	A	8	MWF	304 L.H.	Hiller
	B	9	MWF	238 L.H.	Timmons
	C	9	MWF	306 L.H.	Houghton
	D	10	MWF	326 L.H.	Tylor
	E	10	MWF	306 L.H.	Hiller
	F	11	MWF	304 L.H.	Hiller
	G	1	MWF	334 L.H.	Tylor
	H	1	MWF	306 L.H.	Houghton
	J	2	MWF	306 L.H.	Houghton
	K	3	MWF	326 L.H.	Albig

Sociol. 2. Social Factors in Personality.—*Prerequisite:* Sociol. 1.

3	A	8	MWF	202 L.H.	Ahrens
	B	9	MWF	202 L.H.	Ahrens

Sociol. 90a. Honors Course.—For majors in sociology and other seniors. Consent of instructor required. (2). Arrange. Professor Taft.

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Sociol. 3. Social Evolution.—*Prerequisite:* Sociol. 1 and junior standing. (3). 11 MWF; 202 L.H. Mr. Ahrens.

Sociol. 4. Social Control.—*Prerequisite:* Sociol. 1 and junior standing.

Credits	Section	Hours	Days	Room	Instructor
2	A	10	TT	326 L.H.	Albig
	B	11	TT	326 L.H.	Albig

Sociol. 6. Urban Sociology.—*Prerequisite:* Sociol. 1 and junior standing. (3). 8 MWF; 326 L.H. Assistant Professor Tylor.

Sociol. 8. Charities.—*Prerequisite:* Sociol. 1 and onè semester either of economics or of history.

3	A	10	MWF	334 L.H.	Timmons
	B	2	MWF	334 L.H.	Timmons

Sociol. 9. Criminology.—*Prerequisite:* Sociol. 1 and senior standing.

3	A	9	MWF	128 L.H.	Taft
	B	3	MWF	334 L.H.	Taft

Sociol. 14. Group Opinion.—*Prerequisite:* Sociol. 1 and senior standing. (3). 1 MWF; 326 L.H. Assistant Professor Albig.

Sociol. 17. Methods of Sociological Research.—*Prerequisite:* 8 hours credit in sociology. (3). 9 TT and two hours of supervised research weekly at time to be arranged; 306 L.H. Associate Professor Hiller.

Courses for Graduates

Sociol. 100. Sociological Theory.—(½ to 1 unit).* Twice a week. Arrange; 201 L.H. Associate Professor Hiller.

Sociol. 108. Social Effects of Poverty, Their Prevention and Treatment.—(1 unit). Twice a week. Arrange; 201 L.H. Assistant Professor Timmons.

Sociol. 109. Research in Criminology.—(1 unit). Twice a week. Arrange. 304a L.H. Professor Taft.

Sociol. 150. Seminar.—Preparation of theses. (1 to 2 units).* Twice a week. Arrange. Members of the department.

THEORETICAL AND APPLIED MECHANICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $2.50.

Courses for Undergraduates

T.A.M. 1. Analytical Mechanics (Statics).—*Prerequisite:* Math. 7; registration in Math. 9.

2	A	9	TT	310 M.T.L.
	B	9	TT	202 E.H.
	C	11	TT	202 E.H.
	D	4	TT	305 M.T.L.
	E	4	TT	202 E.H.

T.A.M. 2. Analytical Mechanics (Dynamics).—*Prerequisite:* T.A.M. 1.

3	G	8	MWF	305 M.T.L.
	X	8	MWF	202 E.H.
	S	8	MWF	313 M.T.L.
	M	8	TTS	202 E.H.
	R	8	TTS	305 M.T.L.
	F	9	MWF	305 M.T.L.
	L	10	MWF	305 M.T.L.
	P	11	MWF	305 M.T.L.
	E	11	MWF	310 M.T.L.
	K	11	MWF	313 M.T.L.
	Q	11	MWF	202 E.H.
	N	3	MWF	202 E.H.
	J	3	MWF	305 M.T.L.

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

T.A.M. 3. Resistance of Materials.—*Prerequisite:* T.A.M. 1.

Credits	Section	Hours	Days	Room	Instructor
3	J	8	MWF	310 M.T.L.	
	C	9	MWF	313 M.T.L.	
	G	9	MWF	310 M.T.L.	
	Q	9	MWF	202 E.H.	
	S	9	MWF	109 E.H.	
	Ch1	11	MWF	203 T.B.	
	Ch2	11	MWF	215 T.B.	
	F	11	MWF	316 M.T.L.	
	P	1	MWF	202 E.H.	
	X	1	MWF	305 M.T.L.	
	E	2	MWF	305 M.T.L.	
	R	2	MWF	202 E.H.	

T.A.M. 4. Hydraulics.—*Prerequisite:* T.A.M. 1 and registration in T.A.M. 2.

2	M	9	TT	305 M.T.L.
	L	10	TT	305 M.T.L.
	K	2	TT	305 M.T.L.
	N	2	TT	310 M.T.L.

T.A.M. 17. Statics.—*Prerequisite:* Math. 6a.

3	A	8–10	M	316 M.T.L.
		8	WF	316 M.T.L.
	B	9–11	F	316 M.T.L.
		10	MW	316 M.T.L.

T.A.M. 63. Resistance of Materials Laboratory.—*Prerequisite:* Registration in T.A.M. 3.

1	G	1–3	M	223 M.T.L.
	P	3–5	M	223 M.T.L.
	Ch1	10–12	Tu	223 M.T.L.
	Q	3–5	Tu	223 M.T.L.
	R	8–10	W	223 M.T.L.
	S	10–12	W	223 M.T.L.
	J	1–3	W	223 M.T.L.
	E	3–5	W	223 M.T.L.
	F	8–10	Th	223 M.T.L.
	Ch2	10–12	Th	223 M.T.L.
	C	10–12	F	223 M.T.L.

T.A.M. 64. Hydraulics Laboratory.—*Prerequisite:* Registration in T.A.M. 4.

1	L	3–5	M	M.T.L.
	K	3–5	Tu	M.T.L.
	N	8–10	W	M.T.L.
	M	3–5	Th	M.T.L.

Courses for Advanced Undergraduates and Graduates

T.A.M. 41. Advanced Mechanics of Materials.—*Prerequisite:* T.A.M. 3 and 63. (3). Arrange. Professor SEELY.

T.A.M. 44. Laboratory Work in Testing Materials.—*Prerequisite:* T.A.M. 1, 3, and 63. (3 credits or ½ to 1 unit).* 1-3 TuF. Professor MOORE and Associate Professor PUTNAM.

Courses for Graduates

T.A.M. 101. The Development of Basic Ideas in Mechanics.—(1 unit). Twice a week. Arrange. Professor MOORE.

T.A.M. 103. Hydraulics.—(1 unit). Twice a week. Arrange. Professor ENGER.

T.A.M. 107. Laboratory Investigations in Strength of Materials.—(1 to 2 units).* Twice a week. Arrange. Professor MOORE.

T.A.M. 108. Laboratory Investigations in Hydraulics.—(1 to 2 units).* Twice a week. Arrange. Professor ENGER.

T.A.M. 109. Laboratory Investigations in Plain and Reinforced Concrete.—(1 to 2 units).* Twice a week. Arrange. Professor RICHART.

T.A.M. 110. Analytical Study of Experimental Work on Reinforced Concrete: Beams, Frames, and Footings.—(1 unit). Twice a week. Arrange. Professor RICHART.

T.A.M. 112. Structural Mechanics.—(1 unit). Three times a week. Arrange. Professor WESTERGAARD.

T.A.M. 114. Theory of Elasticity with Applications to Engineering Problems.—(1 unit). Three times a week. Arrange. Professor WESTERGAARD.

T.A.M. 116. Resistance of Materials.—(1 unit). Three times a week. Arrange. Professor SEELY.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

ZOOLOGY

Note: Certain courses in this department require laboratory fees varying from $1 to $4.50.

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: animal husbandry, bacteriology, botany, chemistry, entomology, geology, physics, physiology, psychology. At least 8 hours must be offered in each subject, if two are chosen.

Note: Credit for seniors who take Zoology 1 or 2 will be reduced one hour.

Courses for Undergraduates

Zool. 1. General Zoology.—

Credits	Section	Hours	Days	Room	Instructor
5[1]	Lect.	9	MWF	228 N.H.	THOMAS, KUDO, LUCE, PARK, and assistants
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	TTS	312 N.H.	
	B Lab. & Quiz	8–10	TTS	310 N.H.	
	C Lab. & Quiz	10–12	MWF	312 N.H.	
	D Lab. & Quiz	10–12	MWF	310 N.H.	
	E Lab. & Quiz	10–12	MWF	418 N.H.	
	F Lab. & Quiz	1–3	MWF	312 N.H.	
	G Lab. & Quiz	1–3	MWF	310 N.H.	
	H Lab. & Quiz	1–3	MWF	418 N.H.	
	K Lab. & Quiz	10–12	TTS	312 N.H.	
	L Lab. & Quiz	1–4	TT	312 N.H.	
	M Lab. & Quiz	1–4	TT	310 N.H.	
	N Lab. & Quiz	1–4	TT	418 N.H.	

Zool. 2. Vertebrate Zoology and Comparative Anatomy.—*Prerequisite:* Zool. 1.

5[1]	Lect.	10	MWF	228 N.H.	ADAMS, CAHN, and assistants
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	MWF	330 N.H.	
	B Lab. & Quiz	8–10	TTS	330 N.H.	
	[2]C Lab. & Quiz	1–3	MWF	330 N.H.	

[2]Section C will not be opened until the other sections are filled.

Zool. 3. Microscopical Technic and Vertebrate Embryology.—*Prerequisite:* Zool. 1, 2.

5	Lect.	1	TT	228 N.H.	SHUMWAY
	A Lab.	8–10	MWF	323 N.H.	ADAMSTONE and assistants
	B Lab.	10–12	MWF	323 N.H.	
	C Lab.	1–3	MWF	323 N.H.	
[2]Lab. sections D and E and quiz sections 4 and 5 will not be opened until others are filled.	[2]D Lab.	3–5	MWF	323 N.H.	
	[2]E Lab.	8–10	TTS	323 N.H.	
	1 Quiz	8	Tu	423 N.H.	
	2 Quiz	10	Th	229 N.H.	
	3 Quiz	2	Tu	229 N.H.	
	[2]4 Quiz	2	Th	229 N.H.	
	[2]5 Quiz	1	M	425 N.H.	

Zool. 7. Evolution.—With special reference to the biological processes in which man is involved. *Prerequisite:* 30 hours of university work, including one university semester of laboratory science or its equivalent in high school courses.

3	Lect.	9	MW	300 Math.	ZELENY and others
	A Quiz	8	F	229 N.H.	
	B Quiz	2	F	229 N.H.	
	C Quiz	9	Th	425 N.H.	
	D Quiz	10	Th	425 N.H.	
	E Quiz	9	F	229 N.H.	

Zool. 15. Genetics.—(For students in the College of Agriculture). *Prerequisite:* Two years of university work and Botany 1 or 5, and Zoology 1 or Entomology 1.

3	Lect.	11	MW	228 N.H.	LUCE and assistants
	A Disc.	9	Th	423 N.H.	
	B Disc.	11	F	423 N.H.	
	C Disc.	11	Th	423 N.H.	
	D Disc.	9	M	423 N.H.	

Courses for Advanced Undergraduates and Graduates

Zool. 8a. Thesis Investigation.—*Prerequisite:* Two years of zoology. (3 to 5).* Arrange. Members of the department.

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*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Zool. 11. Animal Ecology and Geography.—*Prerequisite:* One year of zoology and senior standing.

Credits	Section	Hours	Days	Room	Instructor
3–5[1]	Lect.	4	MWF	229 N.H.	SHELFORD
	Lab. or Field	8–12	S	202 Viv.	

Zool. 17. Field Zoology.—*Prerequisite:* One year in zoology. (3). 2-5 TT; 420 N.H. Professor VAN CLEAVE.

Zool. 19. Advanced Ornithology.—*Prerequisite:* Zool. 1, 2, and 16. (2 or 3).* Assistant Professor CAHN.

Zool. 20a. Current Investigation.—Required of all graduate students majoring in zoology; may be elected by seniors majoring in zoology with consent of instructor. (1). 3 F; 229 N.H. Members of the department.

Zool. 21a. Introduction to Zoological Research.—*Prerequisite:* One year in zoological courses and senior standing. (2 to 5).* Arrange. Members of the department.

Zool. 22. Morphology of Vertebrates: Osteology.—*Prerequisite:* Zool. 3.

2-4*	Lect.	4	W	419 N.H.	ADAMS
	Lab.	1–5	TT	419 N.H.	

Zool. 31. Introduction to Parasitology.—*Prerequisite:* Zool. 1 and 2 and junior standing. (2). 3-5 TT; 330 N.H. Assistant Professor THOMAS.

Zool. 63. Comparative Vertebrate Embryology.—*Prerequisite:* One year of zoology and senior standing. (2 to 5).* Arrange. Professor SHUMWAY.

Courses for Graduates

Students entering on graduate study in the department of zoology should have had two years of undergraduate work in the subject. When chosen as a minor the courses listed for graduates and undergraduates must be preceded by at least one full year's undergraduate work in zoology. Work done at other institutions will be evaluated on conference with the head of the department.

Zool. 102. Evolution of the Vertebrates.—(½ unit). Arrange. Assistant Professor ADAMS.

Zool. 106. Topics in Vertebrate Embryology.—(1 unit). Arrange. Professor SHUMWAY.

Zool. 111. Experimental and Field Ecology.—(½ to 2 units).* Arrange. Professor SHELFORD.

Zool. 115. Factors of Individual and Racial Development.—(1 unit). 3 MW; 229 N.H. Professor ZELENY.

Zool. 117. Advanced Field and Faunistic Zoology.—(1 unit). 8-12 TT; 420 N.H. Professor VAN CLEAVE.

Individual Research Courses

Zool. 121. Invertebrate Morphology and Parasitology.—(1 to 2 units).* Arrange. Members of the department.

Zool. 122. Vertebrate Morphology.—(1 to 2 units).* Arrange. Assistant Professor ADAMS.

Zool. 123. Faunistic and Systematic Zoology.—(1 to 2 units).* Arrange. Professor VAN CLEAVE.

Zool. 124. Experimental Zoology and Genetics.—(1 to 2 units).* Arrange. Professor ZELENY.

Zool. 125. Animal Ecology and Behavior.—Time and credits to be arranged. Professor SHELFORD.

Zool. 126. Vertebrate Embryology.—(1 to 2 units).* Arrange. Professor SHUMWAY.

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[1]Three hours credit requires the lectures and field all day September 23, September 30, October 21, and one selected day; 4 and 5 hours credit require additional field work, or the laboratory work, or both as arranged for the individual.

*In registering for a course with variable credit, as 1-2 units or 2-4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

1933/34
pt. 2

TIME TABLE

SECOND SEMESTER
1933-1934

THE LIBRARY OF THE
APR 28 1934
UNIVERSITY OF ILLINOIS

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PUBLISHED BY THE UNIVERSITY OF ILLINOIS
URBANA

UNIVERSITY OF ILLINOIS BULLETIN

ISSUED WEEKLY

VOL. XXXI JANUARY 16, 1934 No. 20

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REGISTRATION CALENDAR

SECOND SEMESTER, 1933-34

1934

Feb. 2-3, Fri.-Sat. . . . . Registration for graduate students.

Feb. 5-6, Mon.-Tues. . . . . Registration for undergraduate students.

Feb. 7, Wed., 8 a.m. . . . . Instruction begun.

Feb. 9, Fri., 8 a.m. . . . . Earliest date for special examinations.

Feb. 12, Mon., 12 m. . . . . Latest date for change of study-lists without fee.

Feb. 17, Sat., 12 m. . . . . Latest date for rebates in full.

Mar. 29, Thurs., 12 m. . . . . Easter recess begun.

Apr. 3, Tues., 1 p.m. . . . . Instruction resumed.

Apr. 7, Sat., 12 m. . . . . Latest date for rebates of one-half fees, and latest date for seniors to make substitutions in courses or to remove failures of the first semester.

May 14, Mon. . . . . Latest date for special examinations.

May 24, Thurs. . . . . Military day.

May 25, Fri. . . . . Semester examinations begun.

June 4, Mon. . . . . Semester examinations ended.

June 10, Sun. . . . . Baccalaureate service.

June 11, Mon. . . . . Sixty-third Annual Commencement.

SUMMER SESSION, 1934

June 18, Mon. . . . . Registration day.

June 19, Tues. . . . . Instruction begun.

Aug. 10-11, Fri.-Sat. . . . . Final examinations.

FIRST SEMESTER, 1934-35

Sept. 14-15, Fri.-Sat. . . . . Registration for graduate students.

Sept. 15, Sat. . . . . Registration for freshmen.

Sept. 17-18, Mon.-Tues. . . . . Registration for upperclassmen.

Sept. 19, Wed., 8 a.m. . . . . Instruction begun.

KEY TO NAMES OF DEPARTMENTS AND DIVISIONS

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EXPLANATION

The arrangement of subjects in the following Time Table is alphabetical by names of departments. The connections of allied departments and divisions are indicated by cross references. (See page 3 for key to names of departments and divisions.)

The courses offered by each department or division are listed, in numerical order, in groups with headings that indicate the students for whom they are designed. Groups of general, elementary, and introductory courses are listed as "Courses for Undergraduates." Intermediate and advanced groups are listed as "Courses for Advanced Undergraduates and Graduates." Courses with numbers beginning at 100 are listed as "Courses for Graduates" and are not open to undergraduates.

Following the title of each course of instruction will be found the requirements, if any, for admission to that particular course. The sequence indicated by these prerequisites must be followed. For example, under Art 35a-35b, Commercial Art, the prerequisites given are Art 27b and 31b. These two courses must be completed before Art 35a-35b may be taken.

If a course not required for graduation is selected by fewer than five students it may be withdrawn for the semester.

Credit

Credit for undergraduate students is reckoned in *semester hours*, or simply *hours*. An *hour* is one class period a week for one semester or the equivalent in laboratory, shop, or drafting room. The number of hours for which each course counts is shown in parentheses in the description of the course, thus, (2), except where the credits, sections, etc., are tabulated.

Credit for first-year graduate students, candidates for the master's degree, is counted in *units*. A *unit* course is one which requires ten hours of time per week through one semester, irrespective of the distribution of that time in class work, laboratory work, and private study. Four such courses or their equivalent constitute a full minimum program for one semester. The unit values of graduate courses (numbered 100 and upwards) are indicated in parentheses following the titles of these courses. Courses of the intermediate groups "for graduates and advanced undergraduates" generally are evaluated for graduate credit as follows: (a) courses open only to students having at least senior standing, 1 unit for a 4-hour or a 5-hour course, ½ unit for a 1-hour, 2-hour, or 3-hour course; (b) courses open to juniors, ½ unit for a 4-hour or 5-hour course, ¼ unit for a 1-hour, 2-hour, or 3-hour course.

Buildings

University buildings are designated by the following abbreviations:

Administration Building (East)	Adm.(E)
Agricultural Building (Old)	Agr.
Agricultural Engineering Building	Agr.Eng.
Animal Pathology Laboratory	An.Path.L.
Architectural Building	Arch.
Armory	Arm.
Ceramics Building	Cer.
Chemistry Annex	Chem.A.
Chemistry Building	Chem.
Civil Engineering Surveying Building	C.E.S.B.
Commerce Building	Com.
Dairy Manufactures Building	D.Mfrs.
Electrical Engineering Annex	E.E.A.
Electrical Engineering Laboratory	E.E.L.
Engineering Hall	E.H.
Entomology Building	Entom.
Floricultural Greenhouses	F.G.
Genetics Building	Gen.Bldg.
Gymnasium Annex	Gym.A.
Highway Laboratory	H.L.
Horticultural Field Laboratory	H.F.L.
Law Building	Law
Library	Lib.
Lincoln Hall	L.H.
Materials Testing Laboratory	M.T.L.
Mathematics Building	Math.
Mechanical Engineering Laboratory	M.E.L.
Men's New Gymnasium	New Gym.
Men's Old Gymnasium	Old Gym.
Mining Engineering Laboratory	Min.L.
Natural History Building	N.H.
New Agricultural Building	New Agr.
Physics Laboratory	P.L.
Smith Memorial Music Hall	S.M.H.
Stock Judging Pavilion	S.P.
Transportation Building	T.B.
University Hall	U.H.
University High School	U.H.S.
Vegetable Greenhouse	V.G.
Vivarium Building	Viv.
Woman's Building	W.B.
Woman's Gymnasium	W.Gym.

TIME TABLE FOR COURSES OF INSTRUCTION

SECOND SEMESTER, 1933-1934

AGRICULTURAL COLLEGE EXTENSION

Course for Undergraduates

Agr. Coll. Ext. 6. Agricultural Extension.—*Prerequisite:* Junior standing. (2). 10 TT; 118 New Agr. Associate Professor HUDELSON and others.

AGRICULTURAL ECONOMICS

Courses for Undergraduates

†**Agr. Econ. 1. Introductory Agricultural Economics.**—Required of all agricultural students entering September, 1933, and subsequently.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	3	W	103 New Agr.	ROSS
	Disc. A	3	MF	313 New Agr.	
	Disc. B	10	MW	313 New Agr.	
	Disc. C	2	TT	313 New Agr.	

†**Agr. Econ. 20. Farm Management.**—*Prerequisite:* Sophomore standing. Local field trips will be arranged; estimated cost, $3.

3	Lect. and Disc.	10	TT	316 New Agr.	WILCOX
	S Lab.	1–3	Th	331 New Agr.	and
	T Lab.	1–3	F	331 New Agr.	others

Agr. Econ. 40. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange.

(b) **Agricultural Marketing.**—Members of the department.
(d) **Agricultural Prices and Statistics.**—Assistant Professor NORTON.
(f) **Farm Organization and Management.**—Professor CASE.
(h) **Land Economics.**—Associate Professor STEWART.

Courses for Advanced Undergraduates and Graduates

Agr. Econ. 14. Cooperation in Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing. (2). 9 TT; 118 New Agr. Dr. BARTLETT.

Agr. Econ. 15. Financing Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 11 MWF; 118 New Agr. Assistant Professor NORTON.

Agr. Econ. 18. Land Economics.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 9 MWF; 118 New Agr. Associate Professor STEWART.

Agr. Econ. 23. Farm Business Analysis.—*Prerequisite:* Agr. Econ. 20 and Accountancy 1a. Lectures and quiz. Local field trips will be arranged; estimated cost, $5. (3). 1 MWF; 316 New Agr. Assistant Professor JOHNSTON.

Agr. Econ. 25. Farm Organization.—*Prerequisite:* Agr. Econ. 20. Local field trips will be arranged; estimated cost, $5. (3). 8 MWF; 331 New Agr. Professor CASE, Assistant Professor JOHNSTON.

Agr. Econ. 34. Marketing Dairy Products.—*Prerequisite:* Junior standing. (2). Arrange; D. Mfrs. Dr. BARTLETT and others. (Inspection trip requirement waived for 1933-34).

Agr. Econ. 37. Marketing Live Stock.—*Prerequisite:* Senior standing; An. Husb. 3. *Prerequisite or concurrent:* An. Husb. 6. (2). 9 TT; 316 New Agr. Associate Professor ASHBY. (Inspection trip requirement waived for 1933-34).

Agr. Econ. 41. Problems in Agricultural Economics.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Arrange.

(a) **Agricultural Marketing.**—Members of the department.
(b) **Agricultural Prices and Statistics.**—Assistant Professor NORTON.
(c) **Farm Management.**—Professor CASE.
(d) **Land Economics.**—Associate Professor STEWART.

Agr. Econ. 42. Farm Appraisals.—Valuation of farm real estate and other agricultural property. Factors studied include soils, crops, farm management, buildings, drainage, livestock, fruit, land titles, prices and taxes in relation to value. *Prerequisites:* Agron. 28, Agr. Econ. 20, or their equivalents; approval of Dean as supervisor. Local field trips to be arranged; estimated cost, $5. (3). 9 TTS; 116 New Agr. Members of departments involved.

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†Sophomores in 1933-34 will be permitted to elect either Agricultural Economics 1 or 20 to fulfill prescribed course requirement.

Courses for Graduates

Agr. Econ. 109. Seminar. Thesis Course.—All graduate students majoring in Agricultural Economics must register in Agr. Econ. 109, but only those students writing theses acceptable for the degree of Master of Science will be given credit. (1 to 2 units).* Once a week. Arrange. Members of the department.

Agr. Econ. 110. Theory of Agricultural Economics.—(1 unit). Time to be arranged. Associate Professor STEWART.

Agr. Econ. 111. Agricultural Prices and Statistics.—(1 unit). Time to be arranged. Assistant Professor NORTON.

Agr. Econ. 112. Agricultural Economics Research.—Only those who write acceptable reports of successful investigation will receive credit. (1 to 2 units).* Time to be arranged. Associate Professor STEWART.

Agr. Econ. 120. Farm Management Principles and Investigational Methods.—(1 unit). Twice a week. Time to be arranged. Professor CASE.

Agr. Econ. 135. Marketing Fruits and Vegetables.—(1 to 2 units).* Time to be arranged. Professor LLOYD.

AGRICULTURAL ENGINEERING

(Formerly Farm Mechanics)

Note: Certain courses in this department require laboratory fees varying from $1 to $8.

Courses for Undergraduates

Agr. Eng. 1. Introduction to Agricultural Engineering.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	8	WF	201 Agr. Eng.	YOUNG
	B Quiz	9	W		HAY
[1]Seniors will receive only 2 hours credit.	J Quiz	8	Tu		
	S Quiz	9	F		
	A Lab.	8–10	M		
	J Lab.	8–10	Th		
	N Lab.	1–3	Th		

Agr. Eng. 3. Gas Engines and Tractors.—*Prerequisite:* Agr. Eng. 1. (Inspection trip requirement waived for 1933-34).

3	Lect.	11	TT	201 Agr. Eng.	SHAWL
	K Quiz	9	Tu		
	O Quiz	2	Th		
	O Lab.	2–4	Tu		
	K Lab.	9–11	S		

Agr. Eng. 4. Farm Buildings.—*Prerequisite:* Agr. Eng. 1 or consent of instructor. (3). 1 MW; 202 Agr. Eng. Laboratory time to be arranged. Assistant Professor FOSTER.

Agr. Eng. 11. Dairy Machinery and Equipment.—(Given 1933-34 and alternate years.) *Prerequisite:* Agr. Eng. 1. (2). Lect. 10 Th; Lab. 10-12 Tu. 205 Agr. Eng. Mr. YOUNG.

Agr. Eng. 12. Farm Home Equipment.—*Prerequisite:* Agr. Eng. 1 or junior standing. (2). Lect. 1 Tu; Lab. 1-3 Th; 204 Agr. Eng. Professor LEHMANN.

Agr. Eng. 18b. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Time to be arranged. Professor LEHMANN, Assistant Professor SHAWL.

Agr. Eng. 21. Farm Shop Work.—*Prerequisite:* Agr. Eng. 1. (2). 3-5 MW; 201 Agr. Eng. Mr. YOUNG.

Courses for Advanced Undergraduates and Graduates

Agr. Eng. 17. Harvesting Machinery.—*Prerequisite:* Agr. Eng. 2. (3). Lect. 11 MW, Lab. 2-5 Tu; 201 Agr. Eng. Assistant Professor SHAWL, Mr. HAY.

Agr. Eng. 51. Special Power and Field Machinery.—*Prerequisite:* Agr. Eng. 17 or 28. Consult instructor before registering. (3). Time to be arranged. Professor LEHMANN, Assistant Professor SHAWL.

AGRONOMY

Note: Certain courses in this department require laboratory fees varying from $2 to $4.

Courses for Undergraduates

Agron. 8. Forage Crops.—*Prerequisite:* Agron. 25.

3	Lect.	11	MW	205 Agr.	PIEPER
	Quiz	11	F	205 Agr.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Agron. 18. Investigation with Thesis.—*Prerequisite:* Senior standing; not less than 20 hours pertinent to thesis problem; and the approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange.

Soils.—Professors BAUER, DETURK, R. S. SMITH; Associate Professor SEARS.
Crops.—Professors BURLISON, WOODWORTH; Associate Professor DUNGAN.

Agron. 25. Farm Crops.—*Prerequisite:* Bot. 5.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	3	MW	205 Agr.	PIEPER, DUNGAN, and VAN DOREN
	A Lab.	1–3	Tu	600 Agr.	
	Quiz	3	F	205 Agr.	

Agron. 28. Soils.—*Prerequisite:* Chem. 5; Geol. 44. (Local field trip, cost not to exceed $1.)

5	Lect.	8	MWF	205 Agr.	WIMER, CRANE, and STAUFFER
	A Quiz	8	TT	205 Agr.	
	B Quiz	10	TT	205 Agr.	
	A Lab.	1–4	Th	650 Agr.	
	C Lab.	8–11	S	650 Agr.	

Courses for Advanced Undergraduates and Graduates

Agron. 10. Genesis, Morphology, Classification, and Geography of Soils.—*Prerequisite:* Agron. 28, junior standing. (3). Lect., 1 MWF; 205 Agr. Professor R. S. SMITH.

Agron. 13. Soil Productivity, its Variation, Modification, and Maintenance.—*Prerequisite:* Agron. 28, senior standing. (3). 9 MWF; 302 Agr. Professor BAUER.

Agron. 22. Plant Genetics and Breeding.—*Prerequisite:* Zool. 15, junior standing. (3). Lect., 10 MWF; 302 Agr. Professor WOODWORTH, Dr. BONNETT.

Agron. 30. Metabolism of Soil Microorganisms.—(Given in alternate years). *Prerequisite:* Bact. 5a and 5b (or 20); Chem. 32, junior standing. (3). 11 MWF; 302 Agr. Associate Professor SEARS.

Courses for Graduates

Agron. 114. Principles Underlying the Production of Crops.—(1 unit). Once a week. Arrange. Professor BURLISON, Associate Professor DUNGAN.

Agron. 118. Research.—(½ to 4 units).* Arrange.

Soils.—Professors BAUER, DETURK, R. S. SMITH.
Crops.—Professors BURLISON, WOODWORTH; Associate Professor DUNGAN.

Agron. 119. Experiment Station Problems.—(See Animal Husbandry 103.) Professor MUMFORD.

ANIMAL HUSBANDRY

Courses for Undergraduates

An. Husb. 1. Introduction to Animal Husbandry.—Required of students not having had livestock judging in high school. (No credit in this course allowed to juniors and seniors.) (2). 3-5 TT; S.P. Mr. CRAWFORD, Mr. GARRIGUS.

An. Husb. 6. Livestock Management.—*Prerequisite:* An. Husb. 21. (5). 10 MTWTF; S.P. Professor EDMONDS.

An. Husb. 9b-t. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem, and approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange.

(b) **Beef Cattle.**—Professor RUSK, Associate Professor SNAPP.
(d) **Horses.**—Professor EDMONDS.
(f) **Sheep.**—Assistant Professor KAMMLADE.
(h) **Swine.**—Professor CARROLL.
(k) **Poultry.**—Professor CARD.
(m) **Animal Nutrition.**—Professor MITCHELL.
(p) **Animal Genetics.**—Associate Professor ROBERTS.
(r) **Animal Pathology.**—Professor GRAHAM.
(t) **Meats.**—Associate Professor BULL.

An. Husb. 10. Farm Meats.—(3). 1-4 TT; 128 Agr. Associate Professor BULL.

An. Husb. 21. Principles of Feeding.—*Prerequisite:* Chem. 1 or 2.

3	Lect.	2	W	553 Agr.	BULL and others
	A Quiz	2	MF	553 Agr.	
	B Quiz	11	TT	553 Agr.	

An. Husb. 35. Animal Hygiene, Sanitation, Contagious Diseases of Farm Animals.—*Prerequisite:* An. Husb. 34; Bact. 5a. (2). 3 TT; An. Path. L. Professor GRAHAM.

An. Husb. 37. Poultry Management.—*Prerequisite:* An. Husb. 21. (3 or 4).* 9 MWF; Lab. 3-5 Th; 316 New Agr. Students may register for this course either with or without the laboratory. Professor CARD, Dr. SLOAN.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

An. Husb. 12. Special Problems.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Arrange. Members of the department.

An. Husb. 27. Sheep Husbandry.—*Prerequisite:* An. Husb. 3 and 6. (3). 11 MWF; 111 S.P. Assistant Professor KAMMLADE.

An. Husb. 28. History of Breeds of Live Stock.—*Prerequisite:* An. Husb. 3. It is recommended that this course precede An. Husb. 22. (3). 3 MWF; 316 New Agr. Heads of divisions.

An. Husb. 31. Advanced Course in Animal Nutrition.—*Prerequisite:* Senior standing, including An. Husb. 7. (3). Time to be arranged. Professor MITCHELL.

An. Husb. 33. Horse Production.—*Prerequisite:* An. Husb. 3 and 6. (3). 1 MWF; S.P. Professor EDMONDS.

An. Husb. 39. Poultry Production.—*Prerequisite:* An. Husb. 37. (3). 8 MWF; 316 New Agr. Professor CARD.

An. Husb. 41. Animal Genetics.—*Prerequisite:* Zool. 15. (3). 2 MWF; Gen. Bldg. Associate Professor ROBERTS.

Courses for Graduates

An. Husb. 103. Experiment Station Problems.—Once a week. (½ unit). Time to be arranged. Professor MUMFORD.

An. Husb. 112a-f. Research.—(½ to 2 units).* Arrange. One to three times a week.

(a) **Economic Factors in Meat Production.**—Professor RUSK.
(b) **Systems of Live Stock Farming.**—Professor CASE.
(d) **Animal Nutrition.**—Professor MITCHELL.
(e) **Animal Genetics.**—Associate Professor ROBERTS.
(f) **Poultry Husbandry.**—Professor CARD.

These courses may be taken during the summer by special permission.

An. Husb. 117. Animal Genetics.—Two to five times a week. (1 unit). Associate Professor ROBERTS.

An. Husb. 118. Animal Nutrition Seminar.—Two hours a week. (½ unit). Professor MITCHELL.

An. Husb. 119. Laboratory Methods in Animal Nutrition.—Two to five times a week. (½ to 1 unit).* Laboratory fee, $5. Professor MITCHELL.

An. Husb. 120. Laboratory Methods in the Diagnosis of Animal Diseases.—Two to five times a week. (½ to 1 unit).* Professor GRAHAM.

An. Husb. 121. Laboratory Methods in Animal Genetics.—Two to five times a week. (½ to 1 unit).* Time to be arranged. Associate Professor ROBERTS.

ARCHITECTURE

Courses for Undergraduates

Arch. 12. History of Architecture.—*Prerequisite:* Arch. 11. Not open to students expecting a degree in Architecture. (3). 3 MWF; 120 Arch.

Arch. 14. History of Architecture.—*Prerequisite:* Arch. 13. (2). 11 MW; 120 Arch.

Arch. 16. History of Architecture.—*Prerequisite:* Arch. 15. (2). 11 TT; 120 Arch.

Arch. 18. History of Architecture.—*Prerequisite:* Arch. 17. (2). 8 WF; 120 Arch.

Arch. 22-28. Freehand Drawing.—See Art 21-24.

Arch. 32a. Architectural Design.—*Prerequisite:* Arch. 31a.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	2	W	120 Arch.	
	A	1–4	TT	210 Arch.	
	B	8–11	MF	210 Arch.	
	C	8–11	TT	210 Arch.	

Arch. 33. Architectural Design.—*Prerequisite:* Arch. 32a. (3). See Arch. 34 for hours. 210 Arch.

Arch. 34. Architectural Design.—*Prerequisite:* Arch. 33.

3	A	1–4	MW	210 Arch.
		8–11	S	210 Arch.
	B	1–4	TT	210 Arch.
		8–11	S	210 Arch.
	C	1–4	WF	210 Arch.
		8–11	S	210 Arch.

Arch. 35. Architectural Design.—*Prerequisite:* Arch. 34. (5). See Arch. 36 for hours. 200 Arch.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Arch. 36. Architectural Design.—*Prerequisite:* Arch. 35 and registration in Arch. 66.

Credit	Section	Hours	Days	Room	Instructor
5	A	9–12	M	200 Arch.	
		1–4	MWF	200 Arch.	
	B	1–4	TTF	200 Arch.	
		9–12	F	200 Arch.	

Arch. 37. Architectural Design.—*Prerequisite:* Arch. 36 and senior standing in Architecture. (7). 8-11 S, 1-4 MTWTF; 200 Arch.

Arch. 38. Architectural Design.—*Prerequisite:* Arch. 37 and senior standing in Architecture. (7). 8-11 S, 1-4 MTWTF; 200 Arch.

Arch. 44. Technology of Materials.—*Prerequisite:* Arch. 43.

3	A	1–4	TT	310 Arch.
	Lect.	11	F	302 Arch.
	B	8–11	TT	310 Arch.
	Lect.	11	F	302 Arch.
	C	1–4	MW	310 Arch.
	Lect.	11	W	302 Arch.

Arch. 46. Graphic Statics.—*Prerequisite:* Arch. 45.

3	A	9–12	WF	310 Arch.
	Lect.	9	Tu	302 Arch.
	B	1–4	MW	310 Arch.
	Lect.	9	Tu	302 Arch.
	C	1–4	TT	310 Arch.
	Lect.	11	M	302 Arch.

Arch. 48. Steel Construction.—*Prerequisite:* Arch. 47 and registration in Arch. 58.

5	C	8	TT	301 Arch.
		1–4	MWF	300 Arch.

Arch. 55. Building Sanitation.—*Prerequisite:* Phys. 8a-8b; Arch. 44. (1). 10 TT; 301 Arch.

Arch. 56. Building Sanitation.—*Prerequisite:* Senior standing in Architecture; (2). 10 MW; 302 Arch.

Arch. 58. Reinforced Concrete Design.—*Prerequisite:* Arch. 57 and registration in Arch. 48.

3	C	10	F	301 Arch.
		1–4	TT	300 Arch.

Arch. 60. Reinforced Concrete.—*Prerequisite:* Senior standing in Architecture. (2). 11 TT; 302 Arch.

Arch. 66. Theory of Architecture.—*Prerequisite:* Arch. 65 and registration in Arch. 36. (1). 9 Th; 302 Arch.

Arch. 67. Theory of Form.—See Art 50.

Arch. 68. Specifications.—*Prerequisite:* Senior standing in Architecture. (3). 11 MWF; 301 Arch.

Arch. 72a. Architectural Design.—*Prerequisite:* Arch. 71a. Not open to students expecting a degree in Architecture.

3	A	1–4	TT	210 Arch.
		2	W	120 Arch.

Arch. 73-74. Freehand Drawing.—See Art 21a-21b.

Arch. 76. Masonry Construction Details.—*Prerequisite:* Arch. 75. Not open to students expecting a degree in Architecture.

2	A	1–4	TT	310 Arch.

Courses for Graduates

Arch. 101. Architectural Construction.—Theory and design. (½ to 2 units).* Professor PALMER.

Arch. 103. Architectural Construction.—Special problems. (½ to 2 units).* Associate Professor MORGAN.

Arch. 104. Architectural Design.—(1 to 3 units).* Professor DEAM.

Arch. 105. Architectural Practice.—(¼ to ½ unit).* Professor PROVINE.

Arch. 106. Architectural History.—(½ to 2 units).* Dean NEWCOMB.

ART

Note: Certain courses in this department require laboratory fees varying from $3 to $5.

A list of courses in Art showing new and old numbers is given in "Directions for Registration, 1933-34," page 62.

Courses for Undergraduates

Art 1a (formerly 13a). **Design.**—

2	1–3	MW	342 L.H.	ANDERSON

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Art 1b (formerly 13b). **Design.**—*Prerequisite:* Art 1a.

Credit	Section	Hours	Days	Room	Instructor
2	A	8–11	M	342 L.H.	Anderson
	B	8–10	TT	342 L.H.	Anderson
	C	10–12	TT	342 L.H.	Anderson
	D	1–4	F	342 L.H.	Anderson

Art 2a-2b (formerly 11a-11b). **Water Color.**—*Prerequisite:* Art 25b.

2		1–4	TT	401a Arch.	Nearpass

Art 3a-3b (formerly 11c-11d). **Water Color.**—*Prerequisite:* Art 2a.

2		1–4	TT	401a Arch.	Nearpass

Art 4a-4b (formerly 14a-14b). **Interior Design.**—*Prerequisite:* Art 31a, and 2a or 1b concurrently.

2		1–3	TT	342 L.H.	Anderson

Art 10b (formerly 15a). **Course for Teachers.**—*Prerequisite:* Art 31a.

2		3–5	TT	342 L.H.	Anderson

Art 12 (formerly 16b). **History of Fine Arts.**—*Prerequisite:* Sophomore standing.

2		10	MW	120 Arch.	Lake

Art 14 (formerly 16d). **Art Appreciation.**—*Prerequisite:* Junior standing.

3		1	T	120 Arch.	Nicholson
		1–3	Th	120 Arch.	Nicholson

Art 16 (formerly 16f). **History of Modern Painting.**—Primarily for students in colleges other than Fine and Applied Arts). *Prerequisite:* Junior standing.

3		9	MWF	120 Arch.	Nicholson

Art 18 (formerly 16h). **History of Medieval Art.**—(Primarily for students in colleges other than Fine and Applied Arts). *Prerequisite:* Junior standing.

3		1	MWF	120 Arch.	Nicholson

Art 21a-21b (formerly Arch. 21-22). **Freehand Drawing.**—(Primarily for students in Architecture and Landscape Architecture).

2	A	8–11	W	410a Arch.	Woodroofe
		2–5	F	410a Arch.	Woodroofe
	B	9–12	TT	410b Arch.	Kennedy
	C	9–12	MF	410a Arch.	Hogan

Art 22a-22b (formerly Arch. 23-24). **Freehand Drawing.**—(Primarily for students in Architecture and Landscape Architecture). *Prerequisite:* Art 21b.

2	A	8–11	TT	Hall of Casts	Woodroofe
	B	1–4	MF	Hall of Casts	Hogan
	C	1–4	TT	410a Arch.	Kennedy

Art 23a-23b (formerly Arch. 25-26). **Freehand Drawing.**—(Primarily for students in Architecture and Landscape Architecture). *Prerequisite:* Art 22b.

2	A	1–4	TT	Hall of Casts	Woodroofe
	B	9–12	MW	410b Arch.	Kennedy

Art 24a-24b (formerly Arch. 27-28). **Freehand Drawing.**—(Primarily for students in Architecture). *Prerequisite:* Art 23b.

2		8–11	MW	10 Arch.	Bailey

Art 25a (formerly 1a). **Cast and Still Life Drawing.**—

2	A	9–12	MW	Hall of Casts	Donovan
	B	9–12	TT	410a Arch.	Nearpass

Art 25b (formerly 1b). **Cast Drawing.**—*Prerequisite:* Art 25a.

2	A	9–12	MW	Hall of Casts	Donovan
	B	9–12	TT	410a Arch.	Nearpass

Art 26b (formerly 3b). **Anatomy and Sketch.**—*Prerequisite:* Art 26a.

2	Lecture	1	W	410b Arch.	Kennedy
	A Lab.	9–12	F	410b Arch.	Kennedy
	B Lab.	9–12	S	10 Arch.	Hogan

Art 27a-27b (formerly 5a-5b). **Life Drawing.**—*Prerequisite:* Art 25b and 26b.

3		1–4	MWF	10 Arch.	Bailey

Art 28a-28b (formerly 6a-6b). **Portrait.**—*Prerequisite:* Art 25b and 26b.

2		9–12	TT	10 Arch.	Hogan

Art 29a-29b (formerly 5c-5d). **Life Drawing.**—*Prerequisite:* Art 27b.

3		1–4	MWF	403 Arch.	Bradbury

Art 30a-30b (formerly 8a-8b). **Sketch.**—*Prerequisite:* Art 27b.

Credit	Section	Hours	Days	Room	Instructor
1		9–12	M	403 Arch.	BRADBURY

Art 31a (formerly 2a). **Composition and Design.**—*Prerequisite:* Art 25a must precede or accompany this course.

2		10	TT	302 Arch.	LAKE

Art 31b (formerly 2b). **Composition.**—*Prerequisite:* Art 31a.

2		1	MF	410b Arch.	NEARPASS

Art 32a-32b (formerly 2c-2d). **Composition.**—*Prerequisite:* Art 31b.

2		9	WF	403a Arch.	NEARPASS

Art 33a-33b (formerly 2e-2f). **Composition and Illustration.**—*Prerequisite:* Art 32b.

2		10	WF	403a Arch.	NEARPASS

Art 34a-34b (formerly 2g-2h). **Composition (Mural).**—*Prerequisite:* Art 33b.

3		11	MWF	401a Arch.	NEARPASS

Art 35a-35b (formerly 9a-9b). **Commercial Art.**—*Prerequisite:* Art 27b and 31b.

2		8	MW	403a Arch.	DONOVAN
		9–12	S	310 Arch.	DONOVAN

Art 36a-36b. Commercial Art.—*Prerequisite:* Art 35b.

2		8	MW	403a Arch.	DONOVAN
		9–12	S	310 Arch.	DONOVAN

Art 41a-41b (formerly 7a-7b). **Still Life.**—*Prerequisite:* Art 25a.

2		1–4	TT	403 Arch.	DONOVAN

Art 42a-42b (formerly 10a-10b). **Landscape.**—*Prerequisite:* Art 41b.

2		1–4	TT	403 Arch.	DONOVAN

Art 43a-43b (formerly 10c-10d). **Landscape.**—*Prerequisite:* Art 42b.

3		1–4	TT	403 Arch.	DONOVAN

Art 44a-44b (formerly 6c-6d). **Portrait.**—*Prerequisite:* Art 28b.

2		9–12	TT	403 Arch.	BRADBURY

Art 45a-45b (formerly 6e-6f). **Portrait.**—*Prerequisite:* Art 44b.

3		9–12	TTS	403 Arch.	BRADBURY

Art 46a-46b (formerly 8c-8d). **Sketch.**—*Prerequisite:* Art 30b.

1		9–12	M	403a Arch.	BRADBURY

Art 47a-47b (formerly 5e-5f). **Life Painting.**—*Prerequisite:* Art 29b.

3		1–4	MWF	403 Arch.	BRADBURY

Art 50 (formerly Art 4a and Arch. 67). **Modeling.**—*Prerequisite:* Art 25a or equivalent.

2	A (Arch.)	8–11	TT	20 Arch.	BAILEY
	B (Art)	1–4	TT	20 Arch.	LAKE
	C (Art)	2–5	WF	20 Arch.	LAKE

Art 51a-51b (formerly 4b-4c). **Modeling.**—*Prerequisite:* Art 50.

2		1–4	TT	20 Arch.	LAKE

Art 52a-52b (formerly 4d-4e). **Modeling.**—*Prerequistie:* Art 51b.

2		1–4	TT	20 Arch.	LAKE

Art 90 (formerly 18). **Original Project.**—*Prerequisite:* Senior standing in art. (2). Arrange.

ASTRONOMY

Course for Undergraduates

Astron. 2. Descriptive Astronomy.—Continuation of Astron. 1. The sun, stars, nebulae; the galactic system. *Prerequisite:* Astron. 1. (3). 11 MWF, 229 N.H.; one hour Wednesday evening, Observatory. Professor BAKER.

Courses for Graduates

Astron. 101. Seminar.—(1 unit). 1 MWF; Observatory. Professor BAKER.

Astron. 103. Celestial Mechanics.—(1 unit). 11 TTS; Observatory. Professor BAKER.

BACTERIOLOGY

Note: Certain courses in this department require laboratory fees from $4 to $5.

Major: 20 hours chosen from the courses offered by this department. Dairy Husbandry 10 (advanced dairy bacteriology) may be offered in partial satisfaction of this requirement. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: chemistry and botany. At least eight hours must be offered in each subject if two are chosen.

Courses for Undergraduates

Bact. 5a. Introductory Bacteriology and Sanitary Science.—*Prerequisite:* Sophomore standing or consent of instructor.

Credit	Section	Hours	Days	Room	Instructor
3	Lecture	8	TT	100 Chem.	Tanner
	A Quiz	8	S	300 Chem.	Laffer
	B Quiz	2	Tu	213 U.H.	Wallace
	C Quiz	3	Tu	303 Chem.	Clark
	D Quiz	2	Th	300 Chem.	Wallace
	E Quiz	3	Th	300 Chem.	Wallace
	F Quiz	2	W	300 Chem.	Park
	G Quiz	3	W	241 N.H.	Wallace

Bact. 5b. Introductory Bacteriology, Laboratory.—*Prerequisite:* Bact. 5a or concurrent registration in it.

2	Lab. A	8–10	MW	367 Chem.	Wallace
	Lab. B	10–12	MW	367 Chem.	Laffer
	Lab. C	1–3	TT	367 Chem.	Park
	Lab. D	10–12	TT	367 Chem.	Clark

Courses for Advanced Undergraduates and Graduates

Bact. 7b. Research and Special Problems for Undergraduates.—*Prerequisites:* 10 hours of bacteriology or consent of instructor. (3 to 5).* To be arranged. Professor Tanner, Assistant Professor Wallace.

Bact. 8. Food and Applied Bacteriology.—*Prerequisite:* Bact. 5a and 5b; junior standing; consent of instructor.

5	Lect.	8	MW	229 N.H.	Tanner
	Lab.	8–10	TTS	367 Chem.	Clark, Park

Bact. 10. Epidemiology.—*Prerequisite:* Bact. 5a, or 20; junior standing; consent of instructor. (2). Lect., 11 TT; 204 Chem. Assistant Professor Wallace.

Courses for Graduates

Bact. 107. Research.—(½ to 4 units).* Time to be arranged. Professor Tanner.

Bact. 118b. Current Literature.—(Required of all graduate students who major in general bacteriology.) *Prerequisite:* 10 hours of bacteriology; consent of instructor. (¼ unit). 1 W; 366 Chem. Professor Tanner.

BOTANY

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

Major: 20 hours of botany exclusive of Bot. 1 and 5, and inclusive of Bot. 2 or 12, 3, and at least five hours in courses listed for advanced undergraduates and graduates.

Minors: 20 hours in one or two departments chosen in consultation with the head of the department from the following list: agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least eight hours must be offered in each department, if two are chosen.

Courses for Undergraduates

Bot. 1. General Botany.—

5[1]	Lect.	9	TT	228 N.H.	Hottes, Buchholz, Vestal, Fuller, and assistants
	A Lab.	8–10	MWF	258 N.H.	
[1]Seniors will receive only 4 hours credit.	B Lab.	10–12	MWF	258 N.H.	
	C Lab.	1–3	MWF	258 N.H.	
	1 Disc.	8	Th	258 N.H.	
	2 Disc.	10	Tu	258 N.H.	
	3 Disc.	10	Th	258 N.H.	
	4 Disc.	11	Tu	258 N.H.	
	5 Disc.	1	Tu	258 N.H.	
	6 Disc.	2	Tu	258 N.H.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Bot. 5. Botany for Students in Agriculture.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	9	Th	202 Entom.	HOTTES, STEVENS,
[1]Seniors will receive	A Lab.	10–12	TT	259 N.H.	BUCHHOLZ, VESTAL,
only 2 hours credit.	B Lab.	1–3	TT	259 N.H.	FULLER, and assistants

Bot. 6. Introductory Systematic Botany.—Classification and identification of flowering plants, with special reference to local flora, and needs of high school teachers. *Prerequisite:* Bot. 1 or 5. (3). Lect. 10 Th; Lab. 10-12 Tu; other lab. hours to be arranged; 350 N.H. Dr. FULLER.

Bot. 8. Forest Ecology.—*Prerequisite:* Bot. 1 or 5. (3). 1-3 TT and arrange 2 additional hours; 216 N.H. Associate Professor VESTAL.

Bot. 12. Morphology of Vascular Plants.—*Prerequisite:* Bot. 1 or 5. (3). 1-3 MWF; 204 Entom. Dr. HAGUE.

Bot. 13. Plant Physiology: Growth and response.—*Prerequisite:* Bot. 1 or 5.

3	Lect.	10	W	229 N.H.	FULLER and
	Lab.	10–12	MF	153 N.H.	assistant

Bot. 14. Botany for Teachers.—*Prerequisite:* 15 hours of botany. (3). 11 TT and arrange additional hour; 216 N.H. Associate Professor VESTAL.

Courses for Advanced Undergraduates and Graduates

Bot. 20. Cytology.—Structure and life history of the plant cell, with special reference to theories of heredity and evolution. *Prerequisite:* 1 year of botany inclusive of Bot. 45, and junior standing. (3 or 5).* 8-10 TTS; 201 Entom. Professor BUCHHOLZ.

Bot. 34. Physiology.—*Prerequisite:* One year of botany inclusive of Bot. 3, and junior standing. (3 or 5).* 1-3 MWF; 155 N.H. Professor HOTTES and assistant.

Bot. 41. Cryptogamic Botany: Algae, Fungi and Bryophytes. (Students registering for 5 hours will choose the additional work in algae, fungi or bryophytes respectively).—*Prerequisite:* Bot. 1 and junior standing. (3 or 5).* 10-12 MWF; 304 N.H. Professor STEVENS, Dr. HAGUE.

Bot. 77. Taxonomy of Pathogenic Fungi.—*Prerequisite:* One year of botany inclusive of Bot. 7, and junior standing. (3 or 5).* Lect. 9 Tu; lab. arrange; 304 N.H. Professor STEVENS.

Bot. 88. Ecology: Plant Communities and Environment.—*Prerequisite:* 1 year of botany inclusive of Bot. 8, and junior standing. (3 or 5).* 10-12 MWF; 216 N.H. Field study on two or three Saturdays. Associate Professor VESTAL.

Bot. 90b. Thesis Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Time to be arranged.

Bot. 91b. Honors Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Time to be arranged.

Courses for Graduates

Bot. 110. Botanical Discussion.—No credit. Required of all graduate students in botany and members of the instructional staff. 4 Tu; 258 N.H.

Bot. 112. Discussions in Plant Morphology.—(¼ unit). 4 F; 205 Entom. Professor BUCHHOLZ.

Bot. 113. Discussions in Physiology.—(¼ unit). 4 Th; 155 N.H. Professor HOTTES.

Bot. 117. Discussions in Pathology and Mycology.—(¼ unit). 4 W; 304 N.H. Professor STEVENS.

Bot. 118. Discussions in Ecology.—(¼ unit). 4 M; 204 N.H. Associate Professor VESTAL.

Research Courses

Bot. 120. Morphology.—(½ to 2 units).* (Botany 112 to be taken concurrently.) 1 hour on either W or F, from 1 to 3, the rest arrange; 201 Entom. Professor BUCHHOLZ.

Bot. 130. Physiology.—(½ to 2 units).* (Botany 113 to be taken concurrently.) 1 hour on M, W, or F, from 1 to 3, the rest arrange; Botany Annex. Professor HOTTES.

Bot. 170. Pathology or Mycology.—(½ to 2 units).* (Botany 117 to be taken concurrently.) 1 hour on either M or W, from 2 to 4; the rest arrange. 304 N.H. Professor STEVENS.

Bot. 180. Plant Ecology or Geography.—(½ to 2 units).* (Botany 118 to be taken concurrently.) Conf. 1 M or 10 Tu; the rest arrange; 204 N.H. Associate Professor VESTAL.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

BUSINESS ORGANIZATION AND OPERATION

(Including Accountancy and Business Law)

A. ACCOUNTANCY

Courses for Undergraduates

Accy. 1a. Principles of Accounting.—Beginner's course. (Students who present one unit of bookkeeping for entrance will not be allowed credit in Accy. 1a and should register in Accy. 1e.)

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8	MWF	125 Com.	Karrenbrock
[1]Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above.	B	9	MWF	125 Com.	Karrenbrock
	K	9	TTS	306 Com.	Huegy
	L1	10	TTS	326 Com.	Frese
	L2	10	TTS	306 Com.	Huegy
	M	11	TTS	326 Com.	Frese
	E	1	MWF	326 Com.	Frese
	F	2	MWF	123 Com.	Karrenbrock

Accy. 1b. Accounting Procedure.—A continuation of Accy. 1a. (Credit is given for Accy. 1a without Accy. 1b). *Prerequisite:* Accy. 1a or 1e.

3	A	8	MWF	119 Com.	Newcomer
	J	8	TTS	125 Com.	Green
	B1	9	MWF	119 Com.	Newcomer
	B2	9	MWF	122 Com.	Baily
	K	9	TTS	125 Com.	Green
	C1	10	MWF	113 Com.	Hackett
	C2	10	MWF	224 Com.	McMahan
	L	10	TTS	224 Com.	McMahan
	M	11	TTS	312 Com.	Moyer
	D1	11	MWF	325 Com.	Lukas
	D2	11	MWF	113 Com.	Hackett
	F	2	MWF	325 Com.	Lukas
	G	3	MWF	325 Com.	Lukas

Accy. 1e. Principles of Accounting.—Similar to Accy. 1a. (Students who have one unit entrance credit in bookkeeping must take this course rather than Accy. 1a). *Prerequisite:* One unit of entrance credit in bookkeeping.

2[1]	J	8	TT	312 Com.	Moyer
	K	9	TT	312 Com.	Moyer

[1]Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above.

Accy. 2a. Elementary Cost Accounting.—*Prerequisite:* Accy. 1b; registration or credit in Econ. 1.

3	C	10	MWF	119 Com.	Theiss
	D	11	MWF	119 Com.	Theiss
	M	11	TTS	325 Com.	Lukas
	G	3	MWF	119 Com.	Theiss

Accy. 2b. Intermediate Accounting.—*Prerequisite:* Accy. 2a.

3	A	8	MWF	113 Com.	Hackett
	J	8	TTS	123 Com.	Karrenbrock
	K	9	TTS	119 Com.	Newcomer
	C	10	MWF	122 Com.	Baily
	L	10	TTS	119 Com.	Newcomer
	F	2	MWF	326 Com.	Frese

Accy. 12. Fundamentals of Accounting.—A survey course for non-commerce students only. *Prerequisite:* Junior standing.

3		11	MWF	219 Com.	Schlatter

Courses for Advanced Undergraduates and Graduates

Accy. 3a. Advanced Accounting.—*Prerequisite:* Accy. 2a-2b; Econ. 3; an average of "C" or better in Accy. 1 and 2.

3		8	MWF	219 Com.	Littleton

Accy. 3b. Auditing.—*Prerequisite:* Accy. 3a.

3	B	9	MWF	115 Com.	Filbey
	D	11	MWF	115 Com.	Filbey

Accy. 4a. Cost Accounting.—*Prerequisite:* Accy. 2a.

2	L	10	TT	219 Com.	Schlatter
	M	11	TT	219 Com.	Schlatter

Accy. 4b. Accounting Systems.—*Prerequisite:* Accy. 2a-2b; Econ. 3. (Credit is given for either 4a or 4b separately).

2	J	8	TT	122 Com.	Baily
	K	9	TT	122 Com.	Baily

Accy. 5b. C. P. A. Problems.—*Prerequisite:* Accy. 5a.

3	C	10	MWF	317 Com.	Scovill
	D	11	MWF	317 Com.	Scovill

Accy. 13. Governmental Accounting.—*Prerequisite:* Accy. 3a.

2		2	TT	113 Com.	Hackett

Accy. 20. Income Tax Procedure.—*Prerequisite:* Senior standing; registration or credit in Accy. 3b.

Credit	Section	Hours	Days	Room	Instructor
2	J	8	TT	317 Com.	FILBEY
	K	9	TT	317 Com.	FILBEY
	M	11	TT	317 Com.	FILBEY

Accy. 30. Budgets and Accounting Control.—*Prerequisite:* Accy. 2b.

3		2	MWF	119 Com.	THEISS

Accy. 90b. Senior Thesis or Independent Study.—(A) Senior Thesis: primarily for candidates for graduation with high honors. *Prerequisite:* Senior standing in Accountancy. (2 or 4).* Arrange. (B) Independent study: see "Annual Register, 1932-33," page 69. *Prerequisite:* Senior standing in Accountancy and a grade average in the upper ten per cent of the junior class on Honors Day. (3 to 5).* Arrange. Professor LITTLETON and others.

Courses for Graduates

Accy. 103. Advanced Theory.—(1 unit). 3-5 Tu; 206 Com. Professor LITTLETON.

Accy. 104. Accounting Systems.—(1 unit). 3-5 Th; 209 Com. Professor SCOVILL.

Accy. 113. Governmental Accounting.—(1 unit). Arrange. Professor MOREY.

Accy. 129. Thesis.—(1 unit). 4-6 W; 420 Com. Professor LITTLETON and members of the staff.

B. BUSINESS ORGANIZATION AND OPERATION

Courses for Undergraduates

B.O.O. 1. Industrial Organization and Management.—*Prerequisite:* Econ. 1 or 2; 45 credit hours. Junior and senior engineering students admitted with consent of instructor.

3	A	8	MWF	306 Com.	HUEGY
	B	9	MWF	123 Com.	MANDEVILLE
	K	9	TTS	222 Com.	BRAINARD
	L	10	TTS	222 Com.	BRAINARD
	C1	10	MWF	307 Com.	ANDERSON
	C2	10	MWF	123 Com.	MANDEVILLE
	D	11	MWF	307 Com.	ANDERSON
	F	2	MWF	307 Com.	ANDERSON

B.O.O. 2. Marketing Organization and Operation.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	B	9	MWF	310 Com.	WHITLO
	C	10	MWF	310 Com.	CONVERSE
	F	2	MWF	310 Com.	CONVERSE

Courses for Advanced Undergraduates and Graduates

B.O.O. 3. Retail and Chain Store Organization and Operation.—*Prerequisite:* B.O.O. 2.

3		11	MWF	310 Com.	WHITLO

B.O.O. 4. Management in Manufacturing.—*Prerequisite:* B.O.O. 1.

3		8	MWF	310 Com.	ANDERSON

B.O.O. 7. Salesmanship.—*Prerequisite:* B.O.O. 2.

2	A	8	MW	312 Com.	JONES
	C	10	MW	219 Com.	JONES
	N	1	TT	219 Com.	JONES
	O	2	TT	219 Com.	JONES

B.O.O. 8. Advertising.—*Prerequisite:* B.O.O. 2.

3	B	9	MWF	306 Com.	RUSSELL
	D	11	MWF	306 Com.	RUSSELL
	F	2	MWF	305 Com.	HESLIP

B.O.O. 9. Trade and Commercial Organizations.—*Prerequisite:* B.O.O. 2. Senior Standing.

2		11	TT	222 Com.	BRUCE

B.O.O. 17. Problems in Sales Administration.—*Prerequisite:* B.O.O. 7.

2	L	10	TT	307 Com.	HESLIP
	M	11	TT	307 Com.	HESLIP

B.O.O. 18. Advertising Campaigns.—*Prerequisite:* B.O.O. 8.

3		8	MWF	317 Com.	RUSSELL, HESLIP

B.O.O. 20. Credits and Collections.—*Prerequisite:* B.O.O. 2; junior standing.

3		10	MWF	306 Com.	HUEGY

B.O.O. 22. Marketing Policies and Problems.—*Prerequisite:* B.O.O. 2.

3		1	MWF	310 Com.	CONVERSE

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

B.O.O. 90b. Senior Thesis or Independent Study.—(A) Senior Thesis, primarily for candidates for graduation with high honors. *Prerequisite:* Senior standing in Commerce. (2 or 4).* Arrange. (B) Independent study: see "Annual Register, 1932-33," page 69. *Prerequisite:* Senior standing in Commerce and a grade average in the upper ten per cent of the junior class on Honors Day. (3 to 5).* Arrange. Members of the staff.

Courses for Graduates

B.O.O. 102. Marketing Research and Policies.—(1 unit). Time to be arranged. Professor CONVERSE.

B.O.O. 104. Scientific Management.—(1 unit). Time to be arranged. Professor ANDERSON.

B.O.O. 107. Sales Campaigns.—(1 unit). Time to be arranged. Professor RUSSELL.

B.O.O. 129. Thesis.—(1 unit). Time to be arranged. Professor RUSSELL and members of the staff.

C. BUSINESS LAW

Courses for Undergraduates

Bus. Law 1a. General Principles of Business Law.—*Prerequisite:* 60 hours of university credit, including Accy. 1b and Econ. 1.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	222 Com.	FRANKLIN
	J	8	TTS	222 Com.	FRANKLIN

Bus. Law 1b. General Principles of Business Law.—*Prerequisite:* Bus. Law 1a.

3	A	8	MWF	223 Com.	DILLAVOU
	B	9	MWF	224 Com.	ROBERTS
	C	10	MWF	106 Com.	CURTIS
	E	1	MWF	224 Com.	ROBERTS
	F	2	MWF	223 Com.	DILLAVOU
	K	9	TTS	106 Com.	CURTIS
	L	10	TTS	106 Com.	CURTIS

Bus. Law 2. Elementary Law of Business.—This course is offered exclusively for non-commerce students. *Prerequisite:* Junior standing.

3		9	MWF	106 Com.	CURTIS

Bus. Law 3. Law for Engineering Students.—*Prerequisite:* Junior standing in the College of Engineering or courses in Architecture.

3	A	8	MWF	224 Com.	ROBERTS
	F	2	MWF	224 Com.	ROBERTS

Courses for Advanced Undergraduates and Graduates

Bus. Law 10. Law of Security Relations and Banking.—*Prerequisite:* Senior standing and registration or credit in Bus. Law 1b.

3	C	10	MWF	223 Com.	DILLAVOU
	D	11	MWF	223 Com.	DILLAVOU

CERAMIC ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2 to $7.50.

Courses for Undergraduates

Cer.E. 4. Ceramic Materials.—*Prerequisite:* Cer. 1.

3	A	9–12	MWF	113, 114 Cer.
	B	1–4	MWF	113, 114 Cer.

Cer.E. 8. Glass Technology.—*Prerequisite:* Chem. 40 and Cer. 14. (2). Arrange.

Cer.E. 10. Cements.—*Prerequisite:* Chem. 40 and registration in Cer. 28. (2). 10 MW; 214 Cer.

Cer.E. 11. Drying Clay Products.—*Prerequisite:* Phys. 1a-1b, 3a-3b; Cer. 1. (3). 11 MWF; 218 Cer.

Cer.E. 14. Glasses and Glazes.—*Prerequisite:* Cer. 5 and registration in Chem. 40. (3). 11 TT; 218 Cer.; 8-11 TT; 113 and 114 Cer.

Cer.E. 20. Refractory Materials.—*Prerequisite:* Chem. 40. (2). 9 MW; 214 Cer.

Cer.E. 24. Ceramic Engineering Design.—*Prerequisite:* Cer. 23; T.A.M. 3. (3). 2-5 MWF; 212 Cer.

Cer.E. 28. Pyrochemical Problems.—*Prerequisite:* Cer. 14; Chem. 40. (2). 3 TT; 218 Cer.

Cer.E. 98. Thesis.—(3 to 5).* Arrange.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

Cer.E. 101. Chemistry of the Compounds of Silicon.—*Prerequisite:* Elementary courses in organic and physical chemistry. (¾ unit). Arrange.

Cer.E. 102. General Technology of the Clay Industries.—*Prerequisite:* The elements of mineralogy and of physical chemistry. Lectures; seminar; laboratory. (1 or 2 units).* Arrange.

Cer.E. 104. Technology of Glass.—Lectures and laboratory. (1 or 2 units).* Arrange.

Cer.E. 105. Methods of Ceramic Research.—Lectures. (1 unit). Arrange.

Cer.E. 106. Research.—Arrange.

CHEMISTRY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $18.

Students in the curricula of chemistry and chemical engineering, majors in chemistry, and all others who desire a thorough training in the fundamentals of chemistry and their applications to modern life, should select courses from the following, and usually in the sequence given: Chemistry 1 or 2, 6, 10, 24, 34a, 36b, 37b, 40, 41, 42, 43, 50a, and courses in chemical engineering, sanitary chemistry, and miscellaneous groups. Students in engineering should register for Chemistry 3 or 2, 4, 24. Students who are compelled to meet chemical requirements briefly may register for the following sequence: Chemistry 1 or 2, 5, 24, 32 or 33.

Students who find it impossible to take more than one semester's work are requested to register in Chemistry 1 or 2 in the second semester rather than in the first.

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, 6, 7, 93a, and inclusive of courses in qualitative, quantitative, and organic chemistry. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from not more than two of the following: bacteriology, botany, entomology, geology, mathematics, philosophy, physiology, physics, psychology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in Chemistry 1, 2, 3, 4, 5, 6, and 7.

Courses for Undergraduates

Chem. 7. General Chemistry.—Not open to students who have earned credit in high school chemistry. This course may be applied toward the science group requirements. After completing Chem. 7, a student is permitted to register in Chem. 2; or upon passing a proficiency examination in Chem. 2, he may register in Chem. 4, 5, or 6.

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	10	TT	112 Chem.A.	Reed
	70 Quiz	8	TT	8 Chem.A.	
[1]Seniors will receive only 3 hours credit.	Lab.	1–5	F	1 Chem.A.	
	71 Quiz	10	MW	103, 163 Chem.	
	Lab.	1–5	Tu	1 Chem.A.	
	72 Quiz	11	TT	308 Chem.A., 103 Chem.	
	Lab.	10–12	WF	1 Chem.A.	

Chem. 2. Inorganic Chemistry.—(For all students who have had one year of high school chemistry.) *Prerequisite:* One unit of entrance credit in chemistry. Note: Students whose preparation in chemistry is inadequate are advised to register for Chem. 1 or Chem. 3, rather than Chem. 2.

3[1]	Lect.	11	W	100 Chem.	Bailar
	20 Quiz	3	MW	9 Chem.A.	
[1]Seniors will receive only 2 hours credit in Chem. 2. Students below the rank of senior receive 5 hours credit, provided their high school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.	Lab.	3–5	F	212 Chem.A.	
	21 Quiz	8	TT	303 Chem.	
	Lab.	8–10	S	212 Chem.A.	
	22 Quiz	11	TT	300, 301 Chem.	
	Lab.	10–12	F	212 Chem.A.	
	23 Quiz	2	TT	8 Chem.A.	
	Lab.	3–5	Tu	212 Chem.A.	
	24 Quiz	10	MW	8 Chem.A.	
	Lab.	10–12	Th	212 Chem.A.	
	25 Quiz	10	TT	204, 111 Chem.	
	Lab.	10–12	F	201 Chem.A.	
	26 Quiz	11	MF	301 Chem.	
	Lab.	3–5	W	1 Chem.A.	
	27 Quiz	11	TT	8 Chem.A.	
	Lab.	10–12	M	212 Chem.A.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 4. Chemistry of the Metallic Elements.—(Limited to students in the engineering curricula.) *Prerequisite:* Chem. 1, 2, or 3.

Credit	Section	Hours	Days	Room	Instructor
4[1]	A Lect.	10	MF	100 Chem.	AUDRIETH
	B Lect.	11	MF	100 Chem.	COPLEY
[1]Seniors will receive only 3 hours credit.	90 Quiz	8	MW	9 Chem.A.	
	Lab.	1–3	MF	1 Chem.A.	
	91 Quiz	9	MW	103 Chem.	
	Lab.	1–3	TT	1 Chem.A.	
	92 Quiz	10	TT	103, 163 Chem.	
	Lab.	8–10	TT	1 Chem.A.	
	93 Quiz	9	TT	9 Chem.A.	
	Lab.	1–3	TT	1 Chem.A.	
	94 Quiz	11	TT	303 Chem.	
	Lab.	8–10	MW	1 Chem.A.	
	95 Quiz	8	TT	201 Chem.	
	Lab.	10–12	TT	1 Chem.A.	
	96 Quiz	11	MW	103, 204 Chem.	
	Lab.	1–3	MF	1 Chem.A.	
	97 Quiz	8	MW	8 Chem.A., 300 Chem.	
	Lab.	3–5	MF	1 Chem.A.	

Chem. 5. Inorganic Chemistry and Qualitative Analysis.—(Limited to students in the agricultural, home economics, and pre-medical curricula.) *Prerequisite:* Chem. 1, 2, or 3.

5[1]	C Lect.	9	TT	112 Chem.A.	QUILL
	D Lect.	11	TT	112 Chem.A.	QUILL
[1]Seniors will receive only 3 hours credit.	50 Quiz	2	MW	301 Chem.	
	Lab.	{3–5	TT	201 Chem.A.	
		{9–11	S	201 Chem.A.	
	51 Quiz	3	TT	8, 210 Chem.A.	
	Lab.	3–5	MWF	201 Chem.A.	
	52 Quiz	2	MW	9 Chem.A.	
	Lab.	3–5	MWF	201 Chem.A.	
	53 Quiz	2	MW	201 Chem.	
	Lab.	10–12	MWF	201 Chem.A.	
	54 Quiz	11	TT	116 Chem.	
	Lab.	1–3	MWF	201 Chem.A.	
	55 Quiz	1	TT	201, 300 Chem.	
	Lab.	1–3	MWF	201 Chem.A.	
	56 Quiz	8	TT	204, 300 Chem.	
	Lab.	8–10	MWF	201 Chem.A.	
	57 Quiz	9	MW	201 Chem.	
	Lab.	10–12	MWF	201 Chem.A.	
	58 Quiz	9	WF	210 Chem.A.	
	Lab.	1–4	TT	201 Chem.A.	
[2]Sections 55h and 56h are for home economics students only.	[2]55h Quiz	1	TT	116 Chem.	
	Lab.	1–3	MWF	201 Chem.A.	
	[2]56h Quiz	8	TT	9 Chem.A., 103 Chem.	
	Lab.	8–10	MWF	201 Chem.A.	

Chem. 6. Inorganic Chemistry.—(General course for second-semester students.) *Prerequisite:* Chem. 1, 2, or 3.

5[1]	Lect.	10	TT	100 Chem.	HOPKINS
[1]Seniors will receive only 3 hours credit.	60 Quiz	10	MW	210 Chem.A.	
	Lab.	1–3	MWF	101 Chem.A.	
	61 Quiz	10	MW	9 Chem.A.	
	Lab.	2–5	TT	101 Chem.A.	
	62 Quiz	1	TT	210 Chem.A., 303 Chem.	
	Lab.	1–3	MWF	101 Chem.A.	
	63 Quiz	8	TT	210 Chem.A.	
[2]Sections 64 and 65 are for students in the curricula of chemistry and chemical engineering.	Lab.	8–10	MWF	101 Chem.A.	
	[2]64 Quiz	11	TT	210, 9 Chem.A., 201 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	[2]65 Quiz	9	TT	210, 308 Chem.A.	
	Lab.	8–10	MWF	101 Chem.A.	

Chem. 10. Qualitative Analysis.—(Required of students majoring in chemistry and of those registered in the curriculum of chemistry or of chemical engineering.) *Prerequisite:* Chem. 6.

5	Lect.	8	F	112 Chem.A.	REEDY
	Quiz	8	MW	111 Chem.	
	Lab.	1–4	MWF	310 Chem.A.	

Chem. 12b. Teachers' Course.—*Prerequisite:* 13 hours of chemistry and senior standing. Open to students who expect to teach. (3). 8 TT; 116 Chem.; practice teaching to be arranged. Dr. BAILAR.

Chem. 22. Elementary Quantitative Analysis.—*Prerequisite:* Chem. 4 or 5 (for all students who have not followed the sequence Chem. 1, 2 or 3, 6 and 10).

5	Lect.	11	M	112 Chem.A.	ENGLIS
	Quiz	11	WF	111 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	

Chem. 24. Quantitative Analysis.—*Prerequisite:* Chem. 10.

Credit	Section	Hours	Days	Room	Instructor
5	Lect.	9	W	100 Chem.	CLARK
	A Quiz	9	MF	303, 111 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	9	MF	116, 204 Chem.	
	Lab.	1–4 8–11	TT S	301 Chem.A. 301 Chem.A.	
	C Quiz	9	MF	308 Chem.A.	
	Lab.	8–11	TTS	301 Chem.A.	
	D Quiz	9	MF	301 Chem.	
	Lab.	1–5:30	TT	301 Chem.A.	

Chem. 32. Elementary Organic Chemistry.—(Especially for students in agriculture.) *Prerequisite:* Chem. 5 or 10.

3	Lect.	8	ThS	217 Chem.	FUSON and assistants
	Quiz	8	Tu	111, 162 Chem. 163 Chem.	
	Lab.	1–4	Tu	216 Chem.	

Chem. 33. Elementary Organic Chemistry.—(For students in home economics and pre-medical courses.) *Prerequisite:* Chem. 10 or 5.

5	Lect.	8	MW	100 Chem.	SHRINER
	Quiz	8	F	100, 111 Chem. 161, 163 Chem. 204, 300 Chem. 303, 301 Chem.	
Quiz section assignments will be made by the instructor after registration is complete.					
	A Conf.	8	Tu	112 Chem.A.	
	Lab.	9–11 8–11	Tu Th	250 Chem. 250 Chem.	
	B Conf.	1	Tu	112 Chem.A.	
	Lab.	2–4 1–4	Tu Th	250 Chem. 250 Chem.	
[1]Section C is limited to 20 premedic students.	[1]C Conf.	1	M	112 Chem.A.	
	Lab.	2–4 1–4	M W	250 Chem. 250 Chem.	

Chem. 90b. Thesis.—Each student who desires research must receive special permission both from the instructor under whom he is to work and from the head of the division in which the research is to be taken. Such written permission should be presented, at the time of registration, to the adviser for the chemists or chemical engineers. *Prerequisite:* Chem. 24, 34a, 40, 41, 42, and 43, or the consent of the head of the department. (3 to 5).* Professor ADAMS (in charge).

Chem. 91b. Elements of Glass-blowing.—*Prerequisite:* Two years work in chemistry. (1). Arrange. Mr. ANDERS.

Courses for Advanced Undergraduates and Graduates

Chem. 27. Special Methods and Instruments in Quantitative Analysis.—*Prerequisite:* Chem. 24, 34a, and 40, 41 or registration in 40 and 41.

3	Lect.	11	Tu	111 Chem.	SMITH
	A Lab.	1–4	TT	305 Chem.	
	B Lab.	1–4 8–11	F S	305 Chem. 305 Chem.	

Chem. 36b. Organic Chemistry.—(Second course). *Prerequisite:* Chem. 34a. (3). 9 MWF; 217 Chem. Professor MARVEL.

Chem. 37b. Organic Chemistry.—(Laboratory). (Second course). To accompany Chem. 36b. *Prerequisite:* Chem. 34a, and 36b or registration in 36b.

2	A Conf.	1	W	217 Chem.	FUSON
	A Lab.	1–4 2–4	M W	250 Chem. 250 Chem.	
	B Conf.	1	Th	217 Chem.	
(Section B is limited to 48 students.)	B Lab.	1–4 2–4	Tu Th	218 Chem. 218 Chem.	

Chem. 40. Elementary Physical Chemistry.—*Prerequisite:* Chem. 24; Physics 1a-1b or 7a-7b; Math. 7 or 8. (3). 10 MWF; 112 Chem.A. Professor RODEBUSH.

Chem. 41. Elementary Physical Chemistry.—(Laboratory). To accompany Chem. 40.

1	A Lab.	1–4	Tu	124 Chem.	PHIPPS and assistants
	B Lab.	1–4	Th	124 Chem.	
	C Lab.	1–4	F	124 Chem.	

Chem. 42. Elementary Physical Chemistry.—*Prerequisite:* Chem. 40. (3). 8 TTS; 161 Chem. Associate Professor PHIPPS.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 43. Elementary Physical Chemistry.—(Laboratory). *Prerequisite:* Chem. 40, 41 and registration in 42.

Credit	Section	Hours	Days	Room	Instructor
1	A Lab.	1–4	M	124 Chem.	PHIPPS and assistants
	B Lab.	1–4	Tu	124 Chem.	
	C Lab.	1–4	W	124 Chem.	
	D Lab.	1–4	Th	124 Chem.	
	E Lab.	1–4	F	124 Chem.	

Chem. 49b. Chemistry of Colloids.—*Prerequisite:* Chem. 24 and 40 or consent of the instructor. (3). 10 MWF; 111 Chem. Professor BUSWELL and Dr. TARVIN.

Chem. 51b. Problems of Metabolism.—*Prerequisite:* Chem. 50a.

3	Lect.	11	M	111 Chem.	CARTER and assistants
	Lab.	1–4	TT	450 Chem.	

Chem. 61b. Principles of Chemical Engineering.—*Prerequisite:* Chem. 42.

4	Lect.	9	MWF	161 Chem.	KRASE
	A Lab.	1–6	M	50 Chem.	KISTLER
	B Lab.	1–6	Tu	50 Chem.	KISTLER
	C Lab.	1–6	W	50 Chem.	KISTLER

Chem. 62b. Economics of Chemical Engineering.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (2). Lect., 10 MW; 161 Chem. Professor KEYES.

Chem. 63b. Fuels and Their Combustion.—*Prerequisite:* Senior standing. (3). Lect. 11 MWF; 161 Chem. Mr. HOWARD.

Chem. 64b. High Pressure Reactions.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (2). Lectures to be arranged. Associate Professor KRASE.

Chem. 65b. Chemical Engineering Calculations.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (3). Lect., 11 MWF; 163 Chem. Assistant Professor KISTLER.

Chem. 74b. Metallurgy and Metallography.—*Prerequisite:* Chem. 24.

3	Lect.	11	TT	161 Chem.	HOWARD
	A Lab.	1–6	W	53 Chem.	
	B Lab.	1–6	Th	53 Chem.	

Chem. 92b. Chemical Literature and Reference Work.—(Required of juniors in chemistry; advised for juniors who are majoring in chemistry and for students in the curriculum of chemical engineering.) *Prerequisite:* 18 hours of chemistry; one year of French or German; junior standing.

1	A	10	Th	201 Chem.	BARTOW
[1]Section C is for students who have not had previous work in this field.	B	8	F	201 Chem.	
	[1]C	10	Tu	201 Chem.	

This section will not be given unless there are 20 registrants.

Chem. 97b. Food Analysis.—*Prerequisite:* Chem. 24 and 33 or 34a.

5	Lect.	9	TT	201 Chem.	ENGLIS
	Quiz	1	M	301 Chem.	
	Lab.	2–4	M	305A Chem.	
		1–4	WF	305A Chem.	

Courses for Graduates

Graduate students whose major subject is in some department other than chemistry must have had the equivalent of 15 university credits in chemistry, and the ground covered should include satisfactory work in general chemistry and in qualitative and quantitative analysis and elementary organic chemistry. Such students are advised to make selections from the following courses: Chemistry 40, 41, 42, 43, 27, 34a, 36b and 37b, 50a, 15a, and 97b. Courses of a more special nature will not as a rule be accepted for graduate work unless preceded by one of the courses above. Graduate students who are candidates for an advanced degree in chemistry must have had the equivalent of 25 university credits in chemistry, properly distributed.

Graduate students whose major subject is in some department other than chemistry and who intend to take a first minor in chemistry or any branch of chemistry toward the Ph.D. degree must include among the courses taken Chemistry 40 and 41, or must have had the equivalent.

Graduate students who are candidates for the A.M. or M.S. degree in chemistry must include in the courses taken Chemistry 40 and 41, or must have had the equivalent. Graduate students who are candidates for the Ph.D. degree in any branch of chemistry must include among their courses Chemistry 40, 41, 42, and 43, or must have had the equivalent. Those courses (with the exception of Chemistry 12b) listed under the heading "Advanced Undergraduate and Graduate Courses" may be all counted toward advanced degrees in chemistry.

Chem. 101b. Inorganic Chemistry.—The less familiar elements and their relationship in the periodic system. (½ unit). (For laboratory work see Chem. 102b.) 8 MW; 303 Chem. Professor HOPKINS.

Chem. 102b. Inorganic Chemistry.—Inorganic preparations and qualitative analysis of the less familiar elements. (Laboratory work to accompany or follow Chem. 101b.) Arrange. (¼ to ¾ unit).* Professor HOPKINS.

Chem. 105b. Inorganic Seminar and Special Topics.—(¼ to 1 unit).* Seminar, 11 S; 162 Chem. Special topic: The structure of complex inorganic compounds (Dr. BAILAR) 9 MW; 162 Chem. Professor HOPKINS.

Chem. 124b. Quantitative Analysis.—A modern survey of advanced principles, calculations, experimental methods, and applications. (½ unit). Lectures, 11 MF; 116 Chem. Associate Professor REEDY.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 124d. Quantitative Analysis.—(Laboratory work. Optional, to accompany Chem. 124b.) (¼ to ¾ unit).* Arrange; 260 Chem. Assistant Professor SMITH.

Chem. 125b. Quantitative Analysis.—(Seminar). (Required of all students taking a major or minor in analytical chemistry.) (¼ to 1 unit).* 4 Th; 162 Chem. Additional meetings arrange. Professor CLARK.

Chem. 127b. Modern Applications of X-rays to Chemical and Industrial Problems.—(½ unit). Lectures, 10 TT; 217 Chem. Professor CLARK.

Chem. 127d. Modern Applications of X-rays to Chemical and Industrial Problems.—(Laboratory work, optional, to accompany Chem. 127b.) (¼ to ½ unit).* Arrange; 308 Chem. Professor CLARK.

Chem. 133b. Organic Chemistry.—(¾ unit). 11 TT; 217 Chem. Professor ADAMS.

Chem. 134. Organic Chemistry.—Chiefly laboratory work. (½ to 1 unit).* Arrange. 219 Chem. Professor MARVEL.

Chem. 135b. Organic Chemistry.—(Seminar). (¼ unit). 10 W; 217 Chem. Professor ADAMS.

Chem. 145b. Physical Chemistry.—(Seminar). (¾ unit). 10-12 S; 176 Chem. Professor RODEBUSH.

Chem. 150b. Physiological Chemistry.—(¾ unit). 9 TT; 111 Chem. Professor ROSE.

Chem. 152b. Physiological Chemistry.—(½ to 1 unit).* Chiefly laboratory. Arrange. 463 Chem. Professor ROSE.

Chem. 155b. Physiological Chemistry.—(Seminar). Required of all students majoring in physiological chemistry. (¾ unit). 9-11 F; 456 Chem. Professor ROSE.

Chem. 160b. Chemical Engineering.—*Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 1 MW; 162 Chem. Professor KEYES.

Chem. 161b. Chemical Plant Design.—*Prerequisite:* Chem. 61a and 61b. (½ unit). 9 TT; 162 Chem. Associate Professor KRASE.

Chem. 186b. Sanitary Chemistry.—(½ to 1¼ units).* Arrange. 60b Chem. Professor BUSWELL.

Chem. 190b. Research.—Work may be taken in the following subjects:

Physical and Electrochemistry.—Professor RODEBUSH, Associate Professor PHIPPS, Dr. COPLEY.

Inorganic Chemistry.—Professor HOPKINS, Associate Professor REEDY, Dr. BAILAR, Dr. AUDRIETH, Dr. QUILL, Dr. COPLEY.

Analytical Chemistry.—Professor CLARK, Associate Professor REEDY, Assistant Professors ENGLIS, SMITH.

Food and Phyto-Chemistry.—Assistant Professor ENGLIS.

Applied X-rays.—Professor CLARK.

Organic Chemistry.—Professors ADAMS, MARVEL, FUSON; Associate Professor SHRINER, Dr. BAILAR.

Sanitary Chemistry.—Professor BUSWELL.

Physiological Chemistry.—Professor ROSE.

Chemical Engineering.—Professor KEYES, Associate Professor KRASE, Assistant Professor KISTLER.

Ceramic Chemistry.—Professor PARMELEE.

Zymochemistry.—Professor BUSWELL.

CIVIL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $2.50.

Courses for Undergraduates

C.E. 1. Plane Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

Credit	Section	Hours	Days	Room	Instructor
3	E	8-10	MWF	C.E.S.B.	

C.E. 2. Topographic Surveying.—*Prerequisite:* C.E. 1.

3	E	8-10	MF		
		1-5	Th	C.E.S.B.	
	F	10-12	MF		
		1-5	W	C.E.S.B.	
	G	10-12	MF		
		1-5	Tu	C.E.S.B.	

C.E. 3. Railway and Highway Surveying.—*Prerequisite:* C.E. 2, 15, or 18.

4	E	10	TT	205 E.H.	
		1-4	MF	419 E.H.	
	F	8	TT	205 E.H.	
		1-4	MF	419 E.H.	
	G	9	TT	205 E.H.	
		8-11	MF	C.E.S.B.	

C.E. 15. General Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

3	E	8-11	TT	C.E.S.B.	
	F	1-4	MF	C.E.S.B.	
	G	1-4	TT	C.E.S.B.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

C.E. 16. Elementary Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

Credit	Section	Hours	Days	Room	Instructor
2	E	1–3	TT	C.E.S.B.	

C.E. 18. Surveying for Landscape Architects.—*Prerequisite:* C.E. 17.

3	E	1–3	MWF	C.E.S.B.	

C.E. 19. Construction Surveying.—*Prerequisite:* C.E. 3, Math. 7.

3	E	Time to be arranged			

C.E. 20. Highway Construction.—*Prerequisite:* C.E. 1.

2	E	9	TT	101 E.H.	
	F	11	TT	102 E.H.	
	G	8	TT	102 E.H.	

C.E. 21. Highway Construction.—*Prerequisite:* C.E. 20.

2	E	10	TT	102 E.H.	
	F	11	TT	101 E.H.	

C.E. 23. Highway Administration.—*Prerequisite:* C.E. 21 or 28a.

3	E	10	MWF	102 E.H.	

C.E. 28. Regional Design.—*Prerequisite:* C.E. 20, 21, and senior standing.

3	E	11	MW	101 E.H.	
		1–4	Th	309 E.H.	

C.E. 31. Advanced Highway Materials.—*Prerequisite:* C.E. 30a, 35.

2	E	9	Tu	102 E.H.	
		1–4	Th	207 M.T.L.	

C.E. 35. Plain Concrete.—*Prerequisite:* Sophomore standing in engineering or architecture.

2	E	1	W	112 M.T.L.	
		1–4	F	4, 112 M.T.L.	
	F	8	Th	112 M.T.L.	
		1–4	Tu	4, 112 M.T.L.	
	G	9	F	112 M.T.L.	
		9–12	W	4, 112 M.T.L.	
	H	10	Tu	112 M.T.L.	
		9–12	Th	4, 112 M.T.L.	

C.E. 41. Sewerage.—*Prerequisite:* C.E. 40 or 40a.

3	E	9	TT	208 E.H.	
		1–4	Tu	211 E.H.	
	F	11	TT	208 E.H.	
		1–4	Tu	214 E.H.	
	G	10	TT	208 E.H.	
		1–4	Tu	309 E.H.	

C.E. 43. Sewage Treatment.—*Prerequisite:* Registration or credit in C.E. 41 and 42.

3	E	9–11	MWF	208 E.H.	

C.E. 51. Drainage and Flood Control.—*Prerequisite:* C.E. 50.

3	E	10	MWF	109 E.H.	

C.E. 55. Water Power.—*Prerequisite:* T.A.M. 4 and 64.

3	E	9	MWF	102 E.H.	

C.E. 60. Bridge and Building Construction.—*Prerequisite:* Sophomore standing in engineering or architecture.

3	E	10	MWF	101 E.H.	

C.E. 61. Structural Stresses.—*Prerequisite:* Registration or credit in T.A.M. 3.

4	E	10	MWF	400 E.H.	
		1–4	Tu	419 E.H.	

C.E. 62. Elementary Structural Design.—*Prerequisite:* Registration or credit in C.E. 61.

3	E	8–10	MWF	405, 419 E.H.	
	F	8–10	MWF	407 E.H.	
	G	1–3	MWF	407 E.H.	

C.E. 63. Theory of Reinforced Concrete.—*Prerequisite:* T.A.M. 3 and registration or credit in C.E. 61.

2	E	9	TT	405 E.H.	
	F	11	TT	405 E.H.	
	G	10	TT	405 E.H.	

C.E. 65. Structural Design.—*Prerequisite:* C.E. 64.

5	E	8	TT	405 E.H.	
		1–4	MWF	211 E.H.	
	F	8	TT	400 E.H.	
		1–4	MWF	214 E.H.	
	G	8	TT	407 E.H.	
		1–4	MWF	309 E.H.	

C.E. 66. Masonry Construction.—*Prerequisite:* C.E. 61, 63.

Credit	Section	Hours	Days	Room	Instructor
3	E	8	MWF	101 E.H.	
	F	9	MWF	101 E.H.	

C.E. 68. Indeterminate Structures.—*Prerequisite:* C.E. 67.

3	E	10	MWF	205 E.H.	
	F	11	MWF	205 E.H.	

C.E. 87. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 86.

4	E	10 8–10	MW MWF	408 E.H.	

C.E. 88. Mine Structures.—*Prerequisite:* Registration or credit in T.A.M. 3.

2	E	8–10	WF	407 E.H.	

C.E. 90. Contracts and Specifications.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	10	TT	101 E.H.	

C.E. 91. Estimates and Costs.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	9	TT	400 E.H.	

C.E. 98. Thesis.—*Prerequisite:* High standing and approval of head of the department. Arrange.

Courses for Graduates

C.E. 102. Sewerage.—(1 unit). 8 TuF; 204 E.H. Professor BABBITT.

C.E. 104. Municipal Engineering.—(1 unit). 10 MW; 308 E.H. Professor CRANDELL.

C.E. 108. Bridge Design.—(1 unit). 4 MF; 205 E.H. Professor CROSS.

C.E. 110. Sewage and Waste Disposal.—(1 unit). 8 MTh; 204 E.H. Professor BABBITT.

C.E. 112. Masonry Construction.—(1 unit). 11 MF; 102 E.H. Professor HUNTINGTON.

C.E. 125. Design of Industrial Structures.—(1 unit). 10-12 Tu; 108 E.H. Professor KETCHUM.

C.E. 131. Water Power.—(1 unit). 9 TT; 407 E.H. Associate Professor DOLAND.

C.E. 140. Research.—(½ to 2 units).* Arrange.

C.E. 198. Thesis.—(1 to 2½ units).* Arrange.

CLASSICS

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, and 17.

Minors: 20 hours chosen from not more than two of the following: foreign language (Latin being especially recommended), English literature, history, and philosophy. At least eight hours must be taken in each subject, if two are chosen.

Latin

Major: 20 hours, excluding Latin 11a-11b, 6, 1a-1b, 13, and 20, and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours chosen from not more than two of the following: foreign language (Greek being especially recommended), English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17 and Latin 11a-11b, 6, 1a-1b, 9, 13, 20. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours chosen from not more than two of the following: foreign language, English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

GREEK

Courses for Undergraduates

Greek 1b. Elementary Greek (continuation of 1a).—(4). 8 TWTF; 114 L.H. Associate Professor PERRY.

Greek 4. Homer.—Selections from the Iliad. *Prerequisite:* Greek 3 or an equivalent. (3). 11 MWF; 114 L.H. Mr. DALY.

Greek 17. Greek Drama in English Translation.—*Prerequisite:* Presupposes no knowledge of Greek and is open to all students except freshmen. (2). 2 TT; 120 L.H. Associate Professor PERRY.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Course for Advanced Undergraduates and Graduates

Greek 8. Greek Oratory; Aristotle and Theocritus.—*Prerequisite:* Greek 4 and 5. (3). 9 TTS; 114 L.H. Dr. RAPP.

Courses for Graduates

Note: Preparation for graduate work in Greek must include at least two years of preparatory Greek, two years of college Greek, and two years of college Latin.

Greek 122. Lucian and His Age.—(1 unit). Twice a week. Arrange. Associate Professor PERRY.

Greek 110b.—See Latin 110b.

LATIN

Courses for Undergraduates

Latin 1b. Vergil.—*Prerequisite:* Three entrance units in Latin, or Latin 6. (4). 1 TWTF; 114 L.H. Mr. DUNKIN.

Latin 4. Horace (Satires) and Vergil (Eclogues and Georgics).—*Prerequisite:* Latin 12a-12b or an equivalent. (3). 10 MWF; 120 L.H. Mr. HOWER.

Latin 5b. Latin Composition.—*Prerequisite:* Three entrance units in Latin, or Latin 6. Required to secure the department's recommendation to teach. (1). 4 Th; 120 L.H. Mr. DUNKIN.

Latin 9. Teachers' Course.—*Prerequisite:* 14 hours of Latin acceptable for a major. Required to secure the department's recommendation to teach. (2). 11 TT; 114 L.H. Professor CANTER.

Latin 12b. Sallust and Cicero (De Senectute).—*Prerequisite:* Four entrance units in Latin, or Latin 1a-1b. (4). 9 TWTF; 120 L.H. Mr. HOWER.

Course in Roman Life and History

Latin 13. Roman Life.—*Prerequisite:* Sophomore standing. Knowledge of Latin not required. (1). 3 Th; 202 L.H. Dr. RAPP.

Courses for Advanced Undergraduates and Graduates

Latin 10. Latin Composition.—*Prerequisite:* 12 hours of Latin acceptable for a major, including Latin 5a-5b or an equivalent. Required to secure the department's recommendation to teach. (2). 10 TT; 120 L.H. Mr. JOHNSTON.

Latin 18. Roman Archaeology.—(2). 2 TT; 114 L.H. Dr. RAPP.

Latin 22. Martial, Suetonius, and Apuleius.—*Prerequisite:* 12 hours of Latin acceptable for a major. (3). 2 MWF; 120 L.H. Mr. JOHNSTON.

Latin 30b. Honors Course.—Thesis or a special course of study approved by the department. *Prerequisite:* Senior standing; 14 hours of Latin acceptable for a major. (2). Arrange. Professor CANTER.

Courses for Graduates

Note: Students desiring to take graduate work in Latin should have had at least three years of college Latin in addition to the Latin prescribed to meet entrance requirements.

Latin 110b. Bibliography and Criticism.—Same as Greek 110b. (1 unit). Arrange; 114 Lib. Professor CANTER.

Latin 109. Vergil.—(1 unit). 4-6 Tu; 120 L.H. Professor CANTER.

Latin 117. Lucretius.—(1 unit). Arrange; 124 L.H. Associate Professor PERRY.

DAIRY HUSBANDRY

Note: Certain courses in this department require laboratory fees varying from $2 to $3.

Courses for Undergraduates

D.H. 2. Dairy Cattle.—*Prerequisite:* D.H. 24a; An. Husb. 21.

Credit	Section	Hours	Days	Room	Instructor
5		8	MWF	127 New Agr.	YAPP
		8–10	TT	S.P.	NEVENS

D.H. 6b. Dairy Products Plant Operations.—*Prerequisite:* D.H. 24b and consent of instructor. (3). Arrange. D.Mfrs. Associate Professor TRACY, Mr. TUCKEY.

D.H. 9. Dairy Products Judging.—*Prerequisite:* D.H. 24b. (2). 4 TT; D.Mfrs. Associate Professor TRACY, Mr. TUCKEY. Inspection trip waived, 1933-34.

D.H. 11. General Dairy Bacteriology.—*Prerequisite:* Sophomore standing. (2). 11 TT; 302 Agr. Professor PRUCHA.

D.H. 12. General Dairy Bacteriology.—*Prerequisite:* D.H. 11 or registration therein. (2). 3-5 TT, or arrange; 455 Agr. Professor PRUCHA, Assistant Professor BRANNON.

D.H. 23b-k. Investigation with Thesis.—(Continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem and approval of the head of the department. (5). Arrange.

(b) **Dairy Bacteriology.**—Professor PRUCHA, Assistant Professor BRANNON.
(d) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(f) **Dairy Farming and Economic Milk Production.**—Professor FRASER.
(h) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.
(k) **Dairy Production.**—Professors GAINES, YAPP, Associate Professor NEVENS.

D.H. 24a. Elementary Dairy Production.—*Note:* Juniors and seniors allowed only 2 hours credit.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	9	M	127 New Agr.	NEVENS
	Lab.	8-10	W	S.P.	
	Quiz	9	F	127 New Agr. 205 Agr.	KUHLMAN

D.H. 24b. Elementary Testing and Manufacture of Dairy Products.—*Prerequisite:* Credit or registration in Chemistry 1 or 2. *Note:* Juniors and seniors allowed only 2 hours credit.

3	Lect.	3	M	D.Mfrs.	TUCKEY
	Quiz	4	M	D.Mfrs.	
	A Lab.	3–5	W	D.Mfrs.	
	B Lab.	10–12	W	D.Mfrs.	

Courses for Advanced Undergraduates and Graduates

D.H. 5. Composition of Dairy Products.—*Prerequisite:* Junior standing, including Chem. 32. (3). 10-12 MWF; 502 Agr. Assistant Professor OVERMAN.

D.H. 7. Creamery Buttermaking and Factory Management.—*Prerequisite:* D.H. 24b or its equivalent and junior standing. (5). Lect. 1 MF; Lab. 1-3 TT, 2-6 F; D.Mfrs. Professor RUEHE, Mr. TUCKEY. Inspection trip waived, 1933-34.

D.H. 8. Fluid Milk Plant Operations.—*Prerequisite:* D.H. 24b or its equivalent and junior standing. (3). 8-10 MWF; D.Mfrs. Associate Professor TRACY, Mr. RAMSEY. Inspection trip waived, 1933-34.

D.H. 14. Milk Condensing.—*Prerequisite:* D.H. 24b or its equivalent and junior standing. (3). Lect. 9 TT; Lab. 1-5 W; D.Mfrs. Associate Professor TRACY, Mr. RAMSEY. Inspection trip waived, 1933-34.

D.H. 21. Systems of Dairy Farming.—*Prerequisite:* Junior standing. (3). 11 MWF; 553 Agr. Inspection trip costing about $1. Professor FRASER.

Courses for Graduates

D.H. 101. Economic Milk Production.—(½ to 2 units).* Twice a week. Arrange. Professor FRASER.

D.H. 105. Dairy Manufactures.—(½ to 2 units).* Arrange. Professor RUEHE, Associate Professor TRACY.

D.H. 106. Dairy Bacteriology.—(½ to 2 units).* Arrange. Professor PRUCHA.

D.H. 107. Dairy Chemistry.—(½ to 2 units).* Arrange. Assistant Professor OVERMAN.

D.H. 108. Physiology of Lactation.—(½ to 2 units).* Arrange. Professor GAINES.

D.H. 112a-f. Research.—(1 to 4 units).* Arrange. *Note:* Graduate students writing a thesis should so indicate when registering in Dairy Husbandry 112.

(a) **Dairy Bacteriology.**—Professor PRUCHA.
(b) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(c) **Dairy Cattle Breeding.**—Professor YAPP.
(d) **Dairy Cattle Feeding.**—Associate Professor NEVENS.
(e) **Milk Production.**—Professor GAINES.
(f) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.

D.H. 113. Seminar.—(½ unit). Once a week. Both semesters. Current literature in dairy bacteriology, dairy chemistry and dairy manufactures. Members of the graduate staff.

D.H. 114. Seminar.—(½ unit). Once a week. Both semesters. Current literature in biology of milk production. Professor GAINES.

ECONOMICS

(See also Business Organization and Operation, Public Utilities and Transportation, and Agricultural Economics.)

Major: For students in the College of Liberal Arts and Sciences, 20 hours made up of Economics 1 and other courses in economics for which it is a prerequisite. The courses in Public Utilities and Transportation will be accepted by the Department of Economics as courses in satisfaction of the major.

Minors: 20 hours in any one or two of the following subjects: geography, history, philosophy, political science, and sociology.

Note: Economics 22 and 27 are open only to freshmen, without previous requirements.

Economics 1 is the fundamental course in economics. It is a prerequisite for most of the advanced courses, and students expecting to do advanced work in economics should take it in their sophomore year.

Courses for Undergraduates

Econ. 1. Principles of Economics.—*Prerequisite:* 30 hours of university work.

5	Lect.	9	TT	114 Com.	THOMPSON
	A Quiz	8	MWF	101 Com.	HOOVER
	B1 Quiz	9	MWF	212 Com.	THOMPSON
	B2 Quiz	9	MWF	312 Com.	HUNTER
	B3 Quiz	9	MWF	329 Com.	BEHLING
	B4 Quiz	9	MWF	101 Com.	HOOVER
	C1 Quiz	10	MWF	312 Com.	HUNTER
	C2 Quiz	10	MWF	101 Com.	ALLEN

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Econ. 2. Elements of Economics.—*Prerequisite:* 30 hours of university work.

Credit	Section	Hours	Days	Room	Instructor
3	C1 Quiz	10	MWF	328 Com.	Lounsbury
	C2 Quiz	10	MWF	325 Com.	Berman
	C3 Quiz	10	MWF	125 Com.	Cover
	C4 Quiz	10	MWF	108 Com.	Sanford
	E1 Quiz	1	MWF	307 Com.	Lounsbury
	E2 Quiz	1	MWF	312 Com.	Cover
	F Quiz	2	MWF	306 Com.	Sanford

Econ. 3. Money, Credit, and Banking.—*Prerequisite:* Econ. 1 or 2.

3	[1]Lect. I	8	W	114 Com.	Lee
	A1 Quiz	8	MF	326 Com.	Fitzgerald
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II.	A2 Quiz	8	MF	307 Com.	Stalnaker
	A3 Quiz	8	MF	305 Com.	Allen
	A4 Quiz	8	MF	111 Com.	Long
	B1 Quiz	9	MF	328 Com.	Lounsbury
	K1 Quiz	9	TT	326 Com.	Fitzgerald
	N Quiz	1	TT	305 Com.	Allen
	O Quiz	2	TT	106 Com.	Long
	[1]Lect. II	8	Th	114 Com.	Lee
	J1 Quiz	8	TuS	307 Com.	Lounsbury
	J2 Quiz	8	TuS	305 Com.	Allen
	J3 Quiz	8	TuS	326 Com.	Fitzgerald
	K2 Quiz	9	TuS	307 Com.	Lounsbury
	B2 Quiz	9	MF	305 Com.	Lee
	D Quiz	11	WF	106 Com.	Long
	E Quiz	1	MW	306 Com.	Stalnaker
	G Quiz	3	MW	305 Com.	Lee

Econ. 27. Introduction to Business.—Open to freshmen, and to others with consent of instructor.

3	[1]Lect. I	1	Tu	114 Com.	Russell
	E1 Quiz	1	WF	219 Com.	Bruce
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II; and those in Lect. III in Lect. III.	E2 Quiz	1	WF	322 Com.	Mandeville
	E3 Quiz	1	WF	328 Com.	Gay
	E4 Quiz	1	WF	122 Com.	Curtis
	K1 Quiz	9	TT	328 Com.	Heckman
	O1 Quiz	2	TT	306 Com.	Sanford
	P1 Quiz	3	TT	101 Com.	Hoover
	[1]Lect. II	2	M	114 Com.	Russell
	F1 Quiz	2	WF	322 Com.	Mandeville
	F2 Quiz	2	WF	219 Com.	Bruce
	F3 Quiz	2	WF	328 Com.	Gay
	F4 Quiz	2	WF	122 Com.	Curtis
	N Quiz	1	TT	306 Com.	Sanford
	O2 Quiz	2	TT	101 Com.	Hoover
	P2 Quiz	3	TT	219 Com.	Bruce
	[1]Lect. III	10	Tu	114 Com.	Russell
	L1 Quiz	10	ThS	123 Com.	Mandeville
	L2 Quiz	10	ThS	328 Com.	Gay
	L3 Quiz	10	ThS	101 Com.	Hoover
	K2 Quiz	9	ThS	310 Com.	Curtis
	C Quiz	10	WF	329 Com.	Stalnaker
	D Quiz	11	WF	108 Com.	Sanford

Courses for Advanced Undergraduates and Graduates

Econ. 8. Foreign Exchange and the Money Market.—*Prerequisite:* Econ. 1 and 3; senior standing.

3	Lect.	8	W	215 Com.	Wright
	A Quiz	8	MF	322 Com.	Wright
	J Quiz	8	TT	322 Com.	Wright
	K Quiz	9	TT	322 Com.	Wright

Econ. 10. Corporation Finance and Management.—*Prerequisite:* Econ. 1 and 3; Accy. 1a and 1b.

3	A Quiz	8	MWF	329 Com.	Behlihg
	B Quiz	9	MWF	126 Com.	Winakor
	C1 Quiz	10	MWF	222 Com.	Gray
	C2 Quiz	10	MWF	111 Com.	Van Arsdell
	D1 Quiz	11	MWF	125 Com.	Green
	D2 Quiz	11	MWF	111 Com.	Van Arsdell
	D3 Quiz	11	MWF	329 Com.	Behling
	D4 Quiz	11	MWF	222 Com.	Gray
	J Quiz	8	TTS	329 Com.	Behling
	L Quiz	10	TTS	111 Com.	Van Arsdell
	M Quiz	11	TTS	125 Com.	Green

Econ. 23. Economic Problems.—*Prerequisite:* Econ. 1 or 2; junior standing. Not open to commerce students or L.A.S. students majoring in economics. (3). 10 MWF; 305 Com. Professor Lee.

Econ. 24. Economic Development of Modern Europe.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	9	F	215 Com.	Bogart
	B Quiz	9	MW	223 Com.	Bogart
	K Quiz	9	TT	223 Com.	Bogart

Econ. 29. Foreign Commerce and Commercial Policies.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 9 MWF; 322 Com. Professor LITMAN.

Econ. 30. World Markets.—*Prerequisite:* Econ. 1 or 2; junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	10	W	114 Com.	LITMAN
	C Quiz	10	MF	322 Com.	LITMAN
	L Quiz	10	TT	322 Com.	LITMAN

Econ. 36. Investments.—*Prerequisite:* Econ. 10; senior standing.

3	Lect.	9	W	114 Com.	BROWN
	B1 Quiz	9	MF	108 Com.	BROWN
	B2 Quiz	9	MF	111 Com.	VAN ARSDELL
	K1 Quiz	9	TT	108 Com.	BROWN
	K2 Quiz	9	TT	111 Com.	VAN ARSDELL
	L Quiz	10	TT	108 Com.	BROWN

Econ. 42. Trade Unionism.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 1 MWF; 325 Com. Associate Professor BERMAN.

Econ. 43. Personnel Administration.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	2	F	114 Com.	HELBING
	F1 Quiz	2	MW	222 Com.	HELBING
	F2 Quiz	2	MW	312 Com.	HECHMAN
	J1 Quiz	8	TT	219 Com.	HELBING
	J2 Quiz	8	TT	328 Com.	HECKMAN
	O Quiz	2	TT	222 Com.	HELBING

Econ. 52. Modern Problems of Taxation.—*Prerequisite:* Econ. 51. (3). 11 MWF; 312 Com. Professor HUNTER.

Econ. 56. Property Insurance.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	8	F	215 Com.	DICKINSON
	A Quiz	8	MW	325 Com.	DICKINSON
	J Quiz	8	TT	325 Com.	DICKINSON

Econ. 61. Economic Theory.—*Prerequisite:* Econ. 1 or 2; senior standing.

3	C Quiz	10	MWF	215 Com.	WASSERMAN
	D Quiz	11	MWF	215 Com.	WASSERMAN

Econ. 72. Economic Statistics.—*Prerequisite:* Econ. 71 or the permission of the instructor. (3). 10 TT; 325 Com. Practice 1-3 M; 317 Com. Assistant Professor DICKINSON.

Econ. 83. Public Utility Rates.—Same as Public Utilities 83. *Prerequisite:* Public Utilities 81. (3). 9 MWF; 222 Com. Assistant Professor GRAY.

Econ. 89. Social Aspects of Public Utility Service.—Same as Public Utilities 89. *Prerequisite:* Econ. 1 or 2; junior standing; consent of instructor. (2). 11 TT; 212 Com. Dean THOMPSON.

Econ. 90b. Senior Thesis or Independent Study.—(A) Senior Thesis: Primarily for candidates for graduation with High Honors. *Prerequisite:* Major in economics; senior standing. (2 or 4).* Arrange. (B) Independent Study: See "Annual Register, 1932-33," page 69. *Prerequisite:* Senior standing and a grade average in upper ten percent of the junior class on Honors Day. (3 to 5).* Arrange. Assistant Professor WASSERMAN and other members of the staff.

Econ. 99. Business and Society.—*Prerequisite:* Econ. 1 or 2; junior standing; consent of instructor. (2). 10 TT; 212 Com. Dean THOMPSON.

Courses for Graduates

Econ. 101. Economic Theory.—(1 unit). 3 MW; 212 Com. Dr. KINLEY.

Econ. 102. Theory and History of Money, Credit, and Prices.—(1 unit). Arrange. Assistant Professor WASSERMAN.

Econ. 104b. Organization of International Trade.—(1 unit). 3 TT; 212 Com. Professor LITMAN.

Econ. 105. Public Finance.—(1 unit). 4-6 Tu; 212 Com. Professor HUNTER.

Econ. 106. International Exchange and the Money Markets.—(1 unit). Arrange. Professor WRIGHT.

Econ. 107. The Corporation in Economic Evolution.—(1 unit). Arrange. Assistant Professor BROWN.

Econ. 112b. Labor Problems: Social Aspects.—(1 unit). 4-6 W; 209 Com. Associate Professor BERMAN.

Econ. 118. Seminar.—Thesis Course. *Note:* All graduate students writing theses in economics register in Econ. 118; registration for others is optional. (1 to 4 units).* 4-6 Th (alternate weeks); 420 Com.

(a) Third Year: Seminar.—Professor LITMAN.
(b) First Year: General Economics.—Assistant Professor BROWN.
(c) First Year: Public Utilities.—Assistant Professor GRAY.

Econ. 120. History of Economic Thought.—(1 unit). 10 TT; 209 Com. Dr. KINLEY.

Econ. 122. Economic History of the United States.—(1 unit). 4-6 Tu; 209 Com. Professor BOGART.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Econ. 123. Industrial and Financial Organization of Society.—(1 unit). Arrange. Professor LEE.

Econ. 143. Administration of Industrial Relations.—(1 unit). Arrange. Dr. HELBING.

Econ. 144. Statistical Theory and Analysis.—(1 unit). Arrange. Assistant Professor DICKINSON.

Econ. 180. Management of Public Utilities.—Same as Public Utilities 180. (1 unit). 4-6 W; 212 Com. Assistant Professor GRAY.

EDUCATION

A. GENERAL EDUCATION

Introductory Courses

Ed. 2. History of Education.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	B	9	MWF	303 Adm.(E)	SEYBOLT
	C	10	MWF	303 Adm.(E)	SEYBOLT

Ed. 5. Comparative Education.—*Prerequisite:* Junior standing.

3	E	1	MWF	204 Adm.(E)	JOHNSTON
	F	2	MWF	204 Adm.(E)	JOHNSTON
	L	10	TTS	204 Adm.(E)	JOHNSTON

Ed. 6. Principles of Secondary Education.—*Prerequisite:* Ed. 25.

3	J	8	TTS	308 Adm.(E)	CLEMENT
	K	9	TTS	308 Adm.(E)	WEBER
	L	10	TTS	307 Adm.(E)	PETERS
	M	11	TTS	204 Adm.(E)	JOHNSTON
	D	11	MWF	304 Adm.(E)	WEBER
	E	1	MWF	303 Adm.(E)	WILLIAMS
	F1	2	MWF	303 Adm.(E)	BROWNE
	F2	2	MWF	307 Adm.(E)	PETERS
	G	3	MWF	307 Adm.(E)	POTTHOFF

Ed. 10. Technic of Teaching.—*Prerequisite:* Ed. 25.

Students preparing to teach biology, chemistry, English, general science, home economics, physics, or music, or who expect to teach in elementary schools, and who plan to take Educational Practice, must register in the sections indicated immediately below, and must register at the same time for the Educational Practice indicated. Only students specializing in the fields indicated may enroll in these sections.

3					
(Biology—Ed. Prac. 6).....	A	8	MWF	303 U.H.S.	HARNISH
(Chemistry—Ed. Prac. 7).....	A	8	MWF	303 U.H.S.	HARNISH
(English—Ed. Prac. 11).....	G1	3	MWF	205 U.H.S.	MCHARRY
(Gen. Sci.—Ed. Prac. 13).....	A	8	MWF	303 U.H.S.	HARNISH
(Home Econ.—Ed. Prac. 14)....	G2	3	MWF	104 U.H.S.	KING
(Physics—Ed. Prac. 21).....	A	8	MWF	303 U.H.S.	HARNISH
(Elem. Sch.—Ed. Prac. 25).....	H	4	MWF	304 Adm.(E)	REAGAN

Students preparing to teach in other fields than those listed above and those who do not plan to take Educational Practice will enroll in the sections listed below:

A2	8	MWF	206 Adm.(E)	WILLIAMS
B	9	MWF	307 Adm.(E)	ODELL
C	10	MWF	206 Adm.(E)	MONROE
D	11	MWF	206 Adm.(E)	STUIT
E	1	MWF	304 Adm.(E)	REAGAN
F	2	MWF	307 Adm.(E)	ODELL

Ed. 25. Educational Psychology.—*Prerequisite:* Psych. 1 or consent of instructor in Section G, which is for students who have not had Psych. 1.

3	J	8	TTS	312 Adm.(E)	POTTHOFF
	K1	9	TTS	312 Adm.(E)	POTTHOFF
	K2	9	TTS	307 Adm.(E)	PETERS
	L	10	TTS	312 Adm.(E)	DOLCH
	M	11	TTS	312 Adm.(E)	DOLCH
	E1	1	MWF	312 Adm.(E)	DOLCH
	E2	1	MWF	307 Adm.(E)	PETERS
	F1	2	MWF	312 Adm.(E)	DOLCH
	F2	2	MWF	304 Adm.(E)	POTTHOFF
	G	3	MWF	204 Adm.(E)	CAMERON

Ed. 91. Special Problems of Education in Rural Communities.—*Prerequisite:* Senior standing and at least 6 hours in education. (Same as Agr. Ed. 91.) (2). 3 TT; 116 Agr. Associate Professor NOLAN.

Courses for Advanced Undergraduates and Graduates

Ed. 18. Educational Measurements.—*Prerequisite:* Ed. 25. (3). 8 MWF; 204 Adm.(E). Associate Professor ODELL.

Ed. 30. History of American Education.—*Prerequisite:* Senior standing or Ed. 2 or 11. (2). 9 TT; 303 Adm.(E). Professor SEYBOLT.

Ed. 43. Mental Tests.—*Prerequisite:* Ed. 25.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	2	MW	202 Adm.(E)	GRIFFITH
	Lab.	1–3	F	202 Adm.(E)	GRIFFITH

Ed. 45. Genetic Psychology for Teachers.—*Prerequisite:* Senior standing, Psych. 1, Ed. 25, or consent of instructor. (3). 11 MWF; 204 Adm.(E). Associate Professor GRIFFITH.

Ed. 52. Function, Organization, and Methods of the Evening School.—*Prerequisite:* Junior standing. Same as Ind. Ed. 52. (2). 11 TT; 304 Adm.(E). Professor MAYS.

Ed. 53. Problems of Industrial Education.—*Prerequisite:* Junior standing or consent of instructor. (Same as Ind. Ed. 53.) (3). 9 MWF; 304 Adm.(E). Professor MAYS.

Ed. 55. Problems of Vocational Guidance.—*Prerequisite:* Senior standing. Same as Ind. Ed. 55. (3). 8 MWF; 304 Adm.(E). Professor MAYS.

Ed. 99b. Thesis.—*Prerequisite:* Senior standing. (2). Time to be arranged. Dean BENNER and others.

Courses for Graduates

For a Master's degree in Education, course 125 is required. For students who have not taken a course in history of education as undergraduates, Education 11 or Education 30 is required. Education 6 and 25, or their equivalents, are prerequisites for all courses for graduates.

Ed. 101. Philosophy of Education.—(1 unit). 4-6 F; 204 Adm.(E). Professor CAMERON.

Ed. 102. Research in History of American Education.—(1 unit). Arrange. 311 Adm.(E). Professor SEYBOLT.

Ed. 104. Educational Administration.—(1 unit). 4-6 W; 308 Adm.(E). Associate Professor WEBER.

Ed. 120a. Seminar in the Supervision of Secondary Education.—*Prerequisite:* Ed. 106. (1 unit). 3-5 Tu; 308 Adm.(E). Professor CLEMENT.

Ed. 121. Educational Measurements.—Seminar. (1 unit). 4-6 M; 307 Adm.(E). Associate Professor ODELL.

Ed. 124. Reading in Educational Research.—(1 unit). 4-6 W; 206 Adm.(E). Professor MONROE.

Ed. 129. The Junior College.—*Prerequisite:* 3 units of graduate work in education. (1 unit). 4-6 Th; 308 Adm.(E). Professor CLEMENT.

Ed. 131. Analysis and Evaluation of High School Texts.—*Prerequisite:* Ed. 127. (1 unit). 10-12 S; 308 Adm.(E). Professor CLEMENT.

Ed. 148. Psychology of High School Subjects.—(1 unit). 10-12 S; 303 Adm.(E). Professor CAMERON.

Ed. 150. Thesis.—(1 to 2 units).* Dean BENNER and others.

Ed. 184. Seminar in School Administration.—*Prerequisite:* 3 units of graduate work in education including Ed. 104 or 106 and consent of instructor. (1 unit). Arrange. 302 Adm.(E). Associate Professor WEBER.

Ed. 185. Seminar in Educational Psychology.—*Prerequisite:* Ed. 125 and consent of instructor. (1 unit). Arrange. 203 Adm.(E). Professor CAMERON; Associate Professor GRIFFITH.

Ed. 190. Research in Education.—*Prerequisite:* 3 units of graduate work in Education and consent of the dean. (1 unit). Dean BENNER and others.

B. RELATED COURSES IN SPECIAL SUBJECTS

The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 20 hours in Education for graduation; for the 15 hours in Education for the State High School Certificate; or for the hours of Education necessary as a qualification for teachers in the North Central Association accredited schools.

Art. 10b. Course for Teachers.—(3). (See Art).

Botany 14. Course for Teachers.—(3). (See Botany).

Chemistry 12b. Course for Teachers.—(3). (See Chemistry).

English 41. Teaching of English Literature.—(2). (See English).

German 25. Teachers' Course.—(2). (See German).

History 18. Teaching of History.—(2). (See History).

Home Economics 11. Teachers' Course.—(3). (See Home Economics).

Industrial Education 56. Organization and Teaching of Shop Work.—(3). (See Industrial Education).

Latin 9. Teachers' Course.—(2). (See Classics).

Mathematics 35. Teachers' Course.—(3). (See Mathematics).

Music 25b. Public School Music Methods.—(2). (See Music).

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Music 26b. Public School Music Methods.—(3). (See Music).

Physical Education for Women 95b. Methods.—(4). (See Physical Education for Women).

Spanish 25. Methods of Teaching Spanish.—(3). (See Spanish).

Speech 12. Teaching of Speech.—(2). (See Speech).

C. EDUCATIONAL PRACTICE

The courses listed below are open only to seniors. *Prerequisite:* Ed. 25, Ed. 6, and Ed. 10, except that students who take Ed. Prac. 6, 7, 11, 11a, 13, 14, 20, 21, or 25 must register at the same time for Ed. 10. For Educational Practice in Agriculture, see Associate Professor NOLAN at 116 Old Agriculture. For Educational Practice in Physical Education, see Mr. JACKSON at 202 New Gymnasium. For Educational Practice in Home Economics, see Miss ROBINSON, Miss TODD, and Miss KING at 119 Woman's Building. Arrange for all other courses in Educational Practice with Principal C. W. SANFORD, at 102 University High School.

Ed. Prac. 1. Physical Education for Men.—(2 to 4).*

Ed. Prac. 2. Physical Education for Men.—(2 to 4).*

Ed. Prac. 3. Physical Education for Men.—(2 to 4).*

Ed. Prac. 4. Physical Education for Men.—(2 to 4).*

Ed. Prac. 5. Agricultural Education.—(3 to 5).* (Same as Agr. Ed. 50.)

Ed. Prac. 6. Biology.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 7. Chemistry.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 8. Civics.—(5).

Ed. Prac. 9. Drawing, Art.—(3 to 5).*

Ed. Prac. 10. Drawing, Mechanical.—(3 to 5).*

Ed. Prac. 11. English.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 11a. Speech.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 12. French.—(5).

Ed. Prac. 13. General Science.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 14. Home Economics Education.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 15. History.—(5).

Ed. Prac. 16. Industrial Education.—(3 to 5).*

Ed. Prac. 17. Latin.—(5).

Ed. Prac. 19. Mathematics.—(5).

Ed. Prac. 20. Music.—(3 to 5).* Students must be registered in Ed. 10, Section D1.

Ed. Prac. 21. Physics.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 23. Spanish.—(5).

Ed. Prac. 24. Stenography and Typewriting.—(3 to 5).*

Ed. Prac. 25. Elementary Education.—(5). Students must be registered in Ed. 10, Section H.

Ed. Prac. 26. Bookkeeping.—(5).

Ed. Prac. 27. Economics.—(5).

Ed. Prac. 28. German.—(5).

D. AGRICULTURAL EDUCATION

Agr. Ed. 50. Teaching.—*Prerequisite:* Ed. 25 and senior standing. (Same as Ed. Prac. 5.)

Credit	Section	Hours	Days	Room	Instructor
3 to 5*	A Conference	4	TT	Tolono H.S.	HENDERSON
	Teaching to be arranged				
	B Conference	4	TT	St. Joseph H.S.	RUCKER
	Teaching to be arranged				
	C Apprentice teaching in State				NOLAN

Agr. Ed. 51. Teachers' Course in Agriculture.—*Prerequisite:* Ed. 25, and senior standing. (3). 4 MWF; 116 Agr. Associate Professor NOLAN.

Agr. Ed. 91. Special Problems of Education in Rural Communities.—(Same as Ed. 91.) *Prerequisite:* Senior standing and at least 6 hours in Education. (2). 3 TT; 116 Agr. Associate Professor NOLAN.

Agr. Ed. 92. Adult Education in Vocational Agriculture.—*Prerequisite:* 20 hours of technical agriculture, Ed. 25, and senior standing. (Subject-matter and methods in part-time and evening classes, and other extension service in vocational agriculture.) (2). 11 MW; 116 Agr. Associate Professor NOLAN.

E. INDUSTRIAL EDUCATION

Ind. Ed. 1. Industrial Arts.—First Course. (4). Lect., 10 TT; Shop, 8-10 MWF; 5 Wood Shop. Mr. BRAUCHER and assistant.

Ind. Ed. 2. Advanced Industrial Arts.—(4). Lect., 11 TT; Shop, 10-12 MWF; 5 Wood Shop. Mr. BRAUCHER and assistant.

Ind. Ed. 2a. Problems of House Construction.—(4). Lect., 3 TT; Shop, 2-4 MWF; 5 Wood Shop. Mr. BRAUCHER and assistant.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Note: The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 25 hours in Industrial Education.

G.E.D. 1. Elements of Drawing.—(4). (See General Engineering Drawing).

G.E.D. 2. Descriptive Geometry.—(4). (See General Engineering Drawing).

G.E.D. 4. Advanced Drawing.—(4). (See General Engineering Drawing).

Journ. 9b. History and Practice of Printing and Publishing.—(2 or 3). (See Journalism.)

M.E. 85. Pattern and Foundry Laboratory.—(3). (See Mechanical Engineering).

M.E. 87. Machine Laboratory.—(3). (See Mechanical Engineering).

Courses for Advanced Undergraduates and Graduates

Ind. Ed. 52. The Function, Organization, and Methods of the Evening School.—Same as Ed. 52. *Prerequisite:* Junior standing. (2). 11 TT; 304 Adm.(E). Professor Mays.

Ind. Ed. 53. Problems of Industrial Education.—(Same as Ed. 53.) *Prerequisite:* Junior standing or consent of instructor. (3). 9 MWF; 304 Adm.(E). Professor Mays.

Ind. Ed. 55. Problems of Vocational Guidance.—Same as Ed. 55 and Ind. Ed. E55. *Prerequisite:* Senior standing. (3). 8 MWF; 304 Adm.(E). Professor Mays.

Ind. Ed. 56. Organization and Teaching of Shop Work.—(3). 11 MWF; 310 Adm.(E). Professor Mays.

Extra-mural Courses

Ind. Ed. E. 41. Survey of Vocational Education.—Same as Ed. 41 and Ind. Ed. 41. Mr. Bawden.

Ind. Ed. E. 52. Teaching Related Trade Subjects.—Same as Ed. 52 and Ind. Ed. 52. Mr. Bawden.

Ind. Ed. E. 53. Problems of Industrial Education.—Same as Ed. 53 and Ind. Ed. 53. Mr. Bawden.

Ind. Ed. E. 54. Principles and Methods of the Part-Time School.—Same as Ed. 54 and Ind. Ed. 54. Mr. Bawden.

Ind. Ed. E. 54a. Continuation of Ind. Ed. E. 54.

Ind. Ed. E. 55. Problems of Vocational Guidance.—Same as Ed. 55 and Ind. Ed. 55. Mr. Bawden.

Ind. Ed. E. 55a. Continuation of Ind. Ed. E. 55.

Ind. Ed. E. 56. Teaching Shopwork.—Same as Ed. 56 and Ind. Ed. 56. *Prerequisite:* (a) Two years of trade or industrial experience beyond apprenticeship; (b) completion of elementary school curriculum. Mr. Bawden.

Ind. Ed. E. 56a. Continuation of Ind. Ed. E. 56.

ELECTRICAL ENGINEERING

Note: Certain courses in this department require laboratory fees of $2.

Courses for Undergraduates

E.E. 2. Elementary Electrical Engineering.—*Prerequisite:* One year of college physics.

Credit	Section	Hours	Days	Room	Instructor
3		11	MWF	200 E.E.A.	

E.E. 12. Alternating Current Apparatus.—*Prerequisite:* E.E. 11, 61 and registration in E.E. 62.

3	C1	8	MWF	305 E.H.
	C2	8	MWF	102 E.H.
	Q1	10	MWF	305 E.H.
	Q2	10	MWF	108 P.L.
	J1	11	MWF	305 E.H.
	J2	11	MWF	204 P.L.
	P1	1	MWF	305 E.H.
	P2	1	MWF	109 E.H.
	C3	9	TTS	305 E.H.

E.E. 26. Alternating Currents.—*Prerequisite:* E.E. 25, Physics 44a, registration in E.E. 76.

4	N	9	MTWTF	109 E.H.
	L	11	MTWTF	111 E.H.
	M	11	MTWTF	400 E.H.
	K	1	MTWTF	111 E.H.

E.E. 36. Alternating Current Apparatus.—*Prerequisite:* E.E. 35, registration in E.E. 86.

4	K	8	MTWTF	111 E.H.
	L	8	MTWTF	109 E.H.
	M	11	MTWTF	108 P.L.
	N	11	MTWTF	109 E.H.

E.E. 52. Radio Communication Theory.—*Prerequisite:* E.E. 35 or consent of instructor.

Credit	Section	Hours	Days	Room	Instructor
3		10	TT	111 E.H.	
	Lab. K	2–5	Tu	311 E.E.L.	
	Lab. L	2–5	W	311 E.E.L.	
	Lab. M	1–4	F	311 E.E.L.	

E.E. 54. Vacuum Tubes and Control Devices.—*Prerequisite:* E.E. 26.

2 or 3*		11	TTS	305 E.H.	
	Lab. K	2–5	Tu	305 E.E.L.	
	Lab. L	1–4	F	305 E.E.L.	

E.E. 56. Economical Design of Electrical Systems.—*Prerequisite:* E.E. 35.

4	Lect. KLMN	9	Th	319 E.H.	
	K	9	MWF	111 E.H.	
	L	9	MWF	312 E.H.	
	M	10	MWF	312 E.H.	
	N	1	MWF	312 E.H.	

E.E. 58. Power and Communication Networks.—*Prerequisite:* Grade of A or B in E.E. 26.

3		10	MF	111 E.H.	
	K	2–5	M	311a E.E.L.	
	L	2–5	F	311a E.E.L.	

E.E. 62. Alternating Current Laboratory.—*Prerequisite:* E.E. 11, E.E. 61, registration in E.E. 12.

1	J1	9–12	Tu	200 E.E.L.	
	J2	9–12	Tu	214 E.E.L.	
	Q1	1–4	Tu	200 E.E.L.	
	Q2	1–4	Tu	214 E.E.L.	
	P1	9–12	Th	200 E.E.L.	
	P2	9–12	Th	214 E.E.L.	
	R1	1–4	Th	200 E.E.L.	
	R2	1–4	Th	214 E.E.L.	
	C1	2–5	F	214 E.E.L.	
	C2	2–5	F	200 E.E.L.	
	C3	9–12	S	214 E.E.L.	

E.E. 72. Electrical Engineering Problems.—(Elective for Juniors and Seniors). *Prerequisite:* E.E. 25.

1 to 3*	K	1	TT	311a E.E.L.	
	L	2	TT	111 E.H.	
	Lab. L	2–5	F	110 E.E.L.	
	Others Arrange				

E.E. 76. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 25, 75; registration in E.E. 26.

2	MN	8	Tu	215 E.E.L.	
	KL	9	W	215 E.E.L.	
	K1	8–11	M	200 E.E.L.	
	N	2–5	M	200 E.E.L.	
	L1	8–11	W	200 E.E.L.	
	M1	2–5	W	200 E.E.L.	
	M2	2–5	W	214 E.E.L.	
	K2	8–11	F	200 E.E.L.	
	L2	8–11	S	200 E.E.L.	

E.E. 86. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 85, registration in E.E. 36.

2	KLMN	9	Tu	215 E.E.L.	
	K1	9–12	M	200 E.E.L.	
	L	2–5	M	200 E.E.L.	
	N1	2–5	Tu	200 E.E.L.	
	K2	8–11	W	200 E.E.L.	
	M	2–5	W	200 E.E.L.	
	N2	2–5	Th	200 E.E.L.	

E.E. 96. Seminar.—*Prerequisite:* Senior standing in E.E.

1	K	9	M	305 E.H.	
	L	8	Tu	305 E.H.	
	M	1	W	104 P.L.	
	N	8	Th	305 E.H.	
	Y	9	F	305 E.H.	

E.E. 98. Thesis.—(3). Arrange.

Courses for Graduates

Note: Entrance on graduate work in Electrical Engineering presupposes the equivalent of the full undergraduate course in that subject. The undergraduate courses in electrical engineering are open for minor credit to students majoring in other departments who have the proper prerequisites.

E.E. 101. Advanced Courses in Alternating Currents.—(½ to 2 units).* Arrange.

(a) Graduate Seminar.—Professor PAINE.
(c) Machine Transients.—Assistant Professor KEENER.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

E.E. 102. **Electric Waves, Oscillations and Transients.**—(½ to 1 unit).* Arrange.
(a) **Theory of Electric Waves, Oscillations and Transients.**—Assistant Professor REICH.
(b) **Demonstration Lecture.**—Assistant Professor REICH.
(c) **Theory of Energy Radiation.**—Assistant Professor BROWN.
(d) **Principles of Television Engineering.**—Assistant Professor BROWN.

E.E. 103. **Electrical Design.**—(½ to 1 unit).* Arrange.
(a) **Power Plant Design.**—Associate Professor WALDO.
(b) **Machine Design.**—Associate Professor WALDO.
(c) **Illumination Practice and Design.**—Assistant Professor KRAEHENBUEHL.

E.E. 104. **Courses in Electronics.**—(1 unit). Arrange.
(a) **Theoretical Electronics.**—Assistant Professor REICH.
(c) **Photoelectric Cells, Gaseous Control Tubes and Inverters.**—Assistant Professor REICH.

E.E. 105. **Electrical Engineering Research.**—(1 to 3 units).* Professors PAINE, TYKOCINER, Associate Professor KNIGHT, Assistant Professors BROWN, REICH, KEENER, KRAEHENBUEHL.

ENGINEERING

Courses for Undergraduates

Note: Each of the following courses may be used as an approved or non-technical elective in all engineering curricula.

Eng. 10. **Engineering Economics.**—Evolution and growth of industry; basic industrial principles; ownership and securities; standardization; valuation and depreciation; comparisons and selections of engineering projects. *Prerequisite:* Junior standing in engineering.

Credit	Section	Hours	Days	Room	Instructor
3	A	10	MWF	117 T.B.	KING

Eng. 39. **Industrial Relations.**—History of the development of industry; the factory system; manufacturers' organizations; labor organizations; works management; trade unions; wage systems; personnel problems; labor legislation. *Prerequisite:* Junior or senior standing.

3	PQ	11	MWF	1 Wood Shop	CASBERG

Eng. 92. **Engineering Law.**—Contracts, evidence, torts, equity, real property, corporations, agency, sales, negotiable instruments, water rights, patent rights, special assessments, contract letting, general conditions. *Prerequisite:* Senior standing in engineering or architecture.

3	A	9	MWF	205 E.H.	PICKELS

ENGLISH

(Including Rhetoric, Speech, and Scandinavian Languages)

Major: 20 hours in English *excluding* Rhetoric 1, 2, 10, 12, 21, 22, English 10a, 10b, 20a, 20b, 41, 42, and *including* at least 10 hours in English literature, at least 3 hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours in (a) Latin or Greek or French or German or Spanish; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history; or (e) in history and philosophy. No language courses may be regarded as satisfying the minor requirement if they are excluded from the majors of the language departments (excepting elementary courses in Greek, Latin, French 2a, and Spanish 2a). At least eight hours must be offered in each subject.

Major in Speech

Major: 10 hours in speech, inclusive of Speech 7 and 8 and either 4 or 6; and 10 hours of English, exclusive of English 10a, 10b, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, 22, and inclusive of one course in English literature from the advanced group.

Minors: 20 hours, in any one or two of the following subjects: psychology, philosophy, Greek, Latin, French, German, history, political science, economics, law, or sociology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in English 10 and Rhetoric 1-2.

A. ENGLISH LANGUAGE AND LITERATURE

Courses for Undergraduates

Engl. 10a. **An Introduction to Literature.**—Forms of poetry, mainly narrative. *Prerequisite:* The minimum entrance requirement in English. (Credit is not given for Engl. 10a in addition to 20a and 20b).

3[1]	A	8	MWF	104 L.H.	SECORD
	B1	9	MWF	211 U.H.	TEMPLEMAN
[1]Seniors will receive only 2 hours credit.	B2	9	MWF	204a L.H.	RINAKER
	C	10	MWF	133 L.H.	ZEITLIN
	D	11	MWF	219 L.H.	TUPPER
	E	1	MWF	203 U.H.	KELLEY
	F	2	MWF	203 U.H.	BLOOM

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Engl. 10b. An Introduction to Literature.—Forms of poetry, mainly lyrical. (Credit is not given for Engl. 10b in addition to 20a and 20b). *Prerequisite:* Engl. 10a.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	204a L.H.	Kelso
	A2	8	MWF	310 U.H.	Goldman
[1]Seniors will receive only 2 hours credit.	B1	9	MWF	128 L.H.	Finney
	B2	9	MWF	219 L.H.	Tupper
	C1	10	MWF	232 L.H.	Rinaker
	C2	10	MWF	206 L.H.	Rapp
	D1	11	MWF	128 L.H.	Landis
	D2	11	MWF	235 L.H.	Weirick
	E1	1	MWF	123 L.H.	Busey
	F	2	MWF	133 L.H.	Parry

Engl. 13. American Literature.—*Prerequisite:* Sophomore standing, or exemption from Rhet. 2.

2	A	1	TT	103 New Agr.	Paul
	B	3	TT	103 New Agr.	Paul

Engl. 20a. Chief English Writers of the Nineteenth Century.—Intended for students in professional and technical courses such as law, medicine, commerce, engineering, etc. *Prerequisite:* One year of college work. (Credit is not given for Engl. 20a in addition to Engl. 10a and 10b).

4	A	8	MTWT	203 U.H.	Harris
	B	9	MTWT	413 U.H.	Brawner
	C	10	MTWT	214 U.H.	Sandin
	D	11	MTWT	207 U.H.	Peterson
	E	1	MTWT	208 U.H.	French

Engl. 20b. Chief English Writers Before 1800.—*Prerequisite:* Engl. 20a. (Credit is not given for Engl. 20b in addition to Engl. 10a and 10b).

4	A1	8	MTWT	204 U.H.	Templeman
	A2	8	MTWT	302 U.H.	Glenn
	B	9	MTWT	310 U.H.	Jefferson
	C	10	MTWT	302 U.H.	Trelease
	D	11	MTWT	139 L.H.	Kelso
	E	1	MTWT	203-A L.H.	Rinaker

Engl. 22. Literary Study of the Bible.—*Prerequisite:* 6 hours of English literature. (3). 11 MWF; 103 New Agr. Professor E. C. Baldwin.

Engl. 23. Introduction to Shakespeare.—*Prerequisite:* Sophomore standing, or exemption from Rhet. 2.

3	B	9	MWF	109 L.H.	Hillebrand
	E	1	MWF	109 L.H.	Finney

Engl. 41. Teaching of English Literature.—*Prerequisite:* 9 hours of English literature. (2). 2 TT; 202 L.H. Professor Paul.

Engl. 44. Contemporary Poetry.—*Prerequisite:* 6 hours of English Literature, or junior standing. (3). 1 MWF; 103 New Agr. Assistant Professor Weirick.

Courses for Advanced Undergraduates and Graduates

Prerequisite: Junior standing, except as otherwise specified.

Engl. 3. Poetry of Milton.—(3). 9 MWF; 304 L.H. Professor E. C. Baldwin.

Engl. 4. English Versification.—(2). 10 TT; 123 L.H. Assistant Professor Landis.

Engl. 5. Shakespeare.—(3). 11 MWF; 109 L.H. Professor T. W. Baldwin.

Engl. 9. Old English (Anglo-Saxon).—Beowulf. (3). 11 MWF; 305 L.H. Professor Jones.

Engl. 17. History of the English Language.—(Consent of instructor must be obtained.) (3). 9 MWF; 305 L.H. Professor Flom.

Engl. 30. Tendencies in American Fiction since 1870.—(Consent of instructor must be obtained.) (3). 10 MWF; 235 L.H. Dr. Tupper.

Engl. 31. English Literature from 1688-1789 (Exclusive of the Drama).—(3). 2 MWF; 109 L.H. Assistant Professor Secord.

Engl. 36. English Drama (Exclusive of Shakespeare) from 1600 to 1700.—(3). 2 MWF; 204a L.H. Professor Hillebrand.

Engl. 38. Development of the Arthurian Tradition.—(3). 1 MWF; 117 L.H. Associate Professor Parry.

Engl. 43. Browning.—(3). 10 MWF; 203 L.H. Professor Graham.

Engl. 50. Prose of the First Half of the Seventeenth Century.—(3). 11 MWF; 120 L.H. Professor Zeitlin.

Engl. 54b. Introduction to Comparative Literature.—*Prerequisite:* English 54a. Survey of the greatest French, German, and English authors.

3	Lect.	10	WF	303 L.H.	Bernbaum Aron Carnahan
	A Disc.	10	M	105 L.H.	Parry
	B Disc.	10	M	203a L.H.	Landis

Engl. 55b. Survey of English Literature.—*Prerequisite:* Senior standing. (3). 3 MWF; 123 L.H. Associate Professor PARRY.

Engl. 60b. Thesis.—(2). Primarily for candidates for honors. Arrange. Dr. TUPPER and others.

Courses for Graduates

Engl. 101. Research in Special Topics.—(1 to 2 units).* Professors GRAHAM, BERNBAUM, FLOM, PAUL, ZEITLIN, T. W. BALDWIN, E. C. BALDWIN, JONES, HILLEBRAND, JEFFERSON; Associate Professors SANDFORD, FLETCHER, PARRY; Assistant Professors RINAKER, SECORD, FINNEY.

Engl. 128. Literature of the Sixteenth Century.—(1 unit). 10 TT; 117 L.H. Professor JONES.

Engl. 130. Tragedy.—(1 unit). 1 TT; 113 L.H. Professor HILLEBRAND.

Engl. 135. Problems in American Literature.—Whitman and Lowell. (1 unit). 8 TT; 113 L.H. Professor PAUL.

Engl. 137. Prose Writers of the Nineteenth Century.—(1 unit). 11 TT; 123 L.H. Professor ZEITLIN.

Engl. 138. The Romantic Movement.—(1 unit). 2 TT; 303a L.H. Professor BERNBAUM.

Engl. 140. Investigations in Modern English Literature.—(1 to 3 units).* Three hours once a week. Arrange; 220 L.H. Professor BERNBAUM.

Engl. 141. Literature of the Seventeenth Century.—(1 unit). 3 TT; 302 L.H. Professor E. C. BALDWIN.

Engl. 143. Seminar in the History and Theory of Prose Fiction.—(1 unit). 1 WF; English Seminar. Professor BERNBAUM.

Engl. 145. Studies in the Eighteenth-century Literature.—(1 unit). 2 MW; 113 L.H. Professor GRAHAM.

Engl. 147. Shakespeare and Elizabethan Drama.—Critical study of the chief plays. (1 unit). 10 MW; 219 L.H. Professor T. W. BALDWIN.

Engl. 149. Development of Tudor Drama.—(1 unit). Arrange. Professor T. W. BALDWIN.

Engl. 157. Seminar in Spenser.—(1 unit). Arrange. Professor JONES.

B. RHETORIC

Courses for Undergraduates

Rhet. 1. Rhetoric and Composition.—*Prerequisite:* The minimum entrance requirements in English.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	213 U.H.	JOHNSON
[1]Seniors will receive	[2]A2	8	MWF	207 U.H.	WASHBURN
only 2 hours credit.	B1	9	MWF	411 U.H.	JOHNSON
	[2]B2	9	MWF	123 L.H.	MOOD
[2]Sections A2, B2, C2,	C1	10	MWF	212 U.H.	BLAIR
D2, E2, F2, and G2	[2]C2	10	MWF	207 U.H.	HURLEY
are for students who	D1	11	MWF	123 L.H.	GRISWOLD
are repeating Rhet. 1.	[2]D2	11	MWF	203a L.H.	GETTMANN
	E1	1	MWF	312 U.H.	NOBLE
	[2]E2	1	MWF	224 L.H.	STUTZMAN
	F1	2	MWF	203 L.H.	HAMILTON
	[2]F2	2	MWF	207 U.H.	ALLEN
	G1	3	MWF	204 U.H.	ROBERTS
	[2]G2	3	MWF	207 U.H.	WHEELER
	K	8	TTS	207 U.H.	GRESS
	M	10	TTS	404 U.H.	

Rhet. 2. Rhetoric and Composition.—*Prerequisite:* Rhet. 1.

3[1]	A1	8	MWF	404 U.H.	MOOD
[1]Seniors will receive	A2	8	MWF	321 L.H.	GETTMANN
only 2 hours credit.	A3	8	MWF	413 U.H.	
	A4	8	MWF	407 U.H.	HURLEY
[2]Sections A7, A8, B6,	A5	8	MWF	203a L.H.	BLAIR
B7, C6, D8, E6, E7,	A6	8	MWF	212 U.H.	GRISWOLD
F6, H3, K2, L2, and	[2]A7	8	MWF	208 U.H.	SANDIN
M2, are for students	[2]A8	8	MWF	311 U.H.	RIEBEL
who received a grade	B1	9	MWF	207 U.H.	GLENN
of "D" in Rhet. 1.	B2	9	MWF	311 U.H.	KELLEY
	B3	9	MWF	203 U.H.	SANDIN
	B4	9	MWF	302 U.H.	TRELEASE
	B5	9	MWF	212 U.H.	FRENCH
	[2]B6	9	MWF	412 U.H.	HARRIS
	[2]B7	9	MWF	204 U.H.	DAVIDSON
	C1	10	MWF	204 U.H.	GETTMANN
	C2	10	MWF	128 L.H.	DAVIDSON
	C3	10	MWF	211 U.H.	FRENCH
	C4	10	MWF	412 U.H.	KELLEY

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Rhet. 2. Rhetoric and Composition.—(Concluded)

Credit	Section	Hours	Days	Room	Instructor
3[1]	C5	10	MWF	403 U.H.	Jefferson
[1]Seniors will receive only 2 hours credit.	[2]C6	10	MWF	413 U.H.	Brawner
	D1	11	MWF	311 U.H.	Harris
	D2	11	MWF	318 U.H.	Secord
[2]Sections A7, A8, B6, B7, C6, D8, E6, E7, F6 H3, K2, L2, and M2, are for students who received a grade of "D" in Rhet. 1.	D3	11	MWF	413 U.H.	Goldman
	D4	11	MWF	406 U.H.	Brawner
	D5	11	MWF	211 L.H.	Rapp
	D6	11	MWF	412 U.H.	
	D7	11	MWF	148 L.H.	
	[2]D8	11	MWF	204 U.H.	Templeman
	E1	1	MWF	213 U.H.	Allen
	E2	1	MWF	219 L.H.	Hamilton
	E3	1	MWF	204 U.H.	Bloom
	E4	1	MWF	214 U.H.	Roberts
	E5	1	MWF	407 U.H.	
	[2]E6	1	MWF	406 U.H.	Peterson
	[2]E7	1	MWF	310 U.H.	Dolk
	F1	2	MWF	204 U.H.	Roberts
	F2	2	MWF	213 U.H.	Peterson
	F3	2	MWF	406 U.H.	Dolk
	F4	2	MWF	412 U.H.	Noble
	F5	2	MWF	404 U.H.	Wheeler
	[2]F6	2	MWF	104 L.H.	Fisher
	G1	3	MWF	406 U.H.	Sweney
	G2	3	MWF	311 U.H.	
	G3	3	MWF	403 U.H.	Fisher
	G4	3	MWF	212 U.H.	Haskell
	G5	3	MWF	240 L.H.	Stutzman
	H1	4	MWF	404 U.H.	Bloom
	H2	4	MWF	204 U.H.	Wheeler
	[2]H3	4	MWF	406 U.H.	Riebel
	K1	8	TTS	208 U.H.	Martin
	[2]K2	8	TTS	315 U.H.	Orlovich
	L1	9	TTS	315 U.H.	Orlovich
	[2]L2	9	TTS	311 U.H.	Gress
	M1	10	TTS	413 U.H.	Martin
	[2]M2	10	TTS	213 U.H.	Osenburg
	N1	11	TTS	407 U.H.	Fielder
	N2	11	TTS	212 U.H.	Osenburg

Rhet. 3. Exposition.—*Prerequisite:* Rhet. 1 and 2.

3	B	9	MWF	104 L.H.	Goldman
	C	10	MWF	104 L.H.	Busey
	G	3	MWF	104 L.H.	Landis

Rhet. 4. Narration and Description.—Elements of narrative writing. (Not a course in short-story writing). *Prerequisite:* Rhet. 1 and 2.

3	B	9	MWF	113 L.H.	Rapp
	C	10	MWF	123 L.H.	Kelso
	D	11	MWF	310 U.H.	Trelease
	F	2	MWF	203a L.H.	Finney

Rhet. 7. Advanced Narrative Composition.—(3). 3 MWF; 204a L.H. Assistant Professor Weirick.

Rhet. 10. Business Letter Writing.—*Prerequisite:* Rhet. 1 and 2.

2	A1 LAS, Agr., Ed.	8	MW	113 L.H.	Coleman
	B1 Com.	9	TT	325 Com.	Coleman
	B2 LAS, Agr., Ed.	9	MW	133 L.H.	Anderson
	C1 Com.	10	MW	115 Com.	Anderson
	C2 Com.	10	TT	305 Com.	Saunders
	C3 LAS, Agr., Ed.	10	TT	204 U.H.	Lang
	D1 Com.	11	TT	310 Com.	Anderson
	D2 Eng.	11	TT	203 U.H.	Coleman
	E1 LAS, Agr., Ed.	1	MW	211 U.H.	Coleman
	E2 Com.	1	MW	305 Com.	Saunders
	F1 Com.	2	TT	305 Com.	Saunders
	F2 Eng.	2	TT	204 U.H.	Lang

Rhet. 21. Advanced Business Writing.—Sales letter campaigns and advertising copy. *Prerequisite:* Grade of "A" or "B" in Rhet. 10. (2). 11 TT; 305 Com. Associate Professor Saunders.

Rhet. 22. Special Types of Business Writing.—Business reports and articles for business magazines. *Prerequisite:* Rhet. 10. (2). 10 TT; 310 Com. Assistant Professor Anderson.

Rhet. 46. Dramatic Composition.—(3). 3 MWF; 129 L.H. Professor Hillebrand.

C. SPEECH

Courses for Undergraduates

Speech 1. Principles of Effective Speaking.—*Prerequisite:* Rhet. 1 and 2.

3	A1	8	MWF	202 Entom.	Huston
	A2	8	MWF	136 L.H.	Henderson
	B1	9	MWF	136 L.H.	Henderson

Speech 1. Principles of Effective Speaking.—(Concluded)

Credit	Section	Hours	Days	Room	Instructor
	B2	9	MWF	142 L.H.	SANDFORD
	C1	10	MWF	136 L.H.	NELSON
	C2	10	MWF	202 Entom.	SWANSON
	D1	11	MWF	136 L.H.	NELSON
	D2	11	MWF	202 Entom.	
	E	1	MWF	136 L.H.	HUSTON
	F	2	MWF	142 L.H.	WALTZ
	G	3	MWF	136 L.H.	HENDERSON

Speech 2. Business and Professional Speaking.—*Prerequisite:* Speech 1.

2	K	9	TT	142 L.H.	SANDFORD
	L	10	TT	142 L.H.	WALTZ
	M	11	TT	142 L.H.	HUSTON

Speech 3. Elements of Debating.—*Prerequisite:* Speech 1.

3	B	9	MWF	202 Entom.	HUSTON
	E	1	MWF	142 L.H.	WALTZ

Speech 10. Oral Interpretation of Literature.—*Prerequisite:* Speech 1.

2	K	9	TT	136 L.H.	NELSON
	L	10	TT	136 L.H.	NELSON
	N	1	TT	136 L.H.	NELSON
	O	2	TT	136 L.H.	HENDERSON

Courses for Advanced Undergraduates

Speech 4. Advanced Debating.—*Prerequisite:* Speech 3; junior standing. (3). 10 MWF; 142 L.H. Mr. WALTZ.

Speech 7. Masters of Public Address.—*Prerequisite:* Speech 2 or 3; junior standing. (3). 11 MWF; 142 L.H. Associate Professor SANDFORD.

Speech 8. Dramatization.—*Prerequisite:* Speech 10; junior standing. (3). 1 MWF; L.H. Theatre. Mr. SWANSON.

Speech 11. Play Production.—*Prerequisite:* Speech 8; junior standing. (3). Laboratory fee, $5. 2 MWF; L.H. Theatre. Mr. SWANSON.

Speech 12. Teaching of Speech.—*Prerequisite:* 10 hours of speech; junior standing. (2). 11 TT; 136 L.H. Associate Professor SANDFORD.

D. SCANDINAVIAN LANGUAGES AND LITERATURE

Courses for Undergraduates

Scand. 6. Ibsen.—Lectures; study of three of the social dramas; parallel reading of two early and three later dramas. *Prerequisite:* Junior standing. (2). 9 TT; 202 L.H. Professor FLOM.

Scand. 11. Swedish Literature.—Lectures; August Strindberg, Selma Lagerlof, and Axel Munthe; readings in English translation. *Prerequisite:* Sophomore standing. (2). 10 TT; 128 L.H. Mr. JOHNSON.

Scand. 22b. Elementary Swedish.—Grammar; conversation; reading of two plays. *Prerequisite:* Scand. 22a or an equivalent. (3). 1 MWF; 209 L.H. Mr. JOHNSON.

Courses for Graduates

Scand. 110. Advanced Old Norse.—Critical study of the heroic lays of Elder Edda. (1 unit). Arrange; 209 L.H. Professor FLOM.

Scand. 150. Research.—(1 to 2 units).* Arrange; 209 L.H. Professor FLOM.

ENTOMOLOGY

Note: Certain courses in this department require laboratory fees varying from $1.50 to $5.

Major: 20 hours exclusive of Entomology 1, 2, 31. At least five hours must be offered from the advanced group.

Minors: 20 hours in not more than two of the following, with not less than eight hours in either department, if two subjects are chosen: zoology, botany, chemistry, physiology, horticulture, and agronomy.

Entomology 1 is open to freshmen, without prerequisite. It is prerequisite to all other courses in the department except 2, 31, and 32, and may be followed by any of the other courses for undergraduates or by 6, 10, 20, or 21 in the senior year. Agricultural students and others desiring strictly practical work may take 1, 8, and 20 in sequence. Students majoring in entomology should take as many of the courses offered as possible, including some work in classification, morphology, and control, and should consult the head of the department. Seniors receive reduced credit in Entomology 1.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Undergraduates

Entom. 1. Destructive and Useful Insects.—Two discussion periods and four hours laboratory a week.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8–10	MWF	309 Entom.	HAYES, KEARNS
[1]Seniors will receive only 2 hours credit.	B	10–12	MWF	309 Entom.	METCALF, BALDUF, MILUM
	C	1–3	MWF	309 Entom.	METCALF, MILUM, KEARNS

Entom. 2. Insects: Their Ways and Their Relations to Man.—A non-technical, cultural course of illustrated lectures with exhibits. *Prerequisite:* Sophomore standing. (Not open to students who have taken Entom. 1.)

2	A	11	TT	202 Entom.	BALDUF and others
	B	2	TT	202 Entom.	

Entom. 22. Methods and Technic for the Study of Insects.—*Prerequisite:* Entom. 1 and sophomore standing. (3). 8-11 TT; 312 Entom. Associate Professor HAYES.

Entom. 31. Essentials of Beekeeping.—*Prerequisite:* Sophomore standing. (1 or 2).* Lect. 4 Tu; for 2 hours credit include lab. 3-5 Th; 104 Experimental Zoology Laboratory. Assistant Professor MILUM.

Courses for Advanced Undergraduates and Graduates

Entom. 6. Special Problems.—*Prerequisite:* Any of the following: Entom. 3, 7, 8, 10, 20, 21, 22, or 31; senior standing. (2 to 5).* Saturday morning; additional hours to be arranged. Members of the department.

Entom. 8c. Pests of Man and Domestic Animals.—*Prerequisite:* Entom. 1; junior standing. (3 or 5).* 1-4 TT; 312 Entom. Professor METCALF.

Entom. 10b. Taxonomy of Immature Insects.—*Prerequisite:* Entom. 3 and senior standing. (3). 10-12 MWF; 312 Entom. Associate Professor HAYES.

Entom. 21. Insect Bionomics.—*Prerequisite:* Entom. 1 and senior standing. (3). 8 MWF; 312 Entom. Professor METCALF.

Courses for Graduates

Note: The prerequisite for graduate work in entomology is two years of undergraduate biology, including zoology and entomology.

Entom. 100. Research.—(½ to 4 units).* Time to be arranged.

(a) Morphology and Embryology of Insects.—Associate Professor HAYES.
(b) Economic Entomology.—Professor METCALF.
(c) Systematic Entomology.—Professor METCALF, Assistant Professor BALDUF.
(d) Biology and Ecology of Insects.—Professor METCALF.

GENERAL ENGINEERING DRAWING

Note: All courses in this department require laboratory fees of $1.50.

Courses for Undergraduates

G.E.D. 1. Elements of Drawing.—*Prerequisite:* Plane geometry.

4	A	8–11	MF	316 T.B.	Department staff
		8–10	W	316 T.B.	
	B	1–4	MF	316 T.B.	
		1–3	W	316 T.B.	

G.E.D. 2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry.

4	A	8–11	MF	To be assigned at registration time.	Department staff
		8–10	W		
	B	1–4	MF		
		1–3	W		
	C	8–11	TT		
		8–10	S		
	D	1–4	TT		
		10–12	S		

G.E.D. 4. Advanced Drawing.—*Prerequisite:* At least three years of drawing in high school, or the equivalent in commercial practice, to be determined by the department at registration time.

4	C	8–11	TT	316 T.B.	CROSSMAN
		8–10	S	316 T.B.	

G.E.D. 6. Elements of Drawing.—*Prerequisite:* Plane geometry. (For students in chemical engineering.) (3). Sec. D, 1-4 TT; 316 T.B. Mr. JORGENSEN.

G.E.D. 8. Architectural Projections.—Continuation of G.E.D. 7. *Prerequisite:* G.E.D. 7. (Student completing G.E.D. 7 and 8 may substitute them for G.E.D. 2.)

2	A	8–11	MF	103 T.B.	PORTER and LENDRUM
	B	2–5	MF	103 T.B.	
	C	9–12	TT	103 T.B.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

GEOLOGY AND GEOGRAPHY

Note: Certain courses in this department require a laboratory fee varying from $1 to $2.50.

A. GEOLOGY

Major: 20 hours in geology, exclusive of Geol. 1, 43, and 44, and inclusive of at least 5 hours of courses not open to freshmen or sophomores.

Minors: 20 hours of courses in one or two of the following departments: astronomy, botany, chemistry, economics, geography, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology. At least eight hours must be offered in each subject, if two are chosen.

Note: Certain geology courses are offered only in alternate years: 4, 15, 16, 17, 24, 38, 95, 96, 122, 125, 142, 143, 151, 160, 161, 163.

Seniors receive reduced credit in Geol. 1 and 2a.

Students desiring training which leads to executive positions with companies engaged in the development of various mineral industries should select appropriate courses in geology after consulting the head of the Department, and also: Accountancy 1a, 1b; Economics 2, 3, and 35; B.O.O. 11; and Business Law 1a, 1b. A minimum of one year's work after graduation should be included in the student's program if possible.

Courses for Undergraduates

Geol. 1. General Geology.—Cultural Course. Lectures; one or two field trips.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	9	MWF	247 N.H.	DeWolf, Sutton
[1]Seniors receive only 2	B	10	MWF	247 N.H.	Savage
hours credit; students	C	11	MWF	247 N.H.	DeWolf, Sutton

who have credit for Geog. 1 receive only 1 hour credit for Geol. 1.

Geol. 1a. General Geology Laboratory.—*Prerequisite:* Geol. 1 or concurrent registration in it. (Not open to students who received credit for Geol. 1 prior to September, 1932.)

2	Lab. 1	8–10	TT	251 N.H.	Wanless
	Lab. 2	10–12	TT	251 N.H.	Wanless
	Lab. 3	1–3	TT	251 N.H.	DeWolf
	Lab. 4	3–5	TT	251 N.H.	Sutton

Geol. 2a. Historical Geology.—*Prerequisite:* Geol. 1.

4[1]	Lect. A	9	TWTF	241 N.H.	Savage
[1]Seniors receive only	Lect. B	10	TWTF	241 N.H.	Sutton

3 hours credit.

Geol. 43. Engineering Geology.—*Prerequisite:* Sophomore standing in the College of Engineering.

3	Lect.	1	TT	247 N.H.	Howard
		11	S	247 N.H.	
	Lab. 1	2–4	Tu	147 N.H.	
	Lab. 2	9–11	S	147 N.H.	

Geol. 44. Agricultural Geology.—For students registered in the College of Agriculture who have had one semester of college chemistry.

3	Lect. and Quiz	1	MWF	247 N.H.	Wanless
	Lab.	10–12	F	147 N.H.	Wanless

Courses for Advanced Undergraduates and Graduates

Geol. 15. Structural Geology.—Discussion and one two-day field trip. *Prerequisite:* Geol. 2a and junior standing. (3). 10 MWF; 134 N.H. Associate Professor Howard.

Geol. 16. Stratigraphy.—*Prerequisite:* Geol. 9. (3). 8 MWF; 236 N.H. Lab. hours to be arranged. Assistant Professor Sutton.

Geol. 24. Field Methods.—*Prerequisite:* Geol. 2a and junior standing. Lecture and quiz 1 hour weekly, 3 or 4 field trips on Saturdays, and mapping of an area in southern Illinois during the week following the Easter recess. Credit will be given only upon the completion of a satisfactory written report. Estimated traveling expense about $25. (3). 9 S; 150 N.H. Assistant Professor Wanless.

Geol. 49. Microscopic Mineralogy.—*Prerequisite:* Geol. 20 or 47.

5	Lect. and Lab.	1–3	TT	254 N.H.	Quirke and
	Lab. 1	8–10	MWF	254 N.H.	assistants
	Lab. 2	8–10	TTS	254 N.H.	

Geol. 60b. Introduction to Research.—Limited to seniors majoring in Geology. (2). Members of the department.

Geol. 96. Economic Geology.—*Prerequisite:* Geol. 2a or 43, and 20 or 48. (3). 8 TTS; 150 N.H. Professor Quirke.

Courses for Graduates

Geol. 102. Igneous Petrography.—(1 unit). Twice a week. Hours to be arranged; 253 N.H. Professor Quirke.

Geol. 134. Advanced Studies in Geology.—(½ to 2 units).* Hours to be arranged. Members of the department.

Geol. 135. Research.—(½ to 4 units).* Once a week. Hours to be arranged. Members of the department.

Geol. 143. Stratigraphic Paleontology: Mesozoic and Cenozoic.—(1 unit). Hours to be arranged; 134 N.H. Assistant Professor SUTTON.

Geol. 152. Advanced Historical Geology.—(1 unit). 11 MWF; 150 N.H. Assistant Professor SUTTON.

Geol. 161. Applied Petroleum Geology.—(1 unit). Three times a week. Hours to be arranged. Associate Professor HOWARD.

B. GEOGRAPHY

Major: 20 hours of courses that have prerequisites in geography, exclusive of Geography 1, and including at least 5 hours of courses not open to freshmen.

Minors: 20 hours selected from not more than two of the following named departments: economics, education, history, zoology, botany, and geology. At least eight hours must be offered in each subject, if two are chosen.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geog. 1, 2, 4, 5, 7, 14, 15, or 10 or 11, or 12 or 8 or 53.

Note: Seniors receive reduced credit in Geog. 1 and 2.

Courses for Undergraduates

Geog. 1. Elements of Geography.—Lectures and discussions.

Credit	Section	Hours	Days	Room	Instructor
5[1]	A	8	MTWTF	422 N.H.	BURGY
[1]Seniors will receive	B	9	MTWTF	422 N.H.	BURGY
only 4 hours; students	C	9	MTWTF	434 N.H.	PAGE
who have credit for	D	10	MTWTF	422 N.H.	PAGE
Geol. 1 receive only 3	E	11	MTWTF	422 N.H.	POGGI
hours for Geog. 1.	F	1	MTWTF	422 N.H.	PAGE

Geog. 2. Economic Geography.—*Prerequisite:* Geog. 1. Lectures and discussion.

5[1]	A	8	MTWTF	435 N.H.	BLANCHARD
[1]Seniors will receive only 4 hours credit.	B	9	MTWTF	435 N.H.	POGGI

Geog. 5. Geography of South America.—Lectures and discussions. *Prerequisite:* Geog. 2. (3). 1 MWF; 434 N.H. Dr. BURGY.

Geog. 15. Physiography.—*Prerequisite:* Geog. 1. (3). 10 MWF; 435 N.H. Professor BLANCHARD.

Courses for Advanced Undergraduates and Graduates

Geog. 11. Geography of Asia.—*Prerequisite:* One regional course. (3). 2 MWF; 434 N.H. Dr. POGGI.

Geog. 53b. Advanced Commercial Geography.—*Prerequisite:* One regional course and senior standing. (3). 1 MWF; 435 N.H. Professor BLANCHARD.

Geog. 60b. Introduction to Research.—Limited to seniors majoring in Geography. (2). Time to be arranged. Members of the staff.

Course for Graduates

Geog. 135. See Geology 135.

GERMAN

Major: 20 hours in German, excluding courses 1 and 2, and including 6 hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list, with not less than eight hours in each subject: Education, English (excluding Rhet. 1 and 2), French (excluding 1a), Greek, History, Italian, Latin, Philosophy, Spanish (excluding 1a).

Note: Seniors receive reduced credit in German 1 and 2.

Elementary and Intermediate Courses

German 1. Elementary Course.—(Not open to students who have high school credit in German).

4[1]	A1	8	MTWT	206 L.H.	ITTNER
[1]Seniors will receive	A2	8	MTWT	233 L.H.	GENSCHMER
only 3 hours credit.	B	9	MTWT	238 L.H.	ROBINSON
	C	3	MTWT	208 U.H.	KRAUSS
	D	4	MTWT	208 U.H.	MEMMING

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

German 2. Elementary Course (continued).—*Prerequisite:* German 1, or one year of high school German, or equivalent.

Credit	Section	Hours	Days	Room	Instructor
4[1]	A1	8	MTWT	224 L.H.	BALD
[1]Seniors will receive only 3 hours credit.	A2	8	MTWT	205 L.H.	ROBINSON
	B1	9	MTWT	205 L.H.	BROOKS
	B2	9	MTWT	302 L.H.	JEHLE
	C	10	MTWT	233 L.H.	ITTNER
	D	11	MTWT	238 L.H.	MOORE
	E	1	MTWT	205 L.H.	ROBINSON
	F	2	MTWT	205 L.H.	JEHLE
	G	3	MTWT	205 L.H.	MOORE
	H1	4	MTWT	219 L.H.	BALD
	H2	4	MTWT	205 L.H.	GENSCHMER

German 4. Intermediate Course.—*Prerequisite:* German 2, or two years of high school German, or equivalent.

4	A	8	MTWT	232 L.H.	KOLLER
	B	9	MTWT	227 L.H.	GEISSENDOERFER
	C	4	MTWT	238 L.H.	KRAUSS

German 5. Intermediate Course (continued).—Literary reading. *Prerequisite:* German 4, or three years of high school German, or equivalent.

4	A1	8	MTWT	219 L.H.	WILLIAMS
	A2	8	MTWT	238 L.H.	GEISSENDOERFER
	B	10	MTWT	205 L.H.	JEHLE
	C	11	MTWT	204 L.H.	GEISSENDOERFER
	D	4	MTWT	204 L.H.	KOLLER

German 6. Scientific Reading.—(Students may not take both German 5 and 6 for more than a total of 4 hours credit without permission of department). *Prerequisite:* German 4, or three years of high school German, or equivalent.

4	A	11	MTWT	204a L.H.	WILLIAMS
	B	4	MTWT	204a L.H.	MOORE

Courses for Advanced Undergraduates

German 7. Modern Fiction.—*Prerequisite:* German 5 or equivalent. (3). 2 MWF; 235 L.H. Assistant Professor KOLLER.

German 10. Introductory Goethe Course.—*Prerequisite:* German 5 or equivalent. (3). 11 MWF; 233 L.H. Professor ARON.

German 16b. Conversation and Writing.—*Prerequisite:* German 16a or equivalent. (2). 2 TT; 203 L.H. Assistant Professor KOLLER.

German 24b. Nineteenth Century Drama.—*Prerequisite:* German 24a or equivalent. (2). 3 TT; 204a L.H. Assistant Professor GEISSENDOERFER.

German 25. Teachers' Course.—*Prerequisite:* Three years of college German or equivalent. (2). Arrange. Dr. JEHLE.

German 28b. Lyrics and Ballads.—*Prerequisite:* German 28a or equivalent. (2). 9 TT; 211 L.H. Associate Professor WILLIAMS.

German 29b. Advanced Conversation and Writing.—*Prerequisite:* 29a or equivalent. (2). 2 TT; 211 L.H. Assistant Professor GEISSENDOERFER.

German 30b. Senior Thesis and Honors Course.—*Prerequisite:* Senior standing; three years of college German or equivalent. (2). Arrange. Professor ARON and others.

Courses for Advanced Undergraduates and Graduates

German 19b. Goethe's Faust II.—*Prerequisite:* German 19a or equivalent. (2). 11 TT; 425 Lib. Professor BROOKS.

German 26b. German Literature in the Nineteenth Century.—*Prerequisite:* German 26a or equivalent. (3). 9 MWF; 233 L.H. Professor ARON.

German 54. Introduction to Comparative Literature.—See English 54.

Courses for Graduates

German 101. Seminar in the Modern German Drama.—(1 unit). Twice a week. Arrange. Professor ARON.

German 102. Thesis.—(½ to 2 units).* Arrange. Professors ARON, BROOKS; Associate Professor WILLIAMS, Assistant Professor GEISSENDOERFER.

German 105. Old High German.—(1 unit). Twice a week. Arrange. Associate Professor WILLIAMS.

German 110. Early German Drama.—(1 unit). Twice a week. Arrange. Professor BROOKS.

German 121. Walther von der Vogelweide.—(1 unit). Twice a week. Arrange. Associate Professor WILLIAMS.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

HISTORY

Major: 20 hours, including (a) ten hours in courses having junior standing as a prerequisite, and (b) any other courses offered by the department (except courses taken in the freshman year).

Minors: 20 hours selected from one or two of the following subjects: economics, political science, geography, philosophy, law, sociology, and English and American literature (except such courses as are taken in the freshman year). Courses in one modern language (except such as are primarily designed for freshmen) will be accepted as one of two minor subjects.

Note: Seniors receive reduced credit in History 1 and 2.

Courses for Undergraduates

Hist. 1b. Continental European History.—

Credit	Section	Hours	Days	Room	Instructor
4[1]	[2]Lect. 1	10	TT	Morrow Hall	Jones
[1]Seniors receive only 3 hours credit.	A Disc.	8	WF	335 L.H.	King
	B Disc.	9	WF	334 L.H.	Shay
	C Disc.	10	WF	335 L.H.	Jones
[2]Students in Lecture 1 must elect a discussion in the A-F group.	D Disc.	10	WF	211 L.H.	Shay
	E Disc.	10	WF	308 L.H.	King
	F Disc.	1	WF	305 L.H.	Shay
Students in Lecture 2 must elect a discussion in the G-L group.	[2]Lect. 2	2	MW	228 N.H.	Ronalds
	G Disc.	10	TT	329 L.H.	Ronalds
	H Disc.	11	TT	321 L.H.	Ronalds
	I Disc.	1	TT	305 L.H.	Ronalds
	J Disc.	2	TT	335 L.H.	Shay
	K Disc.	3	TT	321 L.H.	

Hist. 2b. English History.—

3[1]	Lect. 1	11	M	Morrow Hall	Dietz
	Lect. 2	2	M	Morrow Hall	Dietz
[1]Seniors will receive only 2 hours credit.	A Disc.	11	WF	321 L.H.	Dietz
	B Disc.	11	WF	329 L.H.	Dod
	C Disc.	11	WF	224 L.H.	Werner
	D Disc.	11	WF	335 L.H.	Adler
	E Disc.	1	WF	303a L.H.	Erickson
	F Disc.	2	WF	340 L.H.	Erickson
	G Disc.	2	WF	311 L.H.	Adler
	H Disc.	2	WF	329 L.H.	Shay
	I Disc.	2	TT	203a L.H.	Erickson
	J Disc.	3	TT	305 L.H.	Shay

Hist. 3b. History of the United States, 1828-1933.—*Prerequisite:* One year of college work.

3	[1]Lect. 1	8	MF	218 U.H-	Werner
	A Disc.	8	Tu	305 L.H.	Werner
[1]Students in Lecture 1 must elect a discussion in the A-E group.	B Disc.	8	W	305 L.H.	Werner
	C Disc.	8	W	311 L.H.	Dod
	D Disc.	8	W	303a L.H.	
Students in Lecture 2 must elect a discussion in the F-I group.	E Disc.	8	Th	305 L.H.	Werner
	[1]Lect. 2	11	MF	L.H. Theatre	Dunbar
	F Disc.	11	Tu	334 L.H.	Dunbar
Students in Lecture 3 must elect a discussion in the J-M group.	G Disc.	11	W	334 L.H.	Dunbar
	H Disc.	11	W	300 L.H.	King
	I Disc.	11	Th	300 L.H.	Dunbar
	[1]Lect. 3	2	MF	218 U.H.	Hansen
	J Disc.	2	Tu	235 L.H.	Hansen
	K Disc.	2	W	321 L.H.	Hansen
	L Disc.	2	W	304 L.H.	King
	M Disc.	2	W	335 L.H.	Hansen

Hist. 5b. The Ancient World: Rome.—*Prerequisite:* Sophomore standing.

3	Lect.	2	MF	303 L.H.	Swain
	A Disc.	2	Tu	240 L.H.	Wright
	B Disc.	2	W	240 L.H.	Wright
	C Disc.	2	W	211 L.H.	Swain
	D Disc.	2	Th	240 L.H.	Wright

Hist. 18. Teaching of History.—*Prerequisite:* One year of college history and senior standing. (2). 3 TT; 303 L.H. Assistant Professor Werner.

Hist. 22b. History of the West, 1774-1830.—*Prerequisite:* History 3a and junior standing. (2). 10 TT; 410 U.H. Professor Pease.

Hist. 23b. Puritan Revolution in England and America, 1642-1713.—*Prerequisite:* One year of college history. (2). 11 TT; 410 U.H. Professor Pease.

Hist. 33b. History of Russia Since 1856; Revolution; the Soviet Union.—*Prerequisite:* Junior standing and one year of college history. (3). 8 MWF; 105 L.H. Associate Professor Rodkey.

Hist. 34b. Development of Modern Europe, 1789-1848.—*Prerequisite:* Junior standing and one year of college history. (3). 11 MWF; 203 L.H. Dr. Erickson.

Hist. 42. Medieval Civilization, Religious and Intellectual.—*Prerequisite:* One year of college history. (3). 3 TT; 329 L.H. Professor Larson.

Hist. 43. The British People in the Victorian Age.—*Prerequisite:* One year of college history. (2). 1 TT; 303 L.H. Dr. ERICKSON.

Hist. 45b. History of England in the Eighteenth and Early Nineteenth Centuries (1760-1837).—*Prerequisite:* Junior standing and one year of college history. (2). 2 TT; 303 L.H. Assistant Professor RONALDS.

Hist. 51b. Hebrew History: Post-exilic and New Testament Times.—*Prerequisite:* Junior standing. (2). 2 TT; 305 L.H. Associate Professor SWAIN.

Hist. 90b. Thesis.—*Prerequisite:* Senior standing. (2). Arrange. Associate Professor RODKEY.

Hist. 91b. Honors Course: Pro-seminar in Recent History.—*Prerequisite:* Senior standing. (2). Arrange. Professor LYBYER.

Courses for Advanced Undergraduates and Graduates

(Open to juniors and seniors)

Hist. 16b. Foundations of American Society: Transition to National Life and Organization, 1763-1789.—*Prerequisite:* History 3a. (3). 10 MWF; 311 L.H. Assistant Professor DUNBAR.

Hist. 17b. Social and Economic Forces in the Nineteenth Century (since 1860).—*Prerequisite:* History 3b. (3). 9 MWF; 105 L.H. Professor HANSEN.

Hist. 19b. History of American Immigration since the Civil War.—*Prerequisite:* History 3b. (2). 9 TT; 203 L.H. Professor HANSEN.

Hist. 20b. The South since 1850.—*Prerequisite:* One year of college history. (2). 8 TT; 335 L.H. Professor RANDALL.

Hist. 27. History of Latin America from the Wars of Independence to the Present Time.—*Prerequisite:* One year of college history. (3). 2 MWF; 305 L.H. Professor ROBERTSON.

Hist. 29. America and Europe: Selected Topics, 1776-1870.—*Prerequisite:* One year of college history. (3). 8 MWF; 308 L.H. Professor ROBERTSON.

Hist. 32b. Recent European History, 1914-1934.—*Prerequisite:* One year of college history, economics, or political science. (3). 8 MWF; 303 L.H. Professor LYBYER.

Hist. 36b. Imperial and Republican Germany; the National Socialist State.—*Prerequisite:* One year of college history. (3). 9 MWF; 308 L.H. Associate Professor RODKEY.

Hist. 37b. History of Eastern and Southern Asia (since 1500).—*Prerequisite:* One year of college history. (3). 10 MWF; 305 L.H. Professor LYBYER.

Hist. 39b. The Age of the Protestant and the Catholic Reformation (1500-1648).—*Prerequisite:* One year of college history. (3). 9 MWF; 329 L.H. Professor JONES.

Hist. 44b. Constitutional History of England.—*Prerequisite:* One year of college history or political science. (3). 3 MWF; 303 L.H. Professor LARSON.

Hist. 47b. History of England in the Early Modern Period: the Strong Monarchy of the Tudors.—*Prerequisite:* One year of college history or economics. (3). 9 MWF; 335 L.H. Professor DIETZ.

Hist. 57b. Ancient Imperialism: Augustus to Constantine.—*Prerequisite:* One year of college history. (3). 11 MWF; 203 L.H. Associate Professor SWAIN.

Hist. 60. The United States in the World War.—*Prerequisite:* One year of college history. (3). 11 MWF; 304 L.H. Professor RANDALL.

Hist. 62b. Political and Constitutional Development of the United States (since 1809).—*Prerequisite:* One year of college history. (3). 10 MWF; 329 L.H. Professor RANDALL.

Courses for Graduates

Hist. 101b. Seminar in American History: Investigation of Selected Topics.—(1 unit). 4-6 Tu. Professor RANDALL.

Hist. 102b. Seminar in English History.—(1 unit). Arrange. Professor DIETZ.

Hist. 104b. Seminar in Modern History: Recent Problems.—(1 unit). 4-6 W. Professor LYBYER.

Hist. 105. Research in Special Topics (Thesis Course).—(1 to 2 units).* Professors LARSON, LYBYER, ROBERTSON, JONES, RANDALL, DIETZ, HANSEN; Associate Professors SWAIN, RODKEY; Assistant Professors DUNBAR, RONALDS, WERNER.

Hist. 106b. Seminar in the History of the Later Middle Ages.—(1 unit). Arrange. Professor LARSON.

Hist. 122b. The Westward Movement.—(1 unit). Two hours. 4-6 Tu. Professor PEASE.

Hist. 127. Inter-American Relations: Relations of the Latin-American Nations with each other and with the United States.—(1 unit). Arrange. Professor ROBERTSON.

Hist. 133b. Studies in the History of Europe in the Nineteenth Century (1848-1878).—(1 unit). 9-11 S. Associate Professor RODKEY.

Hist. 138b. Studies in the History of France during the Religious Civil Wars (1547-1598).—(1 unit). Arrange. Professor JONES.

Hist. 150b. Seminar in Ancient History.—(1 unit). 3-5 M. 114 Lib. Associate Professor SWAIN.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

HOME ECONOMICS

Note: Certain courses in this department require laboratory fees varying from $1 to $16.

College of Agriculture

Curriculum in General Home Economics. (See "Directions for Registration," page 48.)
Curriculum in Nutrition and Dietetics. (See "Directions for Registration," page 49.)

College of Education

Curriculum in Home Economics Education. (See "Directions for Registration," page 55.)
Curriculum in Home Economics Education—Smith-Hughes. (See "Directions for Registration," page 55.)

College of Liberal Arts and Sciences

Major A.—General Home Economics: 20 hours from courses offered by the department, excluding Home Economics 7 and 58, and including Home Economics 2, 5, 10, 29, 59, and two or more of the following: Home Economics 14, 20, 28, 31, 33, 35, 41, 43a, 43b, 48, 55, 57a, 57b.

Major B.—Nutrition: 20 hours excluding Home Economics 58, and including Home Economics 5, 39a, 39b, 41, 59, and two or more of the following: Home Economics 20, 33, 35, 45, 47.

Minor A.—20 hours chosen from one or two of the following subjects: chemistry, bacteriology. At least eight hours must be offered in each subject, if two are chosen.

Minor B.—20 hours chosen from one or two of the following subjects: economics, sociology. At least eight hours must be offered in each subject, if two are chosen.

Transfer Students

To satisfy the requirements for graduation, students transferring home economics credits from other institutions must take five hours in residence from the following: Home Economics 20, 28, 31, 33, 35, 39a, 39b, 41, 43a, 43b, 47, 48, 50, 51, 55, 57a, 57b.

Electives

In addition to the required subjects in each college, it is expected that students will choose electives in accord with their special interests, as follows:

1. Textiles, clothing, and costume design: Home Economics 19, 30, 31, 42, 43a, 43b, 50, 51.
2. Institution management and hospital dietetics: Home Economics 20, 33, 35, 46, 47, 48, 55.
3. Household management: Home Economics 14, 28, 57a, 57b, and additional courses in economics.
4. House planning and furnishing: Art 11, 12; Architecture 11, 12; Home Economics 3, 43a, 43b, and additional courses in art and history.
5. Nutrition: Chemistry 24, 50a; Zoology 1; Home Economics 20, 33, 35, 39a, 39b, 41, 45.
6. Teaching of home economics: Home Economics 11, 13, 45; Education 6, 10, 25.

Courses for Undergraduates

Home Econ. 2. Home Architecture.—*Prerequisite:* Art 1a and sophomore standing. *Prerequisite or concurrent:* Art 1b.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	9	TT	117 W.B.	Foster
	Quiz	1	F	117 W.B.	Weaver
	C Conf.	10	F	309 W.B.	
	D Conf.	11	F	309 W.B.	
	F Conf.	2	F	309 W.B.	
	G Conf.	3	F	309 W.B.	

Home Econ. 3. Home Decoration.—*Prerequisite:* Art 1a, 1b.

3	Lect.	10	S	117 W.B.	Weaver
	L Lab.	10–12	TT	309 W.B.	
	N Lab.	1–3	TT	309 W.B.	

Home Econ. 5. Dietetics.—*Prerequisite:* Chem. 33; Home Econ. 58; Physiol. 4. *Prerequisite or concurrent:* Home Econ. 59.

4	Lect.	9	M	117 W.B.	Barto
	B1 Quiz	9	W	117 W.B.	Barto
	B2 Quiz	9	F	117 W.B.	Barto
	C Lab.	10–12	MW	229 W.B.	Munger
	L Lab.	10–12	TT	229 W.B.	Barto

Home Econ. 7. Textiles.—

3[1]	Lect.	11	M	210 W.B.	Jacobsen
	C Quiz	10	F	117 W.B.	
[1]Seniors will receive only 2 hours credit.	D1 Quiz	11	W	117 W.B.	
	D2 Quiz	11	F	117 W.B.	
	L1 Lab.	10–12	Tu	304 W.B.	
	L2 Lab	10–12	Th	304 W.B.	
	N Lab.	1–3	Tu	304 W.B.	

Home Econ. 9. Home Economics Extension.—*Prerequisite:* Senior standing in home economics; consent of instructor.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	3–5	M	117 W.B.	Burns
		3	W	117 W.B.	

Home Econ. 10. Organization and Management of the Home.—*Prerequisite:* Econ. 1 or 2; Home Econ. 7, 59.

3	A Lect.	8	MWF	121 W.B.	Nickell
	E Lect.	1	MWF	121 W.B.	

Home Econ. 11. Teaching of Home Economics.—*Prerequisite:* Home Econ. 29, 59. *Prerequisite or concurrent:* Education 10; Home Econ. 5, 10, 19. One inspection trip (approximate cost $3). Required of all who wish to be recommended to teach home economics. (3). Lecture and discussion, 3 TT; 121 W.B. Miss Robinson.

Home Econ. 13. Home Economics in Education.—*Prerequisite or concurrent:* Home Econ. 10, 29. Recommended for all seniors in Home Economics. (3). 2 TT; 121 W.B. Miss Todd.

Home Econ. 14. Home Management House.—Conferences and laboratory work in the home management apartment and laundry. The students reside in the apartment four weeks during the semester. This course is required of all students expecting to meet the Smith-Hughes requirements. *Prerequisite:* Home Econ. 5, 10; consent of instructor. (3). Conference, 4 Th, 117 W.B.; laboratory to be arranged with instructor, 317-319 W.B. Assistant Professor Nickell.

Home Econ. 19. Costume Design.—*Prerequisite:* Art 1a, 1b, or equivalent.

3	Lect.	1	F	210 W.B.	Eades
	C Lab.	10–12	MW	309 W.B.	
	E Lab.	1–3	MW	309 W.B.	

Home Econ. 29. Clothing.—*Prerequisite:* Art 1a or 1b; Home Econ. 7.

4	Lect.	9	F	121 W.B.	Whitlock
	B Quiz	9	W	121 W.B.	Beam
	C Quiz	10	Th	121 W.B.	Beam
	C Lab.	10–12	MW	327 W.B.	Beam
	E Lab.	1–3	MW	327 W.B.	Beam
	N Lab.	1–3	TT	327 W.B.	Beam

Home Econ. 30. Clothing.—*Prerequisite:* Art 1a, 1b; Home Econ. 29. *Prerequisite or concurrent:* Home Econ. 19.

3	Lect.	2	F	117 W.B.	Whitlock
	E Lab.	1–3	MW	203-5 W.B.	
	N Lab.	1–3	TT	203-5 W.B.	

Home Econ. 38. Elementary Nutrition.—*Prerequisite:* Junior standing. (Open only to students not majoring in home economics.) (2). F Lect., (for women), 2 MW, 231 W.B.; K Lect. (for men), 9 TT, 231 W.B. Assistant Professor Barto.

Home Econ. 40. Home Care of the Sick.—*Prerequisite:* Junior standing in home economics. (1). Lect. 2 M, 210 W.B. Assistant Professor Brooks.

Home Econ. 46. Quantity Cookery.—*Prerequisite:* Home Econ. 59. (3). Quiz, 4 W, 117 W.B.; Lab., 8-11 two mornings a week, to be arranged with instructor; students advised not to have eleven o'clock classes as they are required to serve at noon at least two days a week. Assistant Professor Smith, Mrs. Prudent.

Home Econ. 47. Institution Management.—*Prerequisite:* Econ. 1 or 2. *Prerequisite or concurrent:* Home Econ. 46. (3). Lect. and disc., 2 MWF; 117 W.B. Assistant Professor Smith.

Home Econ. 56a. Child Development.—(For students not majoring in home economics.) *Prerequisite:* Senior standing or consent of instructor. (2). Lect., 10 MW; 121 W.B. Assistant Professor Walls.

Home Econ. 58. Foods.—*Prerequisite:* Chemistry 1, 5.

5	Lect.	9	MW	210 W.B.	Woodruff
	A Quiz	8	F	210 W.B.	Munger
	B Quiz	9	F	210 W.B.	Pickens
	C Lab.	10–12	MWF	235 W.B.	Pickens
	E Lab.	1–3	MWF	235 W.B.	Munger
	N Lab.	1–3	TT	235 W.B.	Pickens
		10–12	S		

Home Econ. 59. Food Economics.—*Prerequisite:* Home Econ. 58.

2	Lect.	11	Th	210 W.B.	Woodruff
	P1 Lab.	3–5	Tu	229 W.B.	Munger
	G Lab.	3–5	W	229 W.B.	Pickens
	P2 Lab.	3–5	Th	229 W.B.	Munger

Home Econ. 60. Food Problems of Student Groups.—(A course for commissaries). Selection, buying, and managerial problems in the preparation and serving of food for student groups. *Prerequisite:* Sophomore standing. (1). Lect., 4 Tu; 121 W.B. Assistant Professors Smith, Barto.

Courses for Advanced Undergraduates and Graduates

Home Econ. 31. Clothing.—*Prerequisite:* Home Econ. 30.

3	Quiz	11	F	203-5 W.B.	Whitlock
	Lab.	10–12	MW	203-5 W.B.	

Home Econ. 33. Diet in Disease.—*Prerequisite:* Home Econ. 5.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	3	F	121 W.B.	BARTO
	Quiz	3	W	121 W.B.	
	Lab.	3–5	M	229 W.B.	

Home Econ. 35. Problems in Foods.—*Prerequisite:* Home Econ. 5; consent of instructor; (Chemistry 24 is advised).

3	Conf.	8	F	113 W.B.	WOODRUFF
	Lab.	1–4	TT	113 W.B.	

Home Econ. 39b. Readings in Foods and Nutrition.—*Prerequisite:* Home Econ. 5; senior standing. *Prerequisite or concurrent:* Chemistry 50a, or Home Economics 20, 33, 41 or 55. (1). Seminar, 4:00-5:30 Th, 203-5 W.B. Associate Professor WOODRUFF, Assistant Professors OUTHOUSE and BARTO.

Home Econ. 41. Problems in Nutrition.—*Prerequisite:* Chem. 50a; Physiol. 4; senior standing. (3 to 5).* Lab. and Conference, 9-12 MWFS; 215 W.B. Assistant Professor OUTHOUSE, MRS. MEYER.

Home Econ. 43b. Problems in Textiles and Clothing.—*Prerequisite:* Econ. 1 or 2; Home Econ. 30 or 51. Individual problems may involve prerequisites of chemistry and physics.

3	Quiz	3	Tu	304 W.B.	JACOBSEN, WHITLOCK, EADES
	Lab.	To be arranged			

Home Econ. 45. Organization and Teaching of Nutrition Classes.—Curriculum construction and practice in the teaching of elementary nutrition. *Prerequisite:* Home Econ. 5; senior standing; consent of instructor.

2	Disc.	4	W	231 W.B.	BARTO, KING
	A Lab.	1:30	Th	Leal School	
	B Lab.	2:30	Th	Leal School	

Home Econ. 48. Institution Dietaries and Administration.—*Prerequisite:* Home Econ. 5, 47. Three and one-half day field trip to Chicago (approximate cost $25).

4	Lect.	9	TT	117 W.B.	SMITH
	Lab.	8–12	S	207 W.B.	

Home Econ. 50. Costume Design.—*Prerequisite:* Home Economics 30, 42.

3	Lab.	2–5	MW	309 W.B.	EADES

Home Econ. 51. Textiles.—*Prerequisite:* Chem. 5; Econ. 1 or 2; Home Econ. 7; junior standing.

3	Lect.	1	F	304 W.B.	JACOBSEN
	Lab.	1–3	MW	304 W.B.	

Home Econ. 56. Child Development.—*Prerequisite:* Home Econ. 10; Psych. 1.

2	Lect.	1	MW	210 W.B.	WALLS

Home Econ. 57b. Problems in Household Management.—*Prerequisite:* Home Econ. 10. (3). Time to be arranged, 313 W.B. Assistant Professor NICKELL.

Courses for Graduates

Home Econ. 101. Home Economics.—(1 unit). Professor WARDALL.

Home Econ. 102. Research in Nutrition.—(½ to 3 units).* Assistant Professor OUTHOUSE.

Home Econ. 103. Seminar in Nutrition.—(½ unit). To be arranged. Assistant Professor OUTHOUSE.

Home Econ. 104. Research in Foods.—(½ to 3 units).* Associate Professor WOODRUFF.

Home Econ. 105. Seminar in Foods.—(½ unit). Associate Professor WOODRUFF.

HORTICULTURE

Note: Certain courses in this department require laboratory fees varying from $0.75 to $2.50.

Courses for Undergraduates

Hort. 1. Introductory Horticulture.—(No credit allowed to juniors and seniors.)

3	E Disc.	1	WF	127 New Agr.	KELLEY
	Lab.	1–3	M	H.F. Lab.	
	J Disc.	8	TT	127 New Agr.	MCCOLLUM
	Lab.	8–10	S	H.F. Lab.	
	A Disc.	8	WF	118 New Agr.	COLBY
	Lab.	8–10	M	H.F. Lab.	
	P Disc.	3	TT	127 New Agr.	KELLEY
	Lab.	10–12	S	H.F. Lab.	

Hort. 2. Small Fruit Culture.—*Prerequisite:* Hort. 1. (2). 1-3 TT; 106 H.F.L. Professor COLBY.

Hort. 3. Commercial Vegetable Gardening.—*Prerequisite:* Hort. 1 or junior standing. (3). 1-3 MWF; 203 V.G. Professor LLOYD, Mr. WEAVER.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hort. 4. Plant Houses.—(3). 3 MWF; F.G. Professor DORNER.

Hort. 7. Spraying.—*Prerequisite:* Hort. 1; Chem. 1. (3). Lect. and quiz, 3-5 W; 118 New Agr. Lab. 3-5 MF; 106 H.F.L. Professor RUTH.

Hort. 8b. Orcharding.—*Prerequisite:* Hort. 1. (3). 1-3 MW; 1 F; 106 H.F.L. (Inspection trip requirement waived for 1933-34). Mr. MCMUNN.

Hort. 9. General Vegetable Gardening.—(Formerly Hort. 1b). *Prerequisite:* Hort. 1. (Sophomores who have had Hort. 1a but not Hort. 1b may register for Hort. 9.) (3). Disc. 10 MF; Lab. 10-12 W; 203 V.G. Professor LLOYD, Mr. WEAVER.

Hort. 15a. Greenhouse Management.—*Prerequisite:* Hort. 5, Bot. 5. (3). 10-12 MWF; F.G. Professor DORNER, Associate Professor HALL.

Hort. 15c. Commercial Floricultural Crops.—*Prerequisite:* Hort. 15b. (3). 8-10 TTS; F.G. Associate Professor HALL.

Hort. 22b-h. Investigation with Thesis.—*Prerequisite:* Senior standing; not less than 20 hours pertinent to the thesis problem, and the approval of the head of the department. Continuous throughout the year. Credit is not given for either semester separately. (5). Arrange.

(b) **Pomology.**—*Prerequisite:* Hort. 22a. Professors DORSEY, RUTH, COLBY, ANDERSON; Assistant Professor KELLEY.
(d) **Olericulture.**—*Prerequisite:* Hort. 22c. Professor LLOYD.
(f) **Floriculture.**—*Prerequisite:* Hort. 22e. Professor DORNER, Associate Professor WEINARD.
(h) **Plant Breeding.**—*Prerequisite:* Hort. 22g. Professor DORSEY.

Hort. 30. Tender Bedding Plants.—*Prerequisite:* Hort. 15a. (3). 8-10 MWF; F.G. Associate Professor HALL.

Hort. 31. Garden Flowers.—*Prerequisite:* Bot. 5. (3). Lect., 1 MWF; Lab., arrange; F.G. Professor DORNER.

Hort. 32b. Floral Decoration.—*Prerequisite:* Hort. 32a. (3). 3-5 TT, 10-12 S; F.G. Professor DORNER.

Courses for Advanced Undergraduates and Graduates

Hort. 44. Current Pomological Literature.—*Prerequisite:* Junior standing. (1). 4 Tu; 118 New Agr. Professor RUTH.

Hort. 45. Plant Nutrition.—*Prerequisite:* Bot. 3; Agron. 9 or 28; Hort. 3 or 15a; senior standing. (3). 2 MWF; F.G. Associate Professor WEINARD.

Hort. 51. Fruit Diseases.—*Prerequisite:* Senior standing; Botany 7a. (3). Lect., 3 Tu; Seminar, H.F.L. Lab., 10-12 TT; 114 H.F.L. Professor ANDERSON.

Courses for Graduates

Hort. 103. Olericulture.—(1 to 2 units).* Arrange. Professor LLOYD.

Hort. 105. Marketing Fruits and Vegetables.—See Agricultural Economics 135.

Hort. 108. Pomology.—(1 to 4 units).* Arrange.

(a) **Pomological Problems.**—Professor BLAIR.
(b) **Pomology and Fruit Breeding.**—Professor DORSEY.
(c) **Pomological Physiology.**—Professor RUTH, Assistant Professor KELLEY.
(d) **Small Fruits.**—Professor COLBY.
(e) **Pomological Pathology.**—Professor ANDERSON.

Hort. 115. Floriculture.—(1 to 2 units).* Arrange.

(a) **Floricultural Problems.**—Professor DORNER.
(b) **Floricultural Physiology and Pathology.**—Associate Professor WEINARD.

Hort. 120. Pomology Seminar.—(¼ unit). Arrange. Professors DORSEY, RUTH, ANDERSON.

Hort. 140. Advanced Small Fruit Culture.—(1 unit). Arrange. Professor COLBY.

HYGIENE

Courses for Undergraduates

Hygiene 2. Essentials of Hygiene and Sanitation.—Required of all undergraduate women during their first year of residence. Names beginning with the letters from "Mc" through "Z" should register in the second semester.

Credit	Section	Hours	Days	Room	Instructor
2	A1	8	WF	106 L.H.	MILLBROOK
	B1	9	TT	106 L.H.	ETHEREDGE
	B2	9	WF	106 L.H.	ETHEREDGE
	C1	10	TT	106 L.H.	ETHEREDGE
	C2	11	TT	106 L.H.	
	F1	2	MW	106 L.H.	
	F2	2	TT	106 L.H.	MILLBROOK

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hygiene 5. Elementary Hygiene and Sanitation.—Required of all undergraduate men during their first year of residence. Students who did not complete the course during the first semester should register in the second semester.

Credit	Section	Hours	Days	Room	Instructor
2	A1	8	TT	128 New Agr.	JUDAH
	A2	8	WF	128 New Agr.	JUDAH
	B1	9	TT	128 New Agr.	BEARD
	B2	9	WF	128 New Agr.	BEARD
	B3	9	MW	313 New Agr.	ROSS
	B4	9	TT	127 New Agr.	GEBHART
	B5	9	WF	214 New Agr.	GEBHART
	B6	9	TT	214 New Agr.	ROSS
	C1 (Eng.)	10	TT	305 E.H.	CAIN
	C2	10	WF	128 New Agr.	CAIN
	C3 (Eng.)	10	MF	319 E.H.	BLACKSTONE
	C4	10	TT	128 New Agr.	BLACKSTONE
	D1 (Eng.)	11	TT	319 E.H.	LEWIS
	D3	11	MW	128 New Agr.	LEWIS
	F1 (Eng.)	2	TT	205 E.H.	JUDAH
	F2	2	WF	127 New Agr.	ROSS
	F3	2	MW	128 New Agr.	BEARD
	G1 (Eng.)	3	TT	205 E.H.	BLACKSTONE
	G2	3	WF	127 New Agr.	LEWIS
	G3	3	MW	128 New Agr.	CAIN

Hygiene 10. Advanced Hygiene.—Especially suited to the needs of teachers, coaches, and social workers. *Prerequisite:* Hygiene 2 or 5.

2	F	2	MW	214 New Agr.	GEBHART

JOURNALISM

Note: Certain courses in this department require laboratory fees varying from $1 to $2.

Credit in journalism will be given for Rhet. 6; Engl. 45; Pol. Sci. 22, 27, 28; Law 2, 5; Hist. 21.

Courses for Undergraduates

Journ. 3. The Newspaper and the News.—A non-laboratory, critical course for beginners and students regarding journalism as a social problem. Not open to students with credit in Journ. 1 and 2, or to students registered in Journ. 5 or 6. *Prerequisite:* Freshman standing.

2	D	11	MW	315 U.H.	MURPHY
	M	11	TT	315 U.H.	BARLOW

Journ. 4. Newspaper Reference Service.—Use of morgue and reference materials. *Prerequisite:* Freshman standing.

2	L	10	TT	207 U.H.	DICKINSON
	M	11	TT	204 U.H.	DICKINSON

Journ. 5. Reporting.—*Prerequisite:* Sophomore standing. (3). 1 MWF; 311 U.H. Associate Professor BARLOW.

Journ. 6. Reporting.—*Prerequisite:* Sophomore standing and Journ. 5. (Students register for one lecture and one laboratory section).

3	Lect. M	11	Tu	312 U.H.	LEITER
	Lab. C	10–12	MW	118 U.H.	LEITER
	Lab. E	1–3	MW	118 U.H.	LEITER
	Lect. O	2	Th	207 U.H.	LEITER
	Lab. K	9–11	TT	118 U.H.	LEITER
	Lab. P	3–5	TT	113 U.H.	LEITER

Journ. 6a. Reporting (Advertising and Promotion News).—For students primarily interested in advertising and management. Counts toward the six hours required in reporting. *Prerequisite:* Sophomore standing and Journ. 5, or consent of instructor. (3). 1 MTW; 113 U.H. Dr. DICKINSON.

Journ. 8. Sports Writing.—(For students in Physical Education). *Prerequisite:* Sophomore standing and Journ. 7. (3). 1 MWF; 302 U.H. Mr. SCHOOLEY.

Journ. 9b. History and Practice of Printing and Publishing.—*Prerequisite:* Sophomore standing and Journ. 9a.

2 or 3[1]	Lect.	11	Th	312 U.H.	ALLEN
[1]Students registering	Lab. A1	8–10	M	126 U.H.	ALLEN
for 3 credits should	Lab. J1	8–10	Tu	126 U.H.	ALLEN
sign for two labora-	Lab. J2	8–10	Th	126 U.H.	ALLEN
tory periods, making	Lab. A2	8–10	W	126 U.H.	ALLEN
three entries on their	Lab. C	10–12	M	126 U.H.	ALLEN

study lists and filling out three class cards.

Courses for Advanced Undergraduates

Journ. 11. The Press, the Courts, and the Law.—*Prerequisite:* Junior standing. (3). 11 MWF; 113 U.H. Assistant Professor SIEBERT.

Journ. 14. Copyreading.—*Prerequisite:* Journ. 13 and junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	Lect. G	3	M	315 U.H.	SIEBERT
[1]Lab. G1 is for students with desk experience. Consult adviser before registering.	Lab. N	1–3	TT	118 U.H.	SIEBERT
	Lab. P	3–5	TT	118 U.H.	SIEBERT
	[1]Lab. G1	3–5	WF	118 U.H.	SIEBERT

Journ. 16. Special and Feature Articles.—*Prerequisite:* Junior standing. (2). 9 TT; 113 U.H. Dr. DICKINSON.

Journ. 18. Ethics of Journalism.—*Prerequisite:* Junior standing. (3). 10 MWF; 315 U.H. Director MURPHY.

Journ. 20. Editorials and the Editorial Page.—*Prerequisite:* Journ. 5 and 6 or equivalent, and junior standing. (2). 10 TT; 113 U.H. Associate Professor BARLOW.

Journ. 22. Newspaper Administration.—The country weekly and small daily. *Prerequisite:* Junior standing. (3). Lecture and discussion, 10 TT; 2 hours laboratory to be arranged; 126 U.H. Associate Professor ALLEN.

Journ. 28. Financial Writing and Labor Journalism.—*Prerequisite:* Junior standing, and 6 hours of journalism or consent of instructor. (3). 2 MWF; 113 U.H. Dr. DICKINSON.

Journ. 34. Newspaper Advertising Copy and Layouts.—*Prerequisite:* Junior standing and Journ. 10 or 33.

2	Lect.	1	Tu	126 U.H.	ALLEN
	Lab. N	1–3	Th	126 U.H.	ALLEN

Journ. 36. Contemporary Affairs.—*Prerequisite:* Junior standing and 6 hours of journalism. (2). 9 TT; 105 L.H. Assistant Professor SIEBERT.

Journ. 41. Business Problems of the Newspaper.—The departmentalized daily. *Prerequisite:* Junior standing. (3). 9 MWF; 113 U.H. Associate Professor BARLOW.

Journ. 50. Critical Writing and Reviewing.—*Prerequisite:* Junior standing and 6 hours of journalism. (2). 11 TT; 113 U.H. Director MURPHY.

Journ. 52. Editorial Practice Problems.—Reporting and desk editor problems. (For seniors not writing theses in Journalism). (2). Arrange. Associate Professor LEITER.

Journ. 54. Business Practice Problems.—Business and production staff problems. (For seniors not writing theses in Journalism). (2). Arrange. Mr. KRANNERT.

Journ. 60b. Thesis Course.—Open to seniors with consent of Director. (2). Arrange. Director MURPHY.

LANDSCAPE ARCHITECTURE

Note: Certain courses in this department require laboratory fees varying from $0.50 to $2.00.

Courses for Undergraduates

L.A. 32. Landscape Design.—*Prerequisite:* L.A. 31. (3). Lab., 9-12 MWF; 200 New Agr. Professor WHITE.

L.A. 34. Intermediate Landscape Design.—*Prerequisite:* L.A. 33. (3). 9-12 TTS; 200 New Agr. Professor WHITE.

L.A. 36N. Advanced Landscape Design.—*Prerequisite:* L.A. 35. (5). 1-4 MWF; 203 New Agr. Professor LOHMANN, Professor WHITE.

L.A. 38. Civic Design.—*Prerequisite:* Senior standing in the City Planning Option. (4). 1 and 3-5 MWF; 203 New Agr. Professor LOHMANN.

L.A. 44. Landscape Construction.—*Prerequisite:* L.A. 43. (3). Lect., 9 MF; 211 New Agr. Lab., 10-12 MF and 9-12 W; 200 New Agr. Professor SCHAFFER.

L.A. 46. Office Practice in Landscape Architecture.—*Prerequisite:* L.A. 35. (1). 9 Tu; 211 New Agr. Professor SCHAFFER.

L.A. 52. Trees and Shrubs.—*Prerequisite:* L.A. 51. Open only to students in Landscape Architecture and Floriculture. (3). Lect., 3 W; 214 New Agr. Lab., 3-5 MF; 211 New Agr. Assistant Professor ROBINSON.

L.A. 54. Planting Design.—*Prerequisite:* L.A. 53. (3). Lect., 1 Tu; 211 New Agr. Lab., 2-5 Tu and 1-5 Th; 203 New Agr. Assistant Professor ROBINSON.

L.A. 62. Rural Improvement.—*Prerequisite:* 30 hours of university work. (2). 11 TT; 103 New Agr. (Credit not allowed for both L.A. 62 and 64). Assistant Professor PETERSON.

L.A. 64. Landscape Architecture.—For students not in the professional course. *Prerequisite:* 30 hours of university work. (3). Lect., 11 MWF; 214 New Agr. (Credit not allowed for both L.A. 64 and 62). Assistant Professor PETERSON and others.

L.A. 72. City Planning.—*Prerequisite:* 60 hours of university work. (2). 10 TT; 214 New Agr. Professors BARTHOLOMEW and LOHMANN.

L.A. 74. Regional Planning.—*Prerequisite:* 30 hours of university work. (3). 8 MWF; 214 New Agr. Professor LOHMANN.

LAW

Note: Students other than those registered in the College of Law are required to pay fees at the rate of $1 per semester hour for courses in law.

First Year Courses

Law 1b. Contracts.—Costigan: *Cases on Contracts* (2d ed.).

Credit	Section	Hours	Days	Room	Instructor
3	A	10	MThF	103 Law	Goble
	B	11	MThF	103 Law	Goble

Law 2b. Torts.—Bohlen: *Cases on Torts* (3d ed.).

2	A	2	MTu	103 Law	Weisiger
	B	3	MTu	103 Law	Weisiger

Law 10. Real Property I. Titles.—Aigler: *Cases on Property.*

4	A	8	TWTF	103 Law	Summers
	B	9	TWTF	103 Law	Summers

Law 11. Agency.—Mechem: *Cases on Agency* (2d ed.).

3	A	9	MTW	106 Law	Green
	B	10	MTW	106 Law	Green

Law 12. Equity Jurisdiction I.—Cook: *Cases on Equity* (2d one-volume ed.).

3	A	3	WTF	103 Law	Holt
	B	4	WTF	103 Law	Holt

Second and Third Year Courses

Law 6b. International Law.—Law of War and Neutrality. (3). 10 MWF; 202 L.H. Professor Garner.

Law 8. Evidence.—Hinton: *Cases on Evidence* (2d ed.). (3). 11 MWF; 106 Law. Professor Harno.

Law 15. Bills and Notes.—Britton: *Cases on Bills and Notes* (2d ed.).

3	A	8	MTW	303 Law	Britton
	B	9	MTW	303 Law	Britton

Law 16. Trusts.—Scott: *Cases on Trusts* (2d ed.).

3	A	2	TTF	303 Law	Schnebly
	B	3	TTF	303 Law	Schnebly

Law 17. Business Organizations I.—Crane and Magruder: *Cases on Partnership* (shorter selection). (2). 8 ThF; 306 Law. Professor Holt.

Law 20. Procedure II.—Sunderland: *Cases on Common Law Pleading;* Hinton: *Cases on Equity Pleading,* and selected cases and readings. (4). 10 TWTF; 300 Law. Professor McCaskill.

Law 21b. Credit Transactions II.—Mortgages, Pledges and Conditional Sales. Sturges: *Cases on Credit Transactions.* (3). 9 MTW; 300 Law. Assistant Professor McDougal.

Law 22b. Constitutional Law. The State and the Nation.—Rottschaefer: *Cases on Constitutional Law.* (2). 3 TT; 106 Law. Professor Green.

Law 32. Equity Jurisdiction III.—Cook: *Cases on Equity* (2d ed.), Vol. III. (3). 2 TTF; 106 Law. Professor Goble.

Law 36. Procedure IV.—Practice Court. (3). 1:30-3 MW; 300 Law. Professor McCaskill.

Law 39b. Thesis Course.—This course is open to students who are candidates for the J.D. degree during the academic year next preceding their graduation. (1). Members of the staff.

Law 45. Use of Law Books.—Weisiger: *Manual for the Use of Law Books.* (1). 10 M; 303 Law. Professor Weisiger.

Law 48. Legal Method and Legal Institutions.—Mimeographed materials and assigned readings. (2). 9 ThF; 303 Law. Assistant Professor McDougal.

Law 50. Industrial Relations II.—Labor Law. (2). 3-5 W; 303 Law. Professor Weisiger.

Law 55. Legal Problems II.—Comments on recent decisions. *Prerequisite:* One year of law work and at least an average grade of B (4.) in all law courses. (1). Professor Holt.

Law 57. Legal Problems IV.—Comments on recent decisions. *Prerequisite:* Legal Problems I or II, two years of law work, and at least an average grade of B (4.) in law courses. (1). Professor Holt.

Law 58. Restraints upon Alienation.—Selected cases. An advanced course in Future Interests and Trusts. (3). 11 WTF; 306 Law. Professor Schnebly.

Law 59. Banks and Banking.—A study of selected legal problems in the organization, operation and liquidation of banks. (2). 4 TT; 306 Law. Professor Britton.

Law 62. Corporation Organization and Finance.—The types of corporate securities and the rights of the holders; reorganization of corporations and the rights of various types of creditors and security holders upon reorganization. *Prerequisite:* Law 19 or its equivalent. (2). 8 MTu; 306 Law. Professor JOHNSON.

Law 63. Code Procedure.—Problems arising in Illinois and elsewhere under a merger of legal and equitable remedies and liberalization of joinder of parties. (2). 3-5 M; 306 Law. Professor McCASKILL.

Law 64. Taxation.—Magill and Maguire: *Cases on Taxation.* (2). 1 ThF; 303 Law. Assistant Professor McDOUGAL.

Law 65. Landlord and Tenant.—Jacobs: *Cases and Materials on Landlord and Tenant.* (2). 11 TT; 303 Law. Professor SUMMERS.

LIBRARY SCIENCE

Courses for Freshmen and Sophomores

Lib. Sci. 12. General Reference.—

Credit	Section	Hours	Days	Room	Instructor
2	A	9	TT	118 Lib.	BLACK
	B	10	TT	118 Lib.	
	C	11	TT	118 Lib.	SIGNOR
	D	2	TT	118 Lib.	
	E	9	WF	118 Lib.	

Courses for First-Year Library School Students

Lib. Sci. 2b. Reference.—

3	A	9	MWF	227 Lib.	SINGLETON
	B	10	MWF	314 Lib.	SINGLETON

Lib. Sci. 21. Printing and Binding.—(2). 3 TT; 314 Lib. Miss SINGLETON, Miss HOUCHENS.

Lib. Sci. 33b. Library Administration and Extension.—Continuation of Lib. Sci. 34.

3	A	10	MWF	227 Lib.	GRAMESLY
	B	9	MWF	314 Lib.	GRAMESLY

Lib. Sci. 37. Cataloging.—Continuation of Lib. Sci. 31a.

2 or 3	A	2–5	MWF	314-306 Lib.	BOND
	B	2–5	MW	227-306 Lib.	KRIEG

Lib. Sci. 38. Selection of Books.—Continuation of Lib. Sci. 3a.

3	A	9	TTS	314 Lib.	BOYD
	B	10	TTS	314 Lib.	BOYD

Lib. Sci. 47. Subject Bibliography.—*Prerequisite:* Lib. Sci. 2a and consent of instructor. (2). 2 TT; 227 Lib. Miss PHELPS.

Courses for Advanced Library School Students and Graduate Students

Lib. Sci. 9. History of Books and Printing.—(2 hours or ½ unit). 11 TT; 314 Lib. Mr. WINDSOR.

Lib. Sci. 24b. Book Selection for Special Groups.—*Prerequisite:* Lib. Sci. 24a. (2 hours or ½ unit). 10 TT; 328 Lib. Miss HOSTETTER.

Lib. Sci. 42. State, Municipal, and Foreign Documents.—*Prerequisite:* Lib. Sci. 13a. (3 hours or ½ unit). 11 MWF; 328 Lib. Miss PHELPS.

Lib. Sci. 45. Library Buildings and Equipment.—(2 hours or ½ unit). 11 MW; 328 Lib. Miss GRAMESLY.

Lib. Sci. 46. High School Library Administration.—*Prerequisite:* Fifteen hours of Library Science and consent of instructor. (3 hours or ½ unit). 2 MWF; 314 Lib. Miss HOSTETTER.

Lib. Sci. 49. Children's Literature.—(2 hours or ½ unit). 2 TT; 314 Lib. Miss HOSTETTER.

Courses for Graduates

Lib. Sci. 101. Thesis.—(1 to 2 units).* Professor WINDSOR and others.

Lib. Sci. 102. Seminar.—(1 unit). 3-5 Tu; 328 Lib. Professor WINDSOR.

Lib. Sci. 103b. Advanced Reference.—(½ unit). 11 TT; 328 Lib. Miss PHELPS.

Lib. Sci. 104b. Advanced Cataloging and Classification.—(½ unit). 3-5 Th; 328 Lib. Assistant Professor BOND.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

MATHEMATICS

Major: 20 hours exclusive of Math. 2, 3, 4, 5, 6, 6a, 8a, 8b, and all courses taken during the freshman year, and inclusive of Mathematics 7 and 9, and two semesters of Math. 70, 71, 72.

Note: For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: first semester, Math. 2 (or 3) and 4 (or 5); second semester, Math. 6. Sophomore year: first semester, Math. 7; second semester, Math. 9 and 19. In certain courses Math. 6 may be replaced by Math. 6a, and Math. 7 and 9 by Math. 8a and 8b.

Minors: 20 hours exclusive of courses taken during the freshman year selected from one or two of the following subjects: astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), philosophy, theoretical and applied mechanics, surveying. If two subjects are chosen, at least eight hours must be offered in each.

Note: Seniors receive reduced credit in Mathematics 2, 3, 4, 5, 6, or 6a.

Mathematics 32, 35, 36, and 40 are suggested as desirable courses for students preparing to teach high school mathematics.

Courses for Undergraduates

Math. 2. College Algebra.—*Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit.

Credit	Section	Hours	Days	Room	Instructor
3[1]	R	8	MWF	155 Math.	Peters
[1]Seniors will receive only 2 hours credit.	S	9	MWF	155 Math.	Emch
	T1	10	MWF	206 U.H.	Brown
	T2	10	TTS	156 Math.	Lytle
[2]Sections D and H are for engineering students.	[2]D	11	MWF	155 Math.	Levy
	W	1	MWF	159 Math.	Walden
	X	2	MWF	158 Math.	Burdette
	Y1	3	MWF	159 Math.	Walden
	Y2	3	MWF	155 Math.	Brown
	[2]H	4	MWF	158 Math.	Burdette

Math. 3. Algebra.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit.

5[1]	R	8	MTWTF	156 Math.	Moore
[1]Students having 1½ entrance units in algebra will receive only 3 hours credit for this course. Seniors will receive only 4 hours credit.	S	9	MTWTF	158 Math.	Rogers
	T	10	MTWTF	154 Math.	Cooley
	U	11	MTWTF	158 Math.	Schilling
	W	1	MTWTF	158 Math.	Clark
	X	2	MTWTF	202 U.H.	Chanler
	Y	3	MTWTF	154 Math.	Cell

Math. 4. Plane Trigonometry.—*Prerequisite:* Entrance algebra, 1½ units, or registration in Math. 3; plane geometry, 1 unit.

2[1]	R1	8	TT	155 Math.	Bailey
[1]Seniors will receive only 1 hour credit.	R2	8	TT	158 Math.	Rogers
	[2]B	9	TT	155 Math.	Bailey
	S	9	TT	159 Math.	Hazlett
[2]Sections B, C, and F are for engineering students.	[2]C	10	TT	102 Entom.	Bristow
	T1	10	TT	159 Math.	Brahana
	T2	10	TT	206 U.H.	Pepper
	U1	11	TT	155 Math.	Bird
	U2	11	TT	202 U.H.	Lang
	W	1	TT	206 U.H.	Rumsey
	[2]F	2	TT	154 Math.	Cell
	X	2	TT	158 Math.	Schilling
	Y1	3	TT	155 Math.	Bourgin
	Y2	3	TT	159 Math.	Cooley

Math. 6. Analytic Geometry.—*Prerequisite:* Math. 2 (or 3) and Math. 4.

5[1]	R	8	MTWTF	202 U.H.	Lang
[1]Seniors will receive only 4 hours credit.	T	10	MTWTF	208 U.H.	Wilson
	X	2	MTWTF	206 U.H.	Rumsey
	Y	3	MTWTF	206 U.H.	Huff

Math. 6a. Analytic Geometry.—(For chemists, architects, and engineers.) *Prerequisite:* Math. 2. (or 3) and Math. 4.

4[1]	[2]A1	8	MTWT	159 Math.	Armstrong
[1]Seniors will receive only 3 hours credit.	[2]A2	8	MTWT	154 Math.	Bird
	R	8	MTWT	102 Entom.	Bristow
	[2]B1	9	MTWT	202 U.H.	Bower
[2]Sections A1, A2, B1, B2, D, E, F, and G are for engineering students.	[2]B2	9	MTWT	110 L.H.	Miles
	S1	9	MTWT	208 U.H.	Wilson
	S2	9	MTWT	154 Math.	Bird
	[2]D	11	MTWT	208 U.H.	Brown
	[2]U	11	MTWT	156 Math.	Moore
[2]Sections U and W are for architects and architectural engineers.	[2]E	1	MTWT	156 Math.	Dennis
	[2]W	1	MTWT	155 Math.	Hoersch
	[2]F	2	MTWT	159 Math.	Walden
	[2]G	3	MTWT	158 Math.	Burdette

Math. 7. Calculus.—First course for students of mathematics and engineering. *Prerequisite:* Math. 6 (or 6a).

Credit	Section	Hours	Days	Room	Instructor
5	B	9	MTWTF	206 U.H.	Pepper
	C	10	MTWTF	158 Math.	Hazlett
	D	11	MTWTF	159 Math.	Armstrong
	E	1	MTWTF	202 U.H.	Chanler
	F	2	MTWTF	155 Math.	Bourgin

Math. 9. Calculus.—Second course for students of mathematics and engineering. *Prerequisite:* Math. 7.

3	A1	8	MWF	206 U.H.	Wilson
	A2	8	MWF	158 Math.	Bower
	B1	9	MWF	159 Math.	Armstrong
	B2	9	MWF	156 Math.	Moore
	C1	10	MWF	159 Math.	Brahana
	C2	10	MWF	110 L.H.	Miles
	C3	10	TTS	155 Math.	Levy
	D	11	MWF	103 Entom.	Lytle
	E	1	MWF	154 Math.	Ketchum

Math. 8b. Calculus.—For students of chemistry, chemical engineering, and insurance. *Prerequisite:* Math. 8a.

3	A	8	MWF	110 L.H.	Miles
	C1	10	MWF	155 Math.	Emch
	C2	10	MWF	156 Math.	Peters
	D1	11	MWF	105 Entom.	Bower
	D2	11	MWF	102 Entom.	Bristow

Math. 9a. Calculus.—Special topics. *Prerequisite:* Math. 7 and 9 (or 8a-8b).

2	C	10	TT	110 L.H.	Miles
	D1	11	TT	154 Math.	Crathorne
	D2	11	TT	206 U.H.	Bower
	F	2	MF	154 Math.	Steimley

Math. 19. Solid Analytic Geometry.—*Prerequisite:* Math. 7 or 8a. (3). 2 MWF; 156 Math. Dr. Hoersch.

Courses for Advanced Undergraduates and Graduates

Math. 17. Differential Equations and Advanced Calculus.—*Prerequisite:* Math. 16.

3	A	8	MWF	254 Math.	Bailey
	E	1	MWF	254 Math.	Steimley
	H	4	MTuF	254 Math.	Ketchum

Math. 21. Theory of Probability.—*Prerequisite:* Math. 7 and 9 (or 8). (3). 11 MWF; 154 Math. Associate Professor Crathorne.

Math. 23. Mathematics of Finance.—*Prerequisite:* Math. 2 and junior standing.

3	A	8	TTS	206 U.H.	Peters
	B	9	TTS	156 Math.	Peters
	C	10	MWF	102 Entom.	Bristow
	D	11	MWF	202 U.H.	Cooley
	E	1	MWF	206 U.H.	Huff
	F	2	MWF	208 U.H.	Dennis
	G	3	MWF	156 Math.	Clark
	H	4	MWF	155 Math.	Hoersch

Math. 31. Actuarial Theory.—*Prerequisite:* Math. 30. (3). 10 MWF; 254 Math. Associate Professor Crathorne.

Math. 35. Teachers' Course.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 10 MWF; 103 Entom. Associate Professor Lytle.

Math. 40. Fundamental Concepts of Mathematics.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 9 MWF; 103 Entom. Associate Professor Lytle.

Math. 52b. Partial Differential Equations of Mathematical Physics.—*Prerequisite:* Math. 52a. (3). 1 MWF; 366 Math. Dr. Bourgin.

Math. 70b. Introduction to Higher Algebra.—*Prerequisite:* Math. 70a. (3). 9 MWF; 254 Math. Assistant Professor Brahana.

Math. 71b. Introduction to Higher Analysis.—*Prerequisite:* Math. 71a.

3	D1	11	MWF	206 U.H.	Pepper
	D2	11	MWF	110 L.H.	Steimley

Math. 72b. Introduction to Higher Geometry.—*Prerequisite:* Math. 72a. (3). 10 TTS; 254 Math. Professor Coble.

Math. 90. Undergraduate Thesis.—*Prerequisite:* 24 hours of college mathematics. (2). Arrange.

Courses for Graduates

Math. 100. Seminar and Thesis.—(1 to 2 units).* Arrange.

Math. 113. Linear Differential Equations.—(1 unit). 11 MWF; 254 Math. Professor CARMICHAEL.

Math. 131. Algebraic Geometry.—(1 unit). 9 TTS; 254 Math. Professor COBLE.

Math. 135. Differential Geometry.—(1 unit). 11 TTS; 254 Math. Assistant Professor LEVY.

Math. 170. Algebra.—(1 unit). 9 MWF; 366 Math. Associate Professor HAZLETT.

Math. 171. Analysis.—(1 unit). 2 MWF; 254 Math. Dr. KETCHUM.

Math. 172. Geometry.—(1 unit). 8 MWF; 366 Math. Professor EMCH.

MECHANICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.50 to $4.50.

Courses for Undergraduates

M.E. 2. Steam Engineering.—*Prerequisite:* Math. 9, Physics 1 and 3.

Credit	Section	Hours	Days	Room	Instructor
3	Z1	8	MWF	216 M.E.L.	
	Z2	11	MWF	217 M.E.L.	

M.E. 6. Steam Engineering.—*Prerequisite:* Registration in M.E. 16.

4	P	1	MTTF	208 M.E.L.	
	Q	8	TWTS	208 M.E.L.	

M.E. 10. Thermodynamics.—*Prerequisite:* Math. 9, Physics 1 and 3.

3	JKNVY	8	MWF	202 T.B.	
	LM	9	TTS	202 T.B.	

M.E. 15. Heat Engineering.—*Prerequisite:* M.E. 16.

3	PQ	11	MWF	202 T.B.	

M.E. 16. Thermodynamics.—*Prerequisite:* M.E. 13.

2	P	2	Th	202 T.B., 217 M.E.L.	
		2–4	Tu	202 T.B., 217 M.E.L.	
	Q	10	Tu	202 T.B., 217 M.E.L.	
		10–12	Th	202 T.B., 217 M.E.L.	

M.E. 17. Refrigeration Engineering.—*Prerequisite:* M.E. 16.

3	PQ	11	MW	208 M.E.L.	
		8–10	S	112 T.B.	

M.E. 28. Heating and Ventilation.—*Prerequisite:* M.E. 16 and 65.

4	P	8	TT	M.E.L.	
		9–11	Tu	112, 114 T.B.	
		10–12	S	112, 114 T.B.	
	Q	8	TT	M.E.L.	
		9–11	Th	112, 114 T.B.	
		10–12	S	112, 114 T.B.	

M.E. 34. Aeronautical Engineering.—*Prerequisite:* M.E. 33.

3	PQ	11	MWF	216 M.E.L.	

M.E. 40. Mechanical Engineering Design.—*Prerequisite:* M.E. 31 and T.A.M. 3 and 63.

3	P	8–11	MWF	216, 201 T.B.	
	Q	1–4	MWF	216, 201 T.B.	

M.E. 52. Power Plant Design.—*Prerequisite:* M.E. 65.

3	P	8–11	MWF	112, 114 T.B.	
	Q	1–4	MWF	112, 114 T.B.	

M.E. 62. Mechanical Engineering Laboratory.—*Prerequisite:* Junior standing.

3	OX	1	WF	216 M.E.L.	
		1–4	M	M.E.L.	

M.E. 64. Mechanical Engineering Laboratory.—*Prerequisite:* Registration in M.E. 6 and 16.

3	P	8–12	S	M.E.L.	
		1–5	W	M.E.L.	
	Q	8–12	MF	M.E.L.	
	J	8–12	TT	M.E.L.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

M.E. 85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing.

Credit	Section	Hours	Days	Room	Instructor
3	PK	8–11	TT	Pattern Lab.	
	Q	8–11	MF	Pattern Lab.	
	JMR	1–4	TT	Pattern Lab.	
	NSVW	1–4	MF	Pattern Lab.	

M.E. 87. Machine Laboratory.—*Prerequisite:* M.E. 85 or junior standing.

3	L	8–11	MF	Machine Lab.
	N	1–4	MF	Machine Lab.

M.E. 88. Machine Laboratory.—*Prerequisite:* M.E. 87.

3	P	8–11	TT	Machine Lab.
	Q	1–4	TT	Machine Lab.

M.E. 89. Heat Treatment of Metals.—*Prerequisite:* Senior standing in Mechanical or Railway Mechanical Engineering.

3	P	2–4	MWF	Forge Lab.
	Q	8–10	MWF	Forge Lab.

M.E. 98. Thesis.—*Prerequisite:* Senior standing. (3). Arrange.

Courses for Graduates

Note: Entrance on graduate work in Mechanical Engineering presupposes the full undergraduate course in that subject.

M.E. 107. Thermodynamics.—Application of thermodynamics to the solution of physical and engineering problems. (1 unit). Twice a week; arrange. Associate Professor Goff.

M.E. 108. The Flow of Fluids and Heat Transfer.—The application of dimensional analysis and other rational formulas. Special problems. (1 unit). Twice a week; arrange. Professor Macintire.

M.E. 109. Machine Design.—Rational design; the application of mechanics of materials. Individual problems. (1 unit). Twice a week; arrange. Professor Leutwiler.

M.E. 112. Laboratory Investigation.—Combustion of fuel, boiler economy; steam engines and turbines; gas engines and producers; explosive mixtures; mechanical refrigeration. Original work. (1½ units). Three times a week; arrange. Professors Willard, Polson, Kratz, Ham, and Macintire.

METALLURGICAL ENGINEERING

Met. 2. Principles of Metallurgy.—*Prerequisite:* Chem. 4; Physics 1a-3a. (2). 10 MF; 206 T.B. Assistant Professor Mitchell.

MILITARY BANDS

Note: The following courses are open only to those who have passed the examination for admittance to one of the bands. All new students who play band instruments and who desire to try for places in the bands should make application at the Band Office, in the Band Building, at the earliest possible time. Those who are accepted for membership will be given a slip indicating the band to which they have been assigned, together with their rehearsal days and hours. Assignments are made according to proficiency. Service in the bands takes the place of the required military courses.

Mil. Bands 2. Freshman Band.—(1). Twice a week, by assignment. Director Harding, Assistant Director Dvorak, Mr. Overgard.

Mil. Bands 4. Sophomore Band.—(1). Twice a week, by assignment. Director Harding, Assistant Director Dvorak, Mr. Overgard.

Mil. Bands 6. Junior Band.—Twice a week, by assignment. Director Harding, Assistant Director Dvorak.

Mil. Bands 8. Senior Band.—Twice a week, by assignment. Director Harding, Assistant Director Dvorak.

MILITARY SCIENCE

All military courses consist of two parts designated by the same number: a practical course lettered with "a" and a theoretical course lettered with "b". Students who have had training in a senior R. O. T. C. unit are permitted to register for work one year advanced for each year they have had in the senior unit. All students who register for junior and senior courses are required to sign a contract with the Government to take five hours of military per week during two years in the University and to attend one summer camp of six weeks.

INFANTRY

Mil. Sci. 2a. Freshman Infantry.

½	1st Bn.	3–5	M	Arm.	Tabachnik
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 2b. Freshman Infantry.

Credit	Section	Hours	Days	Room	Instructor
½	1	10	M	150 Arm.	TABACHNIK
	2	11	M	150 Arm.	
	3	1	Tu	150 Arm.	
	4	2	Tu	150 Arm.	
	5	10	Th	150 Arm.	
	6	9	F	150 Arm.	
	7	10	F	150 Arm.	

Mil. Sci. 4a. Sophomore Infantry.

½	1st Bn.	3–5	M	Arm.	LUMMIS
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 4b. Sophomore Infantry.

½	51	10	M	148 Arm.	LUMMIS
	52	11	M	148 Arm.	
	53	10	Tu	148 Arm.	
	54	11	Tu	148 Arm.	
	55	3	Th	148 Arm.	
	56	9	S	148 Arm.	

Mil. Sci. 6a. Junior Infantry.—*Prerequisite:* First and second year basic credits.

½	Group I	10–12	W	Arm.	MILAN
		4	F	Arm.	
	Group II	1–3	Th	Arm.	
		4	F	Arm.	

Mil. Sci. 6b. Junior Infantry.—*Prerequisite:* First and second year basic credits.

1	81	1–3	Tu	148 Arm.	MILAN
	82	10–12	F	148 Arm.	

Mil. Sci. 8a. Senior Infantry.—(Cadet Officers only.)

½	Co.'s A-M	(See 2a and 4a for hours.)			STEVENS
		4	F	Arm.	

Mil. Sci. 8b. Senior Infantry.—(Cadet Officers only.)

1	91	9	TT	150 Arm.	STEVENS
	92	2	WF	150 Arm.	

FIELD ARTILLERY

Mil. Sci. 12a. Freshman Field Artillery.

½	1st Bn.	3–5	M	Arm.	BUSCH
	2nd Bn.	1–3	Tu	Arm.	CLAY
	3rd Bn.	3–5	Th	Arm.	
	4th Bn.	1–3	F	Arm.	

Mil. Sci. 12b. Freshman Field Artillery.

½	100	9	M	155 Arm.	BUSCH
	101	10	M	155 Arm.	CLAY
	102	11	M	155 Arm.	
	103	2	M	155 Arm.	
	104	10	Tu	155 Arm.	
	105	11	Tu	155 Arm.	
	106	9	W	155 Arm.	
	107	10	W	155 Arm.	
	108	11	W	155 Arm.	
	109	9	Th	155 Arm.	
	110	10	Th	155 Arm.	
	111	2	Th	155 Arm.	
	112	9	F	155 Arm.	
	113	10	F	155 Arm.	
	114	11	F	155 Arm.	

Mil. Sci. 14a. Sophomore Field Artillery.

½	1st Bn.	3–5	M	Arm.	DALFERES
	2nd Bn.	1–3	Tu	Arm.	CLAY
	3rd Bn.	3–5	Th	Arm.	
	4th Bn.	1–3	F	Arm.	

Mil. Sci. 14b. Sophomore Field Artillery.

½	130	9	M	154 Arm.	DALFERES
	131	10	M	154 Arm.	CLAY
	132	11	M	154 Arm.	
	133	9	Tu	154 Arm.	
	134	10	Tu	154 Arm.	
	135	11	Tu	154 Arm.	
	136	9	Th	154 Arm.	
	137	10	Th	154 Arm.	
	138	11	Th	154 Arm.	
	139	9	F	154 Arm.	
	140	10	F	154 Arm.	
	141	11	F	154 Arm.	

Mil. Sci. 16a. Junior Field Artillery.—*Prerequisite:* Mil. Sci. 15a.

Credit	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	M	Arm.	WEILAND
	2nd Bn.	1–3	Tu	Arm.	
	3rd Bn.	3–5	Th	Arm.	
	4th Bn.	1–3	F	Arm.	

Mil. Sci. 16b. Junior Field Artillery.—*Prerequisite:* Mil. Sci. 15b.

1	160	10	M	151 Arm.	WEILAND
		10	W	151 Arm.	
		4	F	151 Arm.	
	161	11	M	151 Arm.	
		11	W	151 Arm.	
		4	F	151 Arm.	
	162	9	Tu	151 Arm.	
		9	Th	151 Arm.	
		4	F	151 Arm.	
	163	10	Tu	151 Arm.	
		10	Th	151 Arm.	
		4	F	151 Arm.	

Mil. Sci. 18a. Senior Field Artillery.—*Prerequisite:* Mil. Sci. 17a.

½	1st Bn.	3–5	M	Arm.	BURNELL
	2nd Bn.	1–3	Tu	Arm.	
	3rd Bn.	3–5	Th	Arm.	
	4th Bn.	1–3	F	Arm.	

Mil. Sci. 18b. Senior Field Artillery.—*Prerequisite:* Mil. Sci. 17b.

1	190	10	M	153 Arm.	BURNELL
		10	W	153 Arm.	
		4	F	153 Arm.	
	191	10	Tu	153 Arm.	
		10	Th	153 Arm.	
		4	F	153 Arm.	
	192	11	Tu	153 Arm.	
		11	Th	153 Arm.	
		4	F	153 Arm.	

CAVALRY

Mil. Sci. 22a. Freshman Cavalry.

½	1A	8–10	W	Arm.	STRAWN
	1B	8–10	Th	Arm.	
	1C	10–12	F	Arm.	
	1D	8–10	S	Arm.	

Mil. Sci. 22b. Freshman Cavalry.

½	201	10	M	147 Arm.	BRYAN
	202	11	M	147 Arm.	
	203	8	Tu	147 Arm.	
	204	9	Tu	147 Arm.	
	205	2	W	147 Arm.	
	206	3	W	147 Arm.	
	207	10	Th	147 Arm.	
	208	11	Th	147 Arm.	
	209	1	F	147 Arm.	
	210	2	F	147 Arm.	

Mil. Sci. 24a. Sophomore Cavalry.

½	2A	10–12	M	Arm.	ROGERS
	2B	8–10	Tu	Arm.	STRAWN
	2C	10–12	Th	Arm.	

Mil. Sci. 24b. Sophomore Cavalry.

½	221	9	M	146 Arm.	ROGERS
	222	10	W	146 Arm.	
	223	11	W	146 Arm.	
	224	3	Th	146 Arm.	
	225	4	Th	146 Arm.	
	226	1	F	146 Arm.	
	227	2	F	146 Arm.	

Mil. Sci. 26a. Junior Cavalry.—*Prerequisite:* Mil. Sci. 25a.

½	3A	8–10	F	Arm.	FEATHERSTONE
	3B	8–10	S	Arm.	BRYAN

Mil. Sci. 26b. Junior Cavalry.—*Prerequisite:* Mil. Sci. 25b.

1	241	1–3	M	147 Arm.	FEATHERSTONE
		4	F	147 Arm.	
	242	1–3	Tu	147 Arm.	
		4	F	147 Arm.	
	243	3–5	Th	147 Arm.	
		4	F	147 Arm.	

Mil. Sci. 28a. Senior Cavalry.—*Prerequisite:* Mil. Sci. 27a.

Credit	Section	Hours	Days	Room	Instructor
½	1A-1D incl.	(See 22a and 24a for hours.)			Conard
	2A-2C incl.				Rogers
					Strawn

Mil. Sci. 28b. Senior Cavalry.—*Prerequisite:* Mil. Sci. 27b.

1	251	3–5	M	146 Arm.	Conard
		4	F	146 Arm.	
	252	3–5	Tu	146 Arm.	
		4	F	146 Arm.	
	253	1–3	Th	146 Arm.	
		4	F	146 Arm.	

ENGINEERS

Mil. Sci. 32a. Freshman Engineers.

½	1st Bn.	3–5	Th	Arm.	McDonough
	2nd Bn.	8–10	S	Arm.	

Mil. Sci. 32b. Freshman Engineers.

½	301	10	Tu	144 Arm.	McDonough
	302	11	Tu	144 Arm.	
	303	1	Tu	144 Arm.	
	304	2	Tu	144 Arm.	
	305	3	Tu	144 Arm.	

Mil. Sci. 34a. Sophomore Engineers.

½	1st, 2nd, Bns.	(See 32a for hours.)		Arm.	Matthews

Mil. Sci. 34b. Sophomore Engineers.

½	321	9	W	145 Arm.	Matthews
	322	10	W	145 Arm.	
	323	9	Th	145 Arm.	

Mil. Sci. 36a. Junior Engineers.—*Prerequisite:* Mil. Sci. 35a.

½	1st, 2nd, Bns.	(See 32a for hours.)		Arm.	Matthews

Mil. Sci. 36b. Junior Engineers.—*Prerequisite:* Mil. Sci. 35b.

1	341	2–4	F	145 Arm.	Matthews
		4	F	145 Arm.	
	342	4	F	145 Arm.	
		10–12	S	145 Arm.	

Mil. Sci. 38a. Senior Engineers.—*Prerequisite:* Mil. Sci. 37a.

½	1st, 2nd, Bns.	(See 32a for hours.)		Arm.	Matthews
					McDonough

Mil. Sci. 38b. Senior Engineers.—*Prerequisite:* Mil. Sci. 37b.

1	351	10–12	F	144 Arm.	McDonough
		4	F	144 Arm.	
	352	4	F	144 Arm.	
		10–12	S	144 Arm.	

SIGNAL CORPS

Mil. Sci. 42a. Freshman Signal Corps.

½	A	3–5	Tu	Arm.	James
	B	3–5	W	Arm.	Engerud
	C	2–4	F	Arm.	

Mil. Sci. 42b. Freshman Signal Corps.

½	400	10	M	222 Arm.	Engerud
	401	10	Tu	222 Arm.	
	402	1	W	222 Arm.	
	403	1	Th	222 Arm.	
	404	10	F	222 Arm.	

Mil. Sci. 44a. Sophomore Signal Corps.

½	A-C incl.	(See 42a for hours.)			James
					Engerud

Mil. Sci. 44b. Sophomore Signal Corps.

½	410	9	Tu	222 Arm.	James
	411	11	Tu	222 Arm.	
	412	9	F	222 Arm.	
	413	11	F	222 Arm.	

Mil. Sci. 46a. Junior Signal Corps.—*Prerequisite:* Mil. Sci. 45a.

½	A-C incl.	(See 42a for hours.)			James
					Engerud

Mil. Sci. 46b. Junior Signal Corps.—*Prerequisite:* Mil. Sci. 45b.

Credit	Section	Hours	Days	Room	Instructor
1	420	3–5	M	222 Arm.	James
		4	F	222 Arm.	
	421	8–10	S	222 Arm.	
		4	F	222 Arm.	

Mil. Sci. 48a. Senior Signal Corps.—*Prerequisite:* Mil. Sci. 47a.

½	A-C incl.		(See 42a for hours.)		James Engerud

Mil. Sci. 48b. Senior Signal Corps.—*Prerequisite:* Mil. Sci. 47b.

1	431	3–5	M	144 Arm.	Engerud
		4	F	144 Arm.	
	432	9–11	W	144 Arm.	
		4	F	144 Arm.	

COAST ARTILLERY (ANTI-AIRCRAFT)

Mil. Sci. 52a. Freshman Coast Artillery (AA).—

½	A	3–5	Tu	Arm.	Cary
	B	1–3	Th	Arm.	
	C	8–10	S	Arm.	

Mil. Sci. 52b. Freshman Coast Artillery (AA).—

½	501	9	M	152 Arm.	Cary
	502	1	M	152 Arm.	
	503	2	Tu	152 Arm.	
	504	11	Th	152 Arm.	
	505	4	Th	152 Arm.	
	506	11	F	152 Arm.	
	507	1	F	152 Arm.	

Mil. Sci. 54a. Sophomore Coast Artillery (AA).—

½	D	3–5	Tu	Arm.	Cary
	E	1–3	Th	Arm.	
	F	8–10	S	Arm.	

Mil. Sci. 54b. Sophomore Coast Artillery (AA).—

½	521	2	M	152 Arm.	Cary
	522	9	Tu	152 Arm.	
	523	3	Th	152 Arm.	
	524	10	F	152 Arm.	
	525	2	F	152 Arm.	
	526	10	S	152 Arm.	

Mil. Sci. 56a. Junior Coast Artillery (AA).—*Prerequisite:* First and second year basic credits.

½	Group I	1–3	Tu	151 Arm.	Cary
		4	F	152 Arm.	
	Group II	2–4	F	151 Arm.	
		4	F	152 Arm.	

Mil. Sci. 56b. Junior Coast Artillery (AA).—*Prerequisite:* First and second year basic credits.

1	531	1–3	M	151 Arm.	Cary
	532	4	TT	151 Arm.	
	533	10–12	S	151 Arm.	

Mil. Sci. 58a. Senior Coast Artillery (AA).—*Prerequisite:* Junior credits.

½	1st Bn.	3–5	Tu	Arm.	Cary
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 58b. Senior Coast Artillery (AA).—*Prerequisite:* Junior credits.

1	541	3–5	M	151 Arm.	Cary
	542	11	TT	151 Arm.	

MINING ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $7.50.

Courses for Undergraduates

Mining 2. Mining Principles.—(For students in courses other than mining). *Prerequisite:* One semester of Chemistry; sophomore standing. (3). 9 MWF; 206 T.B. Mr. Nicholson.

Mining 15. Mine Ventilation.—*Prerequisite:* Mining 4. (2). 11 TT; 206 T.B. Professor Callen.

Mining 16. Non-Ferrous Ore Treatment.—*Prerequisite:* Chemistry 73a, Mining 9. (5). 9 MTWTF; 207 T.B. Assistant Professor Mitchell.

Mining 21. Examination, Valuation, and Reports.—*Prerequisite:* Mining 4, Geology 20 and 43 or equivalent. (3). 11 MWF; 206 T.B. Mr. Nicholson.

Mining 42. Mining and Metallurgical Design.—*Prerequisite:* Mining 41. (2). 1-4 F, 9-12 S; 207 T.B. Assistant Professor MITCHELL.

Mining 62. Mine Surveying.—*Prerequisite:* Mining 61. (3). 10 M, 2-5 WF; 207 T.B. Mr. NICHOLSON.

Mining 64. Coal and Ore Preparation Laboratory.—*Prerequisite:* Mining 9. (3). 1-5 MTh; Min. Lab. Assistant Professor MITCHELL.

Mining 90. Mining and Metallurgical Reports.—*Prerequisite:* Senior standing in Mining Engineering. (1). 10 Tu; 207 T.B. Professor CALLEN.

Courses for Graduates

Mining 101. Advanced Mining Practice.—(1 unit). Arrange. Professor CALLEN.

Mining 102. Advanced Preparation of Coal and Ores.—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 104.† Mining Reports.—(1 unit). Arrange. Professor CALLEN.

Mining 105.† Welfare Work and Education among Mine Employees.—(1 unit). Arrange. Professor CALLEN.

Mining 106.† Advanced Coal, Ore, and Metallurgical Plant Design.—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 107.† Advanced Non-Ferrous Metallurgical Projects.—(1 unit). Arrange. Assistant Professor MITCHELL.

MUSIC

Courses for Undergraduates

Music 2. History of Music.—*Prerequisite:* One year of university work. (2). 11 MWF; Lecture Room, S.M.H. Professor SCHWARTZ.

Music 4. Theory of Music (Harmony).—*Prerequisite:* Music 3.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	106 S.M.H.	KESSLER
	E	1	MWF	106 S.M.H.	KESSLER
[1]Section G is for students from other colleges.	[1]G	3	MWF	106 S.M.H.	KESSLER

Music 6. Theory of Music (Free Counterpoint).—*Prerequisite:* Music 5. (3). 3 MWF; 103 S.M.H. Associate Professor MILES.

Music 8. Strict Counterpoint.—*Prerequisite:* Music 7.

3	C	10	MWF	103 S.M.H.	KESSLER
	O	2	TT	103 S.M.H.	KESSLER
		9	F	106 S.M.H.	
	F	2	MWF	103 S.M.H.	

Music 10. Analysis, Musical Form.—*Prerequisite:* Music 9.

2	T	9	MTh	103 S.M.H.	SCHWARTZ
	K	9	TT	103 S.M.H.	SCHWARTZ

Music 11b. Composition.—*Prerequisite:* Music 11a. (2). Arrange. Associate Professor MILES.

Music 12b. Advanced Composition.—*Prerequisite:* Music 12a. (4). Arrange. Associate Professor MILES.

Music 14. Music Appreciation.—*Prerequisite:* Music 13 or consent of the instructor. Attendance at Star Course concerts is required.

2	L	10	TT	Lecture Room, 3rd floor, S.M.H.	STIVEN
	P (P.S.M.)	3	TT	106 S.M.H.	KITCHELL

Music 16. Instrumentation.—*Prerequisite:* Music 15. (1 or 2).* 2 TT; Band Building. Professor HARDING.

Music 18. Advanced Orchestration.—*Prerequisite:* Music 17. (4). Arrange. Professor HARDING.

Music 22. Ear Training and Sight Singing.—*Prerequisite:* Music 21.

1	B	9	MW	106 S.M.H.	PERCIVAL
	W	11	MTh	106 S.M.H.	PERCIVAL
	J	8	TT	106 S.M.H.	PERCIVAL

Music 24. Ear Training and Sight Singing.—*Prerequisite:* Music 23.

1	K	9	TT	106 S.M.H.	PERCIVAL
	C	10	MW	106 S.M.H.	PERCIVAL
	L	10	TT	106 S.M.H.	PERCIVAL

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

†Of courses 104 and 105, only one will be given, according to election of students; the same applies to courses 106 and 107.

Music 25b. Public School Music Methods (Instrumental Methods).—*Prerequisite:* Junior standing in School of Music or consent of instructor. (2). 2 MWF; 106 S.M.H. Mr. HOLMES.

Music 25c. Baton Technique.—*Prerequisite:* Sophomore standing in School of Music or consent of instructor. (1). 2 Th; 106 S.M.H. Mr. HOLMES.

Music 26b. Public School Music Methods (Junior High School Vocal).—*Prerequisite:* Senior stan ding in School of Music or consent of instructor. (3). 1 MTWT; 103 S.M.H. Miss KITCHELL.

Music 27. Thesis.—(1). Arrange.

Music 30b. Ensemble.—*Prerequisite:* Music 30a or consent of instructor.

Credit	Section	Hours	Days	Room	Instructor
½ to 1*	A (Piano)	3	MTh	209 S.M.H.	WATT
	B (Vocal group ensemble)	4	MW	210 S.M.H.	HAMP
	C (Chorus)	7	Th	Recital Hall	STIVEN and DEMMING
		Arrange other hour			
	D (Opera)	3	TT	207 S.M.H.	SUTHERLIN
	E (Woman's Glee Club)	10	TT	Auditorium	DVORAK
	F (Orchestra)	4	TW	Orchestra Room	STIVEN

Music 31b. Ensemble.—*Prerequisite:* Music 31a. (½ to 1). Sections same as in Music 30b.

Music 33. Advanced History of Music.—*Prerequisite:* Music 32.

2	B	9	WF	103 S.M.H.	SCHWARTZ
	L	10	TT	103 S.M.H.	SCHWARTZ

Music 35. Recital Course in Applied Music.—(Required of seniors in Instrumental major). (4). Arrange.

Music 36. Recital Course in Applied Music.—(Required of seniors in Voice major). (3). Arrange.

Music 37. Recital Course in Composition.—(Required of seniors in Theory major). (4). Arrange.

Music 38b. Conducting and Organization.—*Prerequisite:* Music 38a. (2). 1-3 MWF. Band Building. Professor HARDING.

Music 68b. String Instruments.—(2). 8 MTWTF; Orchestra Room. Mr. COHEN.

Music 98b. Wind Instruments.—(2). 9 MTWTF; Band Building. Mr. DVORAK.

Applied Music Courses

Note: Students other than those registered in the curricula in Music are required to pay fees of $25 for each course in Applied Music.

Students in music curricula will receive 4 to 5 hours credit for their major subject in Applied Music. They will ordinarily receive 2½ hours credit for their minor subject. Students from other colleges will ordinarily receive 2 hours credit if in accordance with the regulations of their college.

Courses in Applied Music which require one half-hour lesson per week of recitation and one hour daily of preparation receive 2 hours credit.

Courses in Applied Music which require two 20-minute lessons per week of recitation and one hour daily of preparation receive 2½ hours credit.

Courses in Applied Music which require two half-hour lessons per week of recitation and two hours daily of preparation receive 4 hours credit.

Courses in Applied Music which require two half-hour lessons per week of recitation and three hours daily of preparation receive 5 hours credit.

Music 42a, b to 47a, b. Piano.—(2 to 5).* Arrange. Professor VAN DEN BERG, Assistant Professors WATT, SCHOONMAKER, Mrs. SULLIVAN, Miss USRY, Mr. HILL.

Music 52a-d to 57a-d. Voice.—(1 to 4).* Arrange. Mr. JOHNSON, Mr. HAMP, Miss SUTHERLIN, Mr. FOOTE. (Parts a and b in each course indicate individual instruction in Voice (2 to 4), and parts c and d indicate classes in Singing Diction (1), required of Voice major students.)

Music 62a, b to 67a, b. Violin.—(2 to 5).* Arrange. Assistant Professor ROOSA, Mr. COHEN.

Music 72a, b to 77a, b. Violoncello.—(2 to 5).* Arrange. Mrs. SULLIVAN.

Music 82a, b to 87a, b. Organ.—(2 to 5).* Arrange. Associate Professor MILES, Mr. DEMMING.

Music 92a-d to 97a-d. Band and Orchestral Instruments.—(2 to 4).* Thirty-two hours in these courses are required for major work. Parts a and b in each course are concerned with professional instruments, and parts c and d with supplementary instruments. Professor HARDING, Mr. DVORAK.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

PHILOSOPHY

Major: 20 hours from any courses offered by the department, including Phil. 2, 3, 4, and 7. Six hours in psychology may be counted toward a major in philosophy.

Minors: 20 hours in (a) psychology (at least 6 additional hours if psychology is counted toward a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) astronomy, botany, chemistry, mathematics, physics, zoology, geology. At least 8 hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Phil. 1. Logic.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	117 L.H.	Kubitz
	B	9	MWF	117 L.H.	Kubitz
	C	10	MWF	117 L.H.	Lattimore
	D	11	MWF	117 L.H.	Lattimore
	E	1	MWF	113 L.H.	Nicholson
	F	2	MWF	117 L.H.	Lattimore

Phil. 2. Introduction to Philosophy.—*Prerequisite:* One year of university work.

3	A	8	MWF	123 L.H.	DeLargy
	B	9	MWF	114 L.H.	DeLargy
	C	10	MWF	114 L.H.	Nicholson
	D	11	MWF	113 L.H.	Kubitz
	E	2	MWF	114 L.H.	Nicholson

Courses for Advanced Undergraduates and Graduates

Phil. 4. History of Modern Philosophy.—*Prerequisite:* Three hours in philosophy and junior standing, or senior standing.

4	Lecture	10	TT	L.H. Theatre	Gotshalk
	A Disc.	11	Th	104 L.H.	Kubitz
	B Disc.	1	Th	117 L.H.	Lattimore
	C Disc.	2	Th	117 L.H.	DeLargy
	D Disc.	3	Th	117 L.H.	Nicholson
	E Disc.	11	F	139 L.H.	Gotshalk
	F Disc.	Arrange (for graduates)			

Phil. 9. Political and Social Ethics.—*Prerequisite:* Junior standing.

3		11	MWF	104 L.H.	Tawney

Phil. 16. Metaphysics.—*Prerequisite:* Three hours in philosophy.

3		10	MWF	204a L.H.	Gotshalk

Phil. 20. Honors Course.—*Prerequisite:* Senior standing. (2). Arrange.

Phil. 22. American Philosophy (Royce, James, Santayana, Dewey).—*Prerequisite:* Three hours in philosophy.

3		2	MWF	219 L.H.	DeLargy

Courses for Graduates

Phil. 110. Locke, Berkeley, Hume.—(1 unit). Assistant Professor Gotshalk.

Phil. 112. German Idealism.—(1 unit). Professor Tawney.

Phil. 120. Seminar in Modern Philosophy.—(1 unit). Professor McClure.

PHYSICAL EDUCATION FOR MEN

Freshmen and Sophomores: Men entering the University as freshmen are required to obtain credit for four semesters of work in physical education; those entering as sophomores, two semesters. They may obtain this credit by courses listed below or by proficiency examinations which are offered at times specified by the department.

Major: See Curriculum in Physical Education for Men, in "Directions for Registration."

For information, late registration, changing sections, call at Room 201, Men's Old Gymnasium.

Courses for Undergraduates

P.E. 20-21-22-23. Individual Corrective Activities.—These courses are open only to students who fail to pass the health examinations. Students enrolling for the first time should register for P.E. 20. Students enrolling for the second, third, or fourth time should register for P.E. 21, 22, and 23, respectively.

1	C	10	MWF	New Gym.	Stafford
	D	11	MWF	New Gym.	Stafford
	F	2	MWF	New Gym.	McCristal

P. E. 20-21-22-23. Individual Corrective Activities. (Concluded)

Credit	Section	Hours	Days	Room	Instructor
1	G	3	MWF	New Gym.	McCristal
	H	4	MWF	New Gym.	McCristal
	K	9	MWF	Old Gym.	McCristal
	L	10	MWF	Old Gym.	Derr
	M	11	MWF	Old Gym.	Derr
	P	3	MWF	Old Gym.	Derr
	Q	4	MWF	Old Gym.	Derr
P.E. 24. Beginning Swimming.—					
½	B	9	MW	Old Pool	Craig
	C	10	MW	Old Pool	Craig
	D	11	MW	Old Pool	Craig
	F	2	MW	Old Pool	Craig
	N	1	TT	Old Pool	Treece
	O	2	TT	Old Pool	Treece
P.E. 25. Individual Tumbling Stunts.—					
½	L	10	TT	Old Gym.	McCristal
	M	11	TT	Old Gym.	McCristal
	O	2	TT	Old Gym.	Treece
	P	3	TT	Old Gym.	Treece
P.E. 26. Double Tumbling Stunts.—					
½	D	11	MW	Old Gym.	McCristal
	O	2	TT	Old Gym.	McCristal
P.E. 27. Apparatus Stunts.—					
½	C	10	MW	Old Gym.	McCristal
	P	3	TT	Old Gym.	McCristal
P.E. 28. Boxing.—					
½	F	2	MW	Old Gym.	Kenney
	L	10	TT	Old Gym.	Law
	M	11	TT	Old Gym.	Law
	O	2	TT	Old Gym.	Law
P.E. 29. Wrestling.—					
½	C	10	MW	Old Gym.	Law
	G	3	MW	Old Gym.	Law
	L	10	TT	Old Gym.	Kenney
	M	11	TT	Old Gym.	Kenney
	N	1	TT	Old Gym.	Kenney
	O	2	TT	Old Gym.	Kenney
	P	3	TT	Old Gym.	Law
P.E. 30. Fencing.—					
½	G	3	MW	Old Gym.	Craig
	H	4	MW	Old Gym.	Craig
	P	3	TT	Old Gym.	Craig
	Q	4	TT	Old Gym.	Craig
P.E. 31. Soccer.—					
½	C	10	MW	New Gym.	Kenney
	D	11	MW	New Gym.	Kenney
	H	4	MW	New Gym.	Paterson
	L	10	TT	New Gym.	Treece
	M	11	TT	New Gym.	Treece
	Q	4	TT	New Gym.	Paterson
P.E. 32. Golf.—					
½	B	9	MW	New Gym.	Brown
	C	10	MW	New Gym.	Brown
	D	11	MW	New Gym.	Brown
P.E. 33. Tennis.—					
½	D	11	MW	New Gym.	Gelwick
	E	1	MW	New Gym.	Gelwick
	M	11	TT	New Gym.	Gelwick
	N	1	TT	New Gym.	Gelwick
P.E. 34. Playground Ball and Volley Ball.—					
½	B	9	MW	Old Gym.	Paterson
	C	10	MW	Old Gym.	Paterson
	D	11	MW	Old Gym.	Paterson
	K	9	TT	Old Gym.	Craig
	L	10	TT	Old Gym.	Craig
	M	11	TT	Old Gym.	Craig
P.E. 35. Tap Dancing.—					
½	E	1	MW	New Gym.	Treece
	K	9	TT	New Gym.	Brown
	L	10	TT	New Gym.	Brown
	M	11	TT	New Gym.	Brown

P.E. 36. Clog Dancing.—

Credit	Section	Hours	Days	Room	Instructor
½	N	1	TT	New Gym.	Derr
	O	2	TT	New Gym.	Derr

P.E. 37. Individual Athletics.—

½	B	9	MW	Old Gym.	Treece
	K	9	TT	Old Gym.	Derr
	L	10	TT	Old Gym.	Derr
	M	11	TT	Old Gym.	Derr

P.E. 38. Circus Stunts.—

½	H	4	MW	Old Gym.	Jackson
	Q	4	TT	Old Gym.	Jackson

P.E. 39. Advanced Circus Stunts.—

½	H	4	MW	Old Gym.	Jackson
	Q	4	TT	Old Gym.	Jackson

P.E. 40. Games, Contests, and Relays.—

½	A	8	MW	Old Gym.	Treece
	E	1	MW	Old Gym.	Law
	K	9	TT	Old Gym.	Law
	N	1	TT	Old Gym.	Law

P.E. 41. Advanced Swimming.—

½	C	10	MW	New Pool	Treece
	D	11	MW	New Pool	Treece
	G	3	MW	New Pool	Paterson
	K	9	TT	New Pool	Paterson
	L	10	TT	New Pool	Paterson
	M	11	TT	New Pool	Paterson

P.E. 42. Life Saving and Diving.—

½	O	2	TT	New Pool	Paterson
	P	3	TT	New Pool	Paterson

P.E. 43. Special Activity.—Open only to students assigned by the Health Officer.

½	Hours to be arranged.	Stafford

P.E. 44. Handball.—

½	C	10	MW	New Gym.	Treece
	F	2	MW	New Gym.	Paterson
	P	3	TT	New Gym.	Treece

P.E. 45. Squash Rackets.—

½	K	9	TT	New Gym.	Treece

PROFESSIONAL COURSES FOR MEN

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

First Year

P.E. 1 (formerly 80). Basketball.—(First half of the semester).

2	A	1–3	MTWTF	New Gym.	Department staff
	B	1–3	MTWTF	New Gym.	

P.E. 2. Calisthenics, Dancing, Tumbling, and Marching.—

4		8–10	MTWTF	New Gym.	Price

P.E. 4. (formerly 30). Football.—(Second half of the semester).

2	A	1–3	MTWTF	Armory Field	Department staff
	B	1–3	MTWTF	Armory Field	

Second Year

P.E. 5. (formerly 31). Football.—(Second half of the semester). *Prerequisite:* P.E. 4.

2	A	8–10	MTWTF	Armory Field	Department staff
	B	8–10	MTWTF	Armory Field	

P.E. 6 (formerly 7). Boxing and Wrestling.—(First half of the semester). *Prerequisite:* Sophomore standing.

2	A	8–10	MTWTF	Wrestling Rm.	Kenney and assistants
	B	8–10	MTWTF	Wrestling Rm.	

P.E. 8 (formerly 58). Baseball.—*Prerequisite:* Sophomore standing.

4	A	1–3	MTWTF	207 New Gym.	Lundgren, Jordan

Third Year

P.E. 9 (formerly 70). Health Education and Corrective Gymnastics.—*Prerequisite:* Physiol. 3 and 3b.

4		9	MTWTF	209 New Gym.	Stafford

P.E. 12 (formerly 20). **Track and Field Athletics.**—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
4	A	1–3	MTWTF	Field and Armory	SEATON

P.E. 15 (formerly 5). **Recreational Activities.**—(First half of the semester). *Prerequisite:* Junior standing.

2		10–12	MTWTF	New Gym.	STALEY

P.E. 19 (formerly 81). **Basketball.**—(Second half of the semester). *Prerequisite:* P.E. 1 and junior standing.

2		10–12	MTWTF	207 New Gym.	RUBY

Fourth Year

P.E. 7 (formerly 6). **Training and First Aid.**—*Prerequisite:* Senior standing or consent of instructor.

2	A	9	TT	119-22 New Gym.	BULLOCK

P.E. 10 (formerly 4). **Apparatus Stunts and Double Tumbling.**—*Prerequisite:* P.E. 2 and senior standing.

4		1–3	MTWTF	Old Gym.	PRICE

P.E. 11 (formerly 63). **Swimming.**—*Prerequisite:* Senior standing or consent of instructor.

2		8	MTWTF	Pool, Old Gym.	MANLEY

P.E. 13 (formerly 8). **Organization and Administration.**—*Prerequisite:* Senior standing.

3		10	MWF	204 New Gym.	HUFF, OLANDER

P.E. 18a (formerly Ed. 7). **School Program of Physical Education.**—*Prerequisite:* Senior standing or consent of instructor.

3		1	MWF	209 New Gym.	STALEY

P.E. 18b (formerly Ed. 8). **History, Systems, and Theories of Physical Education.**—*Prerequisite:* Senior standing or consent of instructor.

2		1	TT	209 New Gym.	STALEY

P.E. 17 (formerly P.E. 32). **Football Theory.**—*Prerequisite:* P.E. 4 and 5.

2	Lect.	11	TT	209 New Gym.	ZUPPKE and Department staff
	Quiz A	3	TT	204 New Gym.	
	Quiz B	10	TT	204 New Gym.	

PHYSICAL EDUCATION FOR WOMEN

Freshmen and Sophomores: Of the four required semesters in physical education, the department requires: one semester of gymnastics (P.E. 72); one semester of swimming (P.E. 75, 76, 54); one semester of dancing (P.E. 77, 79, 51); and one semester of an elective. Proficiency examinations in semester courses may be taken at times specified by the department.

Major: See Curriculum in Physical Education for Women, in "Directions for Registration."

Courses for Undergraduates

P.E. 51. Elementary Rhythms.—

1	B	9	MWF	South Room, W.Gym.	JOHNSON
	D	11	MWF	South Room, W.Gym.	JOHNSON

P.E. 54. Diving and Advanced Swimming.—*Prerequisite:* P.E. 76 or equivalent.

1		11	TT	Pool, W.B.	SMITH

P.E. 56. Individual Gymnastics.—

1	B	9	MWF	Corr. Room, W.Gym.	SCHNAUBER
	C	10	MWF	Corr. Room, W.Gym.	SCHNAUBER
	D	11	MWF	Corr. Room, W.Gym.	SCHNAUBER
	S	2	MTT	Corr. Room, W.Gym.	SCHNAUBER

P.E. 57. Modified Sports and Dancing.†—

1		10	TT	North Room, W.Gym.	HUELSTER

P.E. 60. Handball and Tenikoit.†—

1		11	TT	South Room, W.Gym.	HUELSTER

P.E. 62. Rhythms.†—For juniors majoring in Physical Education. (1). 9 TT; North Room, W.Gym. Miss JOHNSON.

P.E. 66. Elective Athletic Activities.—(Participation in W.A.A. sports; registration on recommendation of department). (1). Two forty-five minute periods to be arranged.

P.E. 70b (formerly 40b). **Gymnastics, Rhythm, Track.**—For freshmen planning to major in physical education. (2). 3 TT, 9 MWF. Miss KITZINGER, Miss JOHNSON.

P.E. 71b (formerly 41b). **Gymnastics, Tap Dancing, Tennis.**—For sophomores majoring in physical education. (2). 2 MTWTF; W.Gym. Miss KITZINGER, Miss ROBERTSON, Miss HUELSTER.

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†This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

P.E. 72 (formerly 42). **Sports and Gymnastics.**—

Credit	Section	Hours	Days	Room	Instructor
1	C	10	MWF	North Room, W.Gym.	HUELSTER
	F	11	MWF	North Room, W.Gym.	ROBERTSON
	G	3	MWF	North Room, W.Gym.	ROBERTSON
	V	11	TT	North Room, W.Gym.	LAWSON

P.E. 73 (formerly 43). **Seasonal Sports.**—(For Bowling, Section C, there is a fee of $3.)

1					
Bowling and Tennis.....C		10	MWF	129 W.Gym.	ROBERTSON
Volleyball and Tennis....F		2	MWF	129 W.Gym.	ROBERTSON
Volleyball and Golf†.....G		3	MW	North Room, W.Gym.	LAWSON

P.E. 75 (formerly 45). **Elementary Swimming.**—

1	D	11	MWF	Pool, W.B.	SMITH
	F	2	MWF	Pool, W.B.	SMITH

P.E. 76 (formerly 46). **Intermediate Swimming.**—

1	[1]B	9	MWF	Pool, W.B.	SMITH
[1]Section B is sub-	C	10	MWF	Pool, W.B.	SMITH
intermediate.	G	3	MWF	Pool, W.B.	SMITH

P.E. 77 (formerly 47). **Elementary Clog and Tap Dancing.**—

1	S	11	TT	W.B.	KITZINGER
	F	2	MWF	W.B.	HUELSTER
	G	3	MWF	W.B.	HUELSTER

P.E. 78 (formerly 48). **Intermediate Clog and Tap Dancing.**—

1		2	TT	South Room, W.Gym.	KITZINGER

P.E. 79 (formerly 49). **Elementary Folk Dancing.**†—

1	S	9	TT	South Room, W.Gym.	ROBERTSON
	T	10	TT	South Room, W.Gym.	JOHNSON

Theory Courses

P.E. 80. **Community Recreation.**—For sophomores in the School of Physical Education. Elective for juniors and seniors. (2). 10 MW; South Room, W.Gym. Professor FREER.

P.E. 82. **Methods of Teaching Swimming.**—For sophomores in the School of Physical Education. (1). 3 TT; Pool, W.B. Miss Smith.

P.E. 90b. **Organization and Administration.**—*Prerequisite:* Senior standing in the School of Physical Education. (2). 11 TT; 128 W.Gym. Professor FREER.

P.E. 95b. **Methods.**—*Prerequisite:* P.E. 95a and junior standing in the School of Physical Education or consent of instructor. (4). 1 MTWTF; 129 W.Gym. Assistant Professor ROBERTSON, Miss KITZINGER, Miss SMITH.

P.E. 97b. **Educational Practice.**—*Prerequisite:* P.E. 95a, 96a, 97a, and senior standing in the School of Physical Education. (3). 1 MWF; 128 W.Gym. Assistant Professor LAWSON.

P.E. 98. **Theory of Individual and Remedial Gymnastics.**—*Prerequisite:* P.E. 96. (4). 8 MWF; 129 W.Gym. Miss SCHNAUBER.

P.E. 99. **Methods of Teaching Health.**—*Prerequisite:* Senior standing in the School of Physical Education. (3). 9 TT; 129 W.Gym. Assistant Professor LAWSON.

PHYSICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $4.50.

Major: 20 hours from courses offered in the department. At least 5 hours must be offered from the group of courses for advanced undergraduates and graduates.

Minors: 20 hours in one or two of the following subjects, with not less than 8 hours in each department if two subjects are chosen: mathematics (courses in calculus and beyond), astronomy, chemistry (except Chem. 1, 2, 3, 4, 5, 6 or 7), education or engineering.

For undergraduate students taking advanced work or a major in physics, the following courses are suggested:

Freshman year: Trigonometry and analytic geometry.

Sophomore year: Physics 1a-1b, 3a-3b, and calculus.

Junior year: Physics 14, 44, 60, 61, 62.

Senior year: Physics 23, 30, 71, 72, 78.

Physics 7a-7b and 8a-8b are recommended to students not specializing in physics, mathematics, chemistry, or engineering.

The general physics prerequisite for certain courses may be satisfied by either Physics 1a-1b and

†This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

3a-3b or by 7a-7b and 8a-8b. The calculus prerequisite may be satisfied either by Mathematics 7 and 9 or by Mathematics 8a-8b.

Introductory Courses for Undergraduates

Physics 1a. General Physics.—*Prerequisite:* Credit in Math. 2 and 4; registration in Physics 3a.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	11	W	119 P.L.	Schulz
	Quiz A	11	TTF	208, 406 P.L.	and others
	Quiz B	2	MWF	306 P.L.	

Physics 3a. General Physics Laboratory.—*Prerequisite:* Physics 1a or registration therein.

2	A	2–5	Tu	403, 406 P.L.	Schulz
	B	2–5	W	406 P.L.	and others

Physics 1b. General Physics.—*Prerequisite:* Math. 2, 4; Physics 1a; registration in Physics 3b.

3	Lect. A	11	M	100 P.L.	Kruger, Almy,
	Lect. B	2	M	100 P.L.	and others
	Quiz A	8	MWF	305, 306, 403, 406 P.L.	
	Quiz B	9	MWF	305, 406 P.L.	
	Quiz D	11	MWF	302, 305 P.L.	
	Quiz E	1	MWF	305, 406 P.L.	
	Quiz G	8	TTS	305 P.L.	
	Quiz J	11	TTS	305 P.L.	

Physics 3b. General Physics Laboratory.—*Prerequisite:* Physics 1b or registration therein.

2	B	2–5	M	302 P.L.	Kruger
	C	9–12	Tu	302, 305 P.L.	and others
	D	2–5	Tu	306, 305 P.L.	
	F	2–5	W	302, 305 P.L.	
	G	9–12	Th	302, 305 P.L.	
	H	1–4	Th	302, 305 P.L.	
	J	2–5	F	302, 305 P.L.	
	K	9–12	S	302, 305 P.L.	

Physics 7b. General Physics.—*Prerequisite:* Math. 4; Physics 7a, and registration in Physics 8b.

3	Lect. A	9	TT	100 P.L.	Watson
	Lect. B	11	TT	100 P.L.	and others
	Quiz A	8	WF	204, 208 P.L.	
	Quiz B	9	WF	204, 208, 302 P.L.	
	Quiz C	10	WF	208, 302 P.L.	
	Quiz D	11	WF	104, 306 P.L.	

Physics 8b. General Physics Laboratory.—*Prerequisite:* Physics 7b or registration therein.

2	A	9–12	M	208 P.L.	Sanders
	B	1–4	M	208, 302 P.L.	and others
	C	8–11	Tu	208 P.L.	
	D	2–5	Tu	208 P.L.	
	F	1–4	W	208, 302 P.L.	
	J	1–4	F	208, 302 P.L.	
	K	9–12	S	208 P.L.	

Intermediate Courses

Physics 25. Architectural Acoustics.—*Prerequisite:* General Physics.

2	9	MW	100 P.L.	Watson

Courses for Advanced Undergraduates and Graduates

Physics 14b. Theoretical Mechanics.—*Prerequisite:* Physics 14a.

3	8	TTS	306 P.L.	Mott-Smith

Physics 44b. Electric and Magnetic Measurements.—*Prerequisite:* Physics 44a.

3	A	8–11	MF	104, 108 P.L.	Knipp, Williams,
	B	1–4	MF	104, 108 P.L.	and others
	C	8–11	TT	104, 108 P.L.	
	D	1–4	TT	104, 108 P.L.	

Physics 51. Practical Optics.—*Prerequisite:* Physics 17 or 71a.

3	Lect.	9	MW	306 P.L.	Schulz
	Lab.	1–4	Th	313 P.L.	

Physics 62. Kinetic Theory of Heat and Radiation.—*Prerequisite:* Physics 60.

3	10	TTS	204 P.L.	Sanders

Physics 71b. Light.—*Prerequisite:* Physics 71a.

2	11	TT	204 P.L.	Almy

Physics 72b. Light Laboratory.—*Prerequisite:* Registration in Physics 71b.

Credit	Section	Hours	Days	Room	Instructor
2		2–5	MW	313 P.L.	Almy

Physics 98. Thesis.—(2 to 5).* Professors in the department.

Courses for Graduates

Physics 123. Dynamical Theory of Sound.—(1 unit). 10 MWF; 204 P.L. Professor Watson.

Physics 124. Conduction of Electricity Through Gases.—(1 unit). 9 TTS; 119 P.L. Professor Knipp.

Physics 131b. Physical Laboratory Technique.—(½ to 2 units).* Arrange. Assistant Professor Kruger.

Physics 146b. Electrodynamics.—(1 unit). 8 MWFS; 302 P.L. Professor Kunz.

Physics 163. Statistical Mechanics.—(1 unit). 10 TTS; 302 P.L. Dr. Mott-Smith.

Physics 170b. Light.—(1 to 2 units).* 11 TT, 208 P.L.; 2-5 MW, 313 P.L. Dr. Almy.

Physics 185. Band Spectra and Molecular Structure.—(1 unit). 10 MWF; 202 P.L. Professor Loomis.

Physics 186b. Quantum Mechanics.—(1 unit). 9 TTS; 306 P.L. Assistant Professor Bartlett.

Physics 190. Research.—(1 to 3 units).* Arrange. Professors in the department.

Physics 198. Seminar.—(1 to 2 units).* Arrange. Professors in the department.

Physics 199. Physics Colloquium.—(No credit). 4:45 Th; 119 P.L. Professor Loomis.

PHYSIOLOGY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $5.00.

Major: 20 hours from courses offered in the department, exclusive of Physiol. 1.

Minors: 20 hours in not more than two of the following: botany, bacteriology, chemistry, entomology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in Physiol. 3b and 4a.

Courses for Undergraduates

Physiol. 3b. Physiological Anatomy.—(For Physical Education students). *Prerequisite:* Physiol. 3a.

5[1]	Lect.	11	MW	217 Chem.	Elhardt
[1]Seniors will receive only 4 hours credit.	Lab. A	3–5	MW	405 N.H.	Orth
	Lab. B	8–10	TT	408 N.H.	
[2]For women students only.	[2]Lab. C	10–12	TT	405 N.H.	
	Lab. D	1–3	TT	408 N.H.	
	Quiz E	9	F	408 N.H.	
	Quiz F	10	F	408 N.H.	
	[2]Quiz G	11	F	408 N.H.	
	Quiz H	2	F	408 N.H.	

Physiol. 4a. Mammalian Physiology.—(Not open to students who have had Physiol. 1).

3[1]	[2]Lect. A	10	TT	228 N.H.	Burge
[1]Seniors will receive only 2 hours credit.	Quiz A1	9	M	425 N.H.	Neild
	Quiz A2	2	M	425 N.H.	
[2]Students in Lect. A must elect an A quiz.	Quiz A3	8	Tu	425 N.H.	
	Quiz A4	1	W	425 N.H.	
	Quiz A5	11	Th	425 N.H.	
	Quiz A6	10	S	425 N.H.	
[3]Students in Lect. B must elect a B quiz.	[3]Lect. B	11	MW	228 N.H.	Steggerda
	Quiz B1	10	M	425 N.H.	
	Quiz B2	1	Tu	425 N.H.	Kneer
	Quiz B3	9	F	425 N.H.	Neild
	Quiz B4	11	F	425 N.H.	Neild
	Quiz B5	2	F	425 N.H.	Steggerda
	Quiz B6	8	S	425 N.H.	Steggerda

Physiol. 4b. Mammalian Physiology Laboratory.—*Prerequisite:* Physiol. 1 or 4a, or registration therein.

2	Lab. A	8–10	MW	413 N.H.
[2]Open to general students only after Home Economics registration is completed.	[2]Lab. B	1–3	MW	413 N.H.
	Lab. C	3–5	MW	413 N.H.
	[2]Lab. D	8–10	TT	413 N.H.
	[2]Lab. E	3–5	TT	413 N.H.
	Lab. F	10–12	FS	413 N.H.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Physiol. 6. Advanced Physiology.—(Recommended for the general student). *Prerequisite:* Physiol. 1 or 4.

Credit	Section	Hours	Days	Room	Instructor
5	Lecture	10	TT	423 N.H.	WICKWIRE
	Quiz A	3	Tu	425 N.H.	
	Quiz B	10	F	423 N.H.	
	Lab. A	10–12	MW	415 N.H.	
	Lab. B	1–3	TT	415 N.H.	
	Lab. C	8–10	WF	415 N.H.	
	Lab. D	3–5	WF	415 N.H.	

Courses for Advanced Undergraduates and Graduates

Physiol. 8. Thesis.—*Prerequisite:* Senior standing and 13 hours of physiology. (3 to 5).* Time to be arranged before registration.

Physiol. 9. Physiology of the Special Senses.—*Prerequisite:* Senior standing; Physiol. 1 and 6. (3). Lect., 9 Tu; Quiz, 9 Th; Lab., arrange. Mr. WICKWIRE.

Courses for Graduates

Physiol. 101. Journal Club.—Review of literature. (¼ unit). Arrange. Members of the staff.

Physiol. 102. Research.—(1 to 2 units).* Arrange. Associate Professor BURGE.

Physiol. 103. Experimental Physiology.—(½ to 1 unit).* Arrange. Associate Professor BURGE.

POLITICAL SCIENCE

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 44 or 62).

Minors: 20 hours selected from one or two of the following subjects: history, economics, law, sociology, philosophy, and education. At least eight hours must be offered in each subject, if two are chosen.

Note: Courses 1 and 3 give a general survey of national, state, and local government in the United States. Undergraduates beginning the study of political science are advised to take first, course 1, 3, or 16, and those planning for advanced work should take course 1 and either 3 or 16 in their sophomore year. Course 1 is offered the first semester.

Courses for Undergraduates

Pol. Sci. 3. State and Local Government.—(Continuation of Pol. Sci. 1 but may be taken independently). *Prerequisite:* Sophomore standing.

3[1]	A1	8	MWF	300 L.H.	LENOIR
[1]The total credit for students who take both Pol. Sci. 3 and 16 will not be more than 4 hours.	A2	8	MWF	204 L.H.	HILL
	B1	9	MWF	300 L.H.	BERDAHL
	B2	9	MWF	204 L.H.	LENOIR
	B3	9	MWF	340 L.H.	MATHEWS
	C1	10	MWF	300 L.H.	
	C2	10	MWF	204 L.H.	HILL
	D1	11	MWF	340 L.H.	HYNEMAN
	D2	11	MWF	302 L.H.	POWELL
	E1	1	MWF	340 L.H.	
	E2	1	MWF	204 L.H.	POWELL
	F	2	MWF	204 L.H.	SIKES
	G	3	MWF	304 L.H.	SIKES
	K	9	TTS	204 L.H.	LENOIR

Pol. Sci. 16. Government of Illinois.—Intended for students who do not take Pol. Sci. 3. (Students taking Pol. Sci. 3 will receive only one hour credit for Pol. Sci. 16). *Prerequisite:* Sophomore standing. (2). 11 TT; 202 L.H. Professor MATHEWS.

Courses for Advanced Undergraduates and Graduates

Note: Junior standing is required for admission to the following courses.

Pol. Sci. 6b. International Law.—(Continuation of 6a). *Prerequisite:* Open to seniors, graduate students, and law students of junior standing. (3). 10 MWF; 202 L.H. Professor GARNER.

Pol. Sci. 7. American Foreign Relations.—*Prerequisite:* Junior standing with six hours of political science. (3). 3 MWF; 202 L.H. Professor MATHEWS.

Pol. Sci. 9. Principles of Jurisprudence.—*Prerequisite:* Pol. Sci. 1, or its equivalent; junior standing. (3). 9 MWF; 240 L.H. Professor FAIRLIE.

Pol. Sci. 11. Constitutional Aspects of Social and Industrial Problems.—Senior standing, or junior standing with five hours of political science or of economics or of both.

3	A	10	MWF	304 L.H.	HYNEMAN
	B	1	MWF	304 L.H.	HYNEMAN

Pol. Sci. 14b. Political Parties: Party Organization and Methods.—*Prerequisite:* Junior standing. (3). 11 MWF; 311 L.H. Professor BERDAHL.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Pol. Sci. 22. Continental European Governments.—*Prerequisite:* Graduate or senior standing, or junior standing with six hours of political science; History 20a-20b recommended. (3). 11 MWF; 308 L.H. Professor GARNER.

Pol. Sci. 32. Principles of Political Science.—*Prerequisite:* Six hours of political science. (2). 2 TT; 304 L.H. Professor FAIRLIE.

Pol. Sci. 34. Municipal Problems.—*Prerequisite:* Open to graduate students and to undergraduate students who have had Pol. Sci. 4 or Econ. 1, or who have senior standing.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	9	TT	L.H. Theatre	KNEIER
	A Quiz	11	Th	308 L.H.	KNEIER
	B Quiz	2	Th	306 L.H.	KNEIER
	C Quiz	3	Th	304 L.H.	KNEIER
	D Quiz	9	F	227 L.H.	KNEIER
	E Quiz	10	F	227 L.H.	KNEIER
	F Quiz	11	F	204 L.H.	KNEIER
	G Quiz	1	F	202 L.H.	KNEIER
	H Quiz	2	F	202 L.H.	KNEIER

Pol. Sci. 36b. Thesis and Honors Course.—*Prerequisite:* Senior standing. (2 to 4).* Arrange. Members of the department.

Courses for Graduates

Pol. Sci. 102. The Nature of the State.—(1 unit). Twice a week. Arrange. Professor FAIRLIE.

Pol. Sci. 103. Seminar in Political Science and Public Law.—(1 to 4 units).* Once a week. Arrange. Members of the department.

Pol. Sci. 104. Municipal Administration.—(1 unit). Twice a week. Arrange. Professor FAIRLIE.

Pol. Sci. 114. Political Parties.—(1 unit). Twice a week. Arrange. Professor BERDAHL.

PSYCHOLOGY

Major: 20 hours chosen from courses announced by the department, excepting Psych. 1. At least 8 hours must be offered in the advanced group.

Minors: 20 hours chosen from not more than two of the following subjects: education, mathematics, philosophy, sociology, physiology, and zoology. At least 8 hours must be offered in each, if two are chosen.

Courses for Undergraduates

Psych. 1. Introduction to Psychology.—*Prerequisite:* One year of university work.

4	Lect. A	11	MW	218 U.H.	CULLER
	Quiz A1	8	TT	403 U.H.	
	Quiz A2	9	TT	403 U.H.	
	Quiz A3	9	TT	404 U.H.	
	Quiz A4	10	TT	403 U.H.	
	Quiz A5	11	TT	403 U.H.	
	Quiz A6	11	TT	404 U.H.	
	Quiz A7	2	TT	403 U.H.	
	Quiz A8	3	TT	403 U.H.	
	Lect. B	9	TT	218 U.H.	YOUNG
	Quiz B1	8	MW	403 U.H.	
	Quiz B2	9	MW	213 U.H.	
	Quiz B3	9	MW	403 U.H.	
	Quiz B4	10	MW	404 U.H.	
	Quiz B5	11	MW	403 U.H.	
	Quiz B6	11	MW	404 U.H.	
	Quiz B7	2	MW	403 U.H.	
	Quiz B8	3	MW	407 U.H.	

Psych. 2. General Psychology (Survey of the Fields of Psychology).—*Prerequisite:* Psych. 1 or junior standing.

4	Lect.	9	MW	218 U.H.	HIGGINSON
	Quiz A	8	TT	404 U.H.	
	Quiz B	9	TT	406 U.H.	
	Quiz C	10	TT	406 U.H.	
	Quiz D	11	TT	406 U.H.	
	Quiz E	2	TT	404 U.H.	
	Quiz F	3	TT	404 U.H.	

Psych. 3. Laboratory Practice (Elementary).—*Prerequisite:* Psych. 1. Laboratory fee, $1.

2	Lab. A	10–12	MW	417, 418 U.H.	HIGGINSON
	Lab. B	2–4	MW	417, 418 U.H.	STOTT
	Lab. C	10–12	TT	417, 418 U.H.	
	Lab. D	2–4	TT	417, 418 U.H.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Psych. 10. Mental and Physical Work (Industrial Psychology).—*Prerequisite:* Psych. 1 and junior standing. (2). 11 TT; 412 U.H. Dr. RUCH.

Psych. 13. Minor Problems (Advanced Laboratory).—*Prerequisite:* Psych. 3, senior standing and consent of instructor. (3). Arrange; P.P.L. Associate Professor CULLER.

Psych. 14. Social Psychology.—*Prerequisite:* Psych. 1 and junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	9	MW	315 U.H.	MCALLISTER
	Quiz A	9	F	315 U.H.	
	Quiz B	9	F	208 U.H.	
	Quiz C	10	F	214 U.H.	

Psych. 17. History of Psychology.—*Prerequisite:* Sixteen hours of psychology. (2). 4-6 W; 207 U.H. Associate Professor YOUNG.

Psych. 18. Perception.—*Prerequisite:* Six hours of psychology. (2). 10 TT; 412 U.H. Associate Professor CULLER.

Psych. 20. Systematic Psychology.—*Prerequisite:* Six hours of psychology and senior standing. (2). 9 TT; 412 U.H. Professor WOODROW.

Psych. 23. Abnormal Psychology.—*Prerequisite:* Six hours of psychology.

3	Lect.	11	MW	410 U.H.	SEARS
	Quiz A	11	F	410 U.H.	
	Quiz B	11	F	404 U.H.	
	Quiz C	10	F	410 U.H.	

Psych. 26. Recent Experimental Problems (Psychology of Thinking).—*Prerequisite:* Six hours of psychology. (2). 2 TT; 406 U.H. Dr. MCALLISTER.

Psych. 27b. Thesis and Honors Course.—(Primarily designed for major students and for candidates for honors). *Prerequisite:* Twelve hours of psychology; consent of the instructor. (2). Arrange; 402 U.H. Professor WOODROW.

Courses for Graduates

Psych. 103. Research.—(½ to 2 units).* Arrange. Professor WOODROW, Associate Professors CULLER and YOUNG.

Psych. 105. Seminar.—(1 unit). Once a week. Arrange; 419 U.H. Professor WOODROW.

PUBLIC UTILITIES AND TRANSPORTATION

(See also Business Organization and Operation, Economics, and Railway Engineering)

A. PUBLIC UTILITIES

Courses for Advanced Undergraduates and Graduates

Pub. Util. 83. Public Utility Rates.—Same as Economics 83. *Prerequisite:* Public Utilities 81. (3). 9 MWF; 222 Com. Assistant Professor GRAY.

Pub. Util. 89. Social Aspects of Public Utilities Service.—Same as Economics 89. *Prerequisite:* Econ. 1 or 2; junior standing; consent of instructor. (2). 11 TT; 212 Com. Dean THOMPSON.

Course for Graduates

Pub. Util. 180. Management of Public Utilities.—Same as Economics 180. (1 unit). 4-6 W; 212 Com. Assistant Professor GRAY.

B. TRANSPORTATION

Course for Undergraduates

Trans. 1. Economics of Transportation.—*Prerequisite:* Econ. 1, junior standing.

2	A Quiz	8	MWF	106 Com.	LOCKLIN
	C Quiz	10	MWF	326 Com.	FITZGERALD
	D Quiz	11	MWF	326 Com.	FITZGERALD

Courses for Advanced Undergraduates and Graduates

Trans. 3. Industrial Traffic Management.—*Prerequisite:* Trans. 1. (3). 9 TTS; 100 Com. Assistant Professor LOCKLIN.

Trans. 26. Current Transportation Problems.—*Prerequisite:* Trans. 1. (3). 10 TTS; 100 Com. Assistant Professor LOCKLIN.

Course for Graduates

Trans. 100. Economics of Transportation.—(1 unit). Arrange. Assistant Professor LOCKLIN.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

RAILWAY ENGINEERING

Courses for Undergraduates

R.E. 4. Locomotives.—*Prerequisite:* R.E. 3; T.A.M. 2 and 3; registration in M.E. 64. (3). Sec. W, 11 MWF; 104 T.B. Mr. SCHRADER.

R.E. 7. Locomotive and Car Design.—*Prerequisite:* R.E. 2. (3). Sec. W, 1-4 MWF; 104 T.B. Mr. SCHRADER.

R.E. 8. Railway Laboratory.—*Prerequisite:* R.E. 5. (2). Sec. W, 8-11 TT; 104 T.B. Mr. SCHRADER.

R.E. 33. Economic Theory of Railway Location.—*Prerequisite:* C.E. 3; T.A.M. 2. (4). Sec. U, 9 MWF, 1-4 Tu; 117 T.B. Professor KING.

R.E. 33a. Economic Theory of Railway Location.—*Prerequisite:* C.E. 3; T.A.M. 2. (3). Sec. U, 9 MWF; 117 T.B. Professor KING. (An abridgment of course 33, for students in departments other than railway engineering.)

R.E. 36. Railway Maintenance.—*Prerequisite:* Registration in C.E. 3. (3). Sec. U, 11 MW, 9-12 S; 117 T.B. Professor KING.

R.E. 37. Railway Design Problems.—*Prerequisite:* Registration in C.E. 65. (2). Sec. U, 9 TT; 117 T.B. Professor KING.

R.E. 51. Seminar.—Open to railway students only. (1). Sec. U, 11 F; 117 T.B. Professor KING.

R.E. 60. Electric Railway Principles.—*Prerequisite:* R.E. 59; T.A.M. 3; E.E. 25, 75. (2). Sec. V, 11 TT; 105 T.B. Associate Professor TUTHILL.

R.E. 61. Electric Traction.—*Prerequisite:* T.A.M. 2 or 3; E.E. 11, 61 or 25, 75. (3). Sec. V, 10 MWF; 105 T.B. Associate Professor TUTHILL.

R.E. 67. Seminar.—Open to seniors in railway courses only. (1). Sec. V, 11 Th; 117 T.B. Professor SCHMIDT.

R.E. 70. Electric Railway Design.—*Prerequisite:* R.E. 64; registration in R.E. 74. (2). Sec. V, 1-4 MW; 117 T.B. Associate Professor TUTHILL.

R.E. 74. Electric Railway Economics.—*Prerequisite:* R.E. 64. (3). Sec. V, 11 MWF; 105 T.B. Associate Professor TUTHILL.

R.E. 98. Thesis.—(3). Arrange.

Courses for Graduates

R.E. 102. Locomotive Design.—(1 unit). Arrange. Professor YOUNG.

R.E. 106. Locomotive Operation.—(1 unit). Arrange. Professor SCHMIDT.

R.E. 110. Railway Location.—(1 unit). Arrange. Professor KING.

ROMANCE LANGUAGES AND LITERATURE

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, and 6b, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: Education, English (excluding Rhet. 1 and 2), German, Greek, History, Italian, Latin, Philosophy, Spanish, provided that at least 8 hours be taken in any subject chosen.

Note: Seniors receive reduced credit in elementary courses in Romance Languages.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, and 2a, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: Education, English (excluding Rhet. 1 and 2), French, German, Greek, History, Italian, Latin, Philosophy, provided that at least 8 hours be taken in any subject chosen.

Note: Seniors receive reduced credit in elementary courses in Romance Languages.

A. FRENCH

Courses for Undergraduates

French 1a. Elementary Course.—For students who have no credit in French.

Credit	Section	Hours	Days	Room	Instructor
4[1]	B	9	TWTF	311 L.H.	RALPH
[1]Seniors will receive	C	10	TWTF	240 L.H.	OLIVER, R. P.
only 3 hours credit.	D	11	TWTF	116 New Agr.	BUSSARD
	F	2	MTWT	139 L.H.	AMIEL

French 1b. Elementary Course (continued).—*Prerequisite:* French 1a, or one year of high school French.

Credit	Section	Hours	Days	Room	Instructor
4[1]	A1	8	TWTF	211 U.H.	Alexander
[1]Seniors will receive only 3 hours credit.	A2	8	TWTF	214 U.H.	Bussard
	A3	8	TWTF	148 L.H.	Ralph
	B1	9	TWTF	312 U.H.	Herdman
	B2	9	TWTF	122 New Agr.	Carter
	B3	9	TWTF	123 New Agr.	Rew
	C1	10	TWTF	122 New Agr.	Rowe
	C2	10	TWTF	238 L.H.	Brown
	D	11	TWTF	122 New Agr.	Rowe
	E1	1	MTWT	212 U.H.	Alexander
	E2	1	MTWT	148 L.H.	Legrand
	F1	2	MTWT	212 U.H.	Alexander
	G	3	MTWT	214 U.H.	Allen

French 2a. Modern French.—*Prerequisite:* French 1b, or two years of high school French.

4	A	8	TWTF	235 L.H.	Goggin
	B	9	TWTF	203a L.H.	Goggin
	C	10	TWTF	123 New Agr.	Carter
	F	2	MTWT	214 U.H.	Pietrangeli

French 2b. Modern French.—*Prerequisite:* French 2a, or three years of high school French.

4	[1]A1	8	TWTF	120 L.H.	Hilton
[1]Sections A1, B1, C1, D1 and E are primarily for students who expect to go beyond French 2b. More attention is paid to the speaking and hearing of French.	A2	8	TWTF	312 U.H.	Herdman
	[1]B1	9	TWTF	224 L.H.	Bussard
	B2	9	TWTF	214 U.H.	Dismukes
	[1]C1	10	TWTF	113 L.H.	Bussard
	C2	10	TWTF	116 New Agr.	Rew
	[1]D1	11	TWTF	232 L.H.	Roche
	D2	11	TWTF	227 L.H.	Amiel
	[1]E	1	MTWT	207 U.H.	Pietrangeli
	F	2	MTWT	312 U.H.	Allen
	G	3	MTWT	139 L.H.	Ramsey

French 3b. Introduction to French Literature.—*Prerequisite:* French 2b, or four years of high school French.

3	A	8	MWF	211 L.H.	Will
	B1	9	MWF	303a L.H.	Jacob
	B2	9	MWF	206 L.H.	Will
	C	10	MWF	224 L.H.	Oliver, T.E.
	E (In French)	1	MWF	128 L.H.	Roche
	F	2	MWF	303a L.H.	Jacob

French 6b. Second-Year Composition and Conversation.—*Prerequisite:* French 6a or 2a or three years of high school French.

2	K	9	TT	232 L.H.	Hilton
	N	1	TT	104 L.H.	Hilton

French 7b. Intermediate Composition and Conversation.—*Prerequisite:* French 7a. (*Note:* Prospective teachers of French are strongly advised to take French 7a and 7b.)

2	J	8	TT	104 L.H.	Legrand
	K	9	TT	300 L.H.	Amiel
	L	10	TT	211 L.H.	Roche
	M	11	TT	113 L.H.	Legrand
	N	1	TT	105 L.H.	Amiel

French 8b. Advanced Composition and Conversation.—*Prerequisite:* French 8a.

2	L	10	TT	204a L.H.	Amiel
	O	2	TT	105 L.H.	Roche

French 28b. Senior Thesis.—For candidates for honors in French. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in French have the following prerequisites: French 3b or the equivalent, and junior standing; or senior standing and consent of instructor.

French 10b. Survey of French Literature.—

3		9	MWF	232 L.H.	Carnahan

French 17b. French Drama of the Nineteenth Century.—

2	K	9	TT	206 L.H.	Hamilton
	L	10	TT	224 L.H.	Will

French 24b. French Drama of the Seventeenth and Eighteenth Centuries.—

3		11	MWF	306 L.H.	Oliver, T. E.

French 32b. French Novel of the Nineteenth Century.—

3		8	MWF	128 L.H.	Jacob

French 34b. La Comédie Humaine de Balzac.—(In French).

2		11	TT	109 L.H.	Michaud

Courses for Graduates

French 101. Old French Literature.—(1 unit). 11 TT; 206 L.H. Professor OLIVER.

French 102. Villon, Rabelais, Montaigne, La Pléiade.—(1 unit). 4 TT; 425a Lib. Assistant Professor WILL.

French 103. Seventeenth Century Literature.—(1 unit). 9 TT; 204a L.H. Professor OLIVER.

French 128. Origin and Development of the Novel in France.—(1 unit). 3 TT; 425a Lib. Professor CARNAHAN.

French 133. La Poésie de Victor Hugo.—(1 unit). 3 MW; 224 L.H. Professor MICHAUD.

French 145. Doctrines Littéraires et Courants d'Idées Contemporains.—(In French.) (1 unit). 3-5 F; 120 L.H.

French 195. Seminar.—Research work in preparation for theses in French. (1 to 2 units).*

B. ITALIAN

Courses for Undergraduates

Italian 1b. Elementary Course (continued).—*Prerequisite:* Italian 1a.

Credit	Section	Hours	Days	Room	Instructor
4[1]	C	10	TWTF	312 U.H.	PIETRANGELI
[1]Seniors will receive only 3 hours credit.	F	2	MTWT	206 L.H.	VAN HORNE and DISMUKES

Italian 2b. Intermediate Italian.—*Prerequisite:* Italian 2a.

3		11	MWF	312 U.H.	PIETRANGELI

Courses for Advanced Undergraduates and Graduates

Italian 3b. Dante: The Divine Comedy.—*Prerequisite:* Italian 3a; junior standing.

2		3	TT	214 L.H.	VAN HORNE

Courses for Graduates

Italian 146. Modern Italian Literature.—(1 unit). 1 TT; 214 L.H. Professor VAN HORNE.

Italian 195. Seminar.—Research work in preparation for theses in Italian. (1 to 2 units).* Professor VAN HORNE.

C. SPANISH

Courses for Undergraduates

Spanish 1a. Elementary Course.—For students who have no credit in Spanish.

4[1]	A	8	TWTF	116 New Agr.	UTLEY
[1]Seniors will receive only 3 hours credit.	B	9	TWTF	116 New Agr.	KIDDER
	C	10	TWTF	139 L.H.	LODGE
	D	11	TWTF	211 U.H.	BARNETT
	F	2	MTWT	211 U.H.	AVILÉS

Spanish 1b. Elementary Course (continued).—*Prerequisite:* Spanish 1a or one year of high school Spanish.

4[1]	A1	8	TWTF	318 U.H.	AVILÉS
[1]Seniors will receive only 3 hours credit.	A2	8	TWTF	133 L.H.	YOUNG
	B1	9	TWTF	148 L.H.	LODGE
	B2	9	TWTF	407 U.H.	ADAM
	C	10	TWTF	105 L.H.	KIDDER
	D1	11	TWTF	214 U.H.	HILTON
	D2	11	TWTF	302 U.H.	AVILÉS
	E	1	MTWT	139 L.H.	UTLEY
	F	2	MTWT	227 L.H.	DALLERA
	G	3	MTWT	148 L.H.	DALLERA

Spanish 2a. Modern Spanish.—*Prerequisite:* Spanish 1b or two years of high school Spanish.

4	A	8	TWTF	139 L.H.	BURNER
	B	9	TWTF	321 L.H.	YOUNG
	C	10	TWTF	148 L.H.	YOUNG

Spanish 2b. Modern Spanish.—*Prerequisite:* Spanish 2a or three years of high school Spanish.

4	A	8	TWTF	240 L.H.	ADAM
	B	9	TWTF	139 L.H.	UTLEY
	C	10	TWTF	203a L.H.	BURNER
	D	11	TWTF	303a L.H.	HAMILTON
	E	1	MTWT	227 L.H.	YOUNG
	F	2	MTWT	233 L.H.	ADAM

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Spanish 3b. Introduction to Spanish Literature.—*Prerequisite:* Spanish 2b, or four years of high school Spanish.

Credit	Section	Hours	Days	Room	Instructor
3	B	9	MWF	235 L.H.	Burner
	D	11	MWF	133 L.H.	Adam
	E	1	MWF	240 L.H.	Ramsey

Spanish 5b. Commercial Spanish.—*Prerequisite:* Spanish 5a.

2	K	9	TT	133 L.H.	Avilés
	N	1	TT	128 L.H.	Avilés

Spanish 7b. Intermediate Composition and Conversation.—*Prerequisite:* Spanish 7a. (*Note:* Prospective teachers of Spanish are strongly advised to take Spanish 7a and 7b.)

2	A	8	WF	227 L.H.	Ellies
	M	11	TT	120 L.H.	Ellies

Spanish 8b. Advanced Composition and Conversation.—*Prerequisite:* Spanish 8a.

2		8	TT	123 L.H.	Ellies

Spanish 25. Methods of Teaching Spanish.—Discussion and laboratory work in phonetics. *Prerequisite:* 20 hours in Spanish, or 16 hours in Spanish plus 20 in French. Not open to students other than seniors except by permission of the instructor. *Note:* Spanish 25 will be given only in second semester in 1934-35; French 25 only in the first semester. Laboratory fee, 50 cents.

3		2	MWF	310 U.H.	Gullette

Spanish 28b. Senior Thesis.—For candidates for honors in Spanish. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in Spanish have the following prerequisites: Spanish 3b or the equivalent, and junior standing; or senior standing and consent of instructor.

Spanish 10b. Survey of Spanish Literature.—

3		11	MWF	205 L.H.	Burner

Spanish 11b. Cervantes: Don Quijote.—

2		11	TT	205 L.H.	Van Horne

Spanish 17b. Modern Spanish Drama.—

2		10	TT	303a L.H.	Hamilton

Courses for Graduates

Spanish 131. Spanish Literature in the Seventeenth Century.—(1 unit). 5 MW; 425a Lib. Professor Van Horne.

Spanish 135. Modern Spanish Novel.—(1 unit). 1-3 W; 216 L.H. Associate Professor Hamilton.

Spanish 185. Old Spanish Readings.—(1 unit). 9-11 M; 216 L.H. Associate Professor Hamilton.

Spanish 195. Seminar.—Research work in preparation for theses in Spanish. (1 to 2 units).* Members of the department.

SOCIOLOGY

Major: 20 hours from any courses in the department.

Minors: 20 hours from one or two of the following subjects: history, philosophy, psychology, economics, political science. At least 8 hours must be offered in either minor subject, if two are chosen.

Courses for Undergraduates

Sociol. 1. Principles of Sociology.—*Prerequisite:* Junior standing, or sophomore standing with a course in either economics or psychology or history.

3	A	8	MWF	304 L.H.	Hiller
	B	9	MWF	326 L.H.	Tylor
	C	9	MWF	306 L.H.	Houghton
	D	10	MWF	326 L.H.	Timmons
	E	10	MWF	334 L.H.	Houghton
	F	11	MWF	240 L.H.	Hiller
	G	1	MWF	334 L.H.	Tylor
	H	2	MWF	306 L.H.	Houghton
	J	3	MWF	326 L.H.	Albig

Sociol. 2. Social Factors in Personality.—*Prerequisite:* Sociol. 1.

3	A	8	MWF	202 L.H.	Ahrens
	B	9	MWF	202 L.H.	Ahrens

Sociol. 90b. Honors Course.—For majors in sociology and other seniors. Consent of instructor required. (2). Arrange. Members of the department.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Sociol. 3. Social Evolution.—*Prerequisite:* Sociol. 1 and junior standing. (3). 11 MWF; 202 L.H. Mr. Ahrens.

Sociol. 4. Social Control.—*Prerequisite:* Sociol. 1 and junior standing.

Credit	Section	Hours	Days	Room	Instructor
2	A	10	TT	326 L.H.	Albig
	B	11	TT	326 L.H.	Albig

Sociol. 7. Rural Sociology.—*Prerequisite:* Sociol. 1 and junior standing. (3). 10 MWF; 302 L.H. Assistant Professor Tylor.

Sociol. 8. Charities.—*Prerequisite:* Sociol. 1 and one semester either of economics or of history.

3	A	8	MWF	306 L.H.	Timmons
	B	2	MWF	334 L.H.	Timmons

Sociol. 9. Criminology.—*Prerequisite:* Sociol. 1 and senior standing. (Open to pre-legal juniors without Sociol. 1.)

3	A	9	MWF	203 L.H.	Taft
	B	3	MWF	334 L.H.	Taft

Sociol. 14. Group Opinion.—*Prerequisite:* Sociol. 1 and senior standing. (3). 1 MWF; 326 L.H. Assistant Professor Albig.

Sociol. 24. Penology.—*Prerequisite:* Sociol. 9. (3). 2 MWF; 105 L.H. Professor Taft.

Sociol. 27. Community Welfare Organization.—*Prerequisite:* Fourteen credit hours in the department of sociology. (3). 11 MWF; 326 L.H. Assistant Professor Timmons.

Sociol. 28. Immigration and Assimilation.—*Prerequisite:* Five hours of sociology. (3). 10 MWF; 303a L.H. Associate Professor Hiller.

Courses for Graduates

Sociol. 102b. Recent Developments in Sociology.—(1 unit). Twice a week. Arrange. 201 L.H. Associate Professor Hiller.

Sociol. 124. Advanced Penology.—(1 unit). Twice a week. Arrange. 201 L.H. Professor Taft.

Sociol. 150. Seminar.—Preparation of theses. (½ to 2 units).* Arrange. Members of the department.

THEORETICAL AND APPLIED MECHANICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $2.50.

Courses for Undergraduates

T.A.M. 1. Analytical Mechanics (Statics).—*Prerequisite:* Math. 7; registration in Math. 9.

2	C	8	TT	313 M.T.L.
	X	8	TT	316 M.T.L.
	Ch1	8	TT	202 E.H.
	F	9	TT	305 M.T.L.
	M	9	TT	310 M.T.L.
	Q	9	TT	313 M.T.L.
	R	9	TT	202 E.H.
	G	10	TT	310 M.T.L.
	N	10	TT	313 M.T.L.
	Ch2	10	TT	108 P.L.
	S	10	TT	316 M.T.L.
	E	11	TT	310 M.T.L.
	J1	11	TT	202 E.H.
	K	1	TT	305 M.T.L.
	J2	1	TT	310 M.T.L.
	P	1	TT	202 E.H.
	L	2	TT	305 M.T.L.

T.A.M. 2. Analytical Mechanics (Dynamics).—*Prerequisite:* T.A.M. 1.

3	C	9	MWF	202 E.H.
	Y	11	MWF	202 E.H.
	Z	4	MWF	202 E.H.

T.A.M. 3. Resistance of Materials.—*Prerequisite:* T.A.M. 1.

3	N	10	TTS	202 E.H.
	K	11	MWF	305 M.T.L.
	L	1	MWF	305 M.T.L.
	M	1	MWF	310 M.T.L.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

T.A.M. 4. Hydraulics.—*Prerequisite:* T.A.M. 1 and registration in T.A.M. 2.

Credit	Section	Hours	Days	Room	Instructor
2	E	8	TT	305 M.T.L.	
	J	8	TT	310 M.T.L.	
	F	10	TT	305 M.T.L.	
	G	11	TT	305 M.T.L.	

T.A.M. 18. Strength of Materials.—*Prerequisite:* T.A.M. 17.

3	A	8	WF	305 M.T.L.
		8–10	M	305 M.T.L.
	B	10	MW	305 M.T.L.
		9–11	F	305 M.T.L.

T.A.M. 63. Resistance of Materials Laboratory.—*Prerequisite:* Registration in T.A.M. 3.

1	L	3–5	M	223 M.T.L.
	K	3–5	Tu	223 M.T.L.
	N	10–12	W	223 M.T.L.
	M	3–5	W	223 M.T.L.
	X	8–10	F	223 M.T.L.

T.A.M. 64. Hydraulics Laboratory.—*Prerequisite:* Registration in T.A.M. 4.

1	J	1–3	M	M.T.L.
	F	2–4	Tu	M.T.L.
	G	8–10	W	M.T.L.
	E	2–4	Th	M.T.L.

Courses for Advanced Undergraduates and Graduates

T.A.M. 42. Properties of Engineering Materials: Specifications and Inspection.—*Prerequisite:* T.A.M. 1, 3, and 63. (3 credits or ½ unit). Time to be arranged. Professor SEELY.

T.A.M. 44. Laboratory Work in Testing Materials.—*Prerequisite:* T.A.M. 1, 3, and 63. (3 credits or ½ to 1 unit).* Time to be arranged. Professor MOORE and Associate Professor PUTNAM.

Courses for Graduates

T.A.M. 107. Laboratory Investigations in Strength of Materials.—(1 to 2 units).* Twice a week. Arrange. Professor MOORE.

T.A.M. 108. Laboratory Investigations in Hydraulics.—(1 to 2 units).* Twice a week. Arrange. Professor ENGER.

T.A.M. 109. Laboratory Investigations in Plain and Reinforced Concrete.—(1 to 2 units).* Twice a week. Arrange. Professor RICHART.

T.A.M. 111. Analytical Study of Experimental Work on Reinforced Concrete: Columns and Slabs.—(1 unit). Twice a week. Arrange. Professor RICHART.

T.A.M. 113. Graphical and Approximate Methods of Structural Analysis.—(½ unit). Twice a week. Arrange. Professor WESTERGAARD.

T.A.M. 115. Theory of Elasticity with Application to Engineering Problems.—(Continuation of T.A.M. 114). (1 unit). Twice a week. Arrange. Professor WESTERGAARD.

T.A.M. 117. The Properties of Engineering Materials.—(1 unit). Three times a week. Arrange. Professor SEELY.

ZOOLOGY

Note: Certain courses in this department require laboratory fees varying from $1 to $5.

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: bacteriology, botany, chemistry, entomology, geology, physics, physiology, psychology. At least 8 hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in Zool. 1 and 2.

Courses for Undergraduates

Zool. 1. General Zoology.

5[1]	Lect.	9	MWF	228 N.H.	THOMAS, KUDO, LUCE, and assistants
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	TTS	312 N.H.	
	C Lab. & Quiz	10–12	MWF	312 N.H.	
	D Lab. & Quiz	10–12	MWF	310 N.H.	
	F Lab. & Quiz	1–3	MWF	312 N.H.	
	G Lab. & Quiz	1–3	MWF	310 N.H.	
	L Lab. & Quiz	1–4	TT	312 N.H.	
	M Lab. & Quiz	1–4	TT	310 N.H.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Zool. 2. Vertebrate Zoology and Comparative Anatomy.—*Prerequisite:* Zool. 1.

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	10	MWF	228 N.H.	ADAMS, CAHN, PARK, and assistants
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	MWF	330 N.H.	
	B Lab. & Quiz	8–10	MWF	418 N.H.	
	C Lab. & Quiz	10–12	TTS	330 N.H.	
	D Lab. & Quiz	8–10	TTS	330 N.H.	
	E Lab. & Quiz	1–3	MWF	330 N.H.	
	F Lab. & Quiz	1–3	MWF	418 N.H.	
	G Lab. & Quiz	1–4	TT	330 N.H.	
	H Lab. & Quiz	1–4	TT	418 N.H.	

Zool. 3. Microscopical Technic and Vertebrate Embryology.—*Prerequisite:* Zool. 1, 2.

5	Lect.	1	TT	228 N.H.	SHUMWAY
	A Lab.	8–10	MWF	323 N.H.	ADAMSTONE and assistant
	B Lab.	10–12	MWF	323 N.H.	
	C Lab.	1–3	MWF	323 N.H.	
[2]Lab. section D and quiz section 4 will not be opened until others are filled.	[2]D Lab.	3–5	MWF	323 N.H.	
	1 Quiz	8	Tu	229 N.H.	
	2 Quiz	10	Th	229 N.H.	
	3 Quiz	2	Tu	229 N.H.	
	[2]4 Quiz	2	Th	229 N.H.	

Zool. 4. Invertebrate Morphology.—*Prerequisite:* Zool. 1 and 30 hours of university work.

3	Lect. or Quiz	3	TT	229 N.H.	VAN CLEAVE and assistant
	A Lab.	10–12	TT	420 N.H.	
	B Lab.	1–3	TT	420 N.H.	

Zool. 5. Heredity.—*Prerequisite:* One year of university work. Credit may not be received in both Zool. 5 and Zool. 15.

2	Lect.	9	MW	112 Chem. Annex	ZELENY, LUCE, and assistant
	A Quiz	8	F	423 N.H.	
	B Quiz	9	F	423 N.H.	
	C Quiz	11	F	423 N.H.	
	D Quiz	8	M	423 N.H.	
	E Quiz	9	Th	425 N.H.	
	F Quiz	11	Th	423 N.H.	

Zool. 10. Field Ecology and Ornithology.—Study in forests, streams, and lakes in the vicinity of Reelfoot Lake, Tenn. Covering Easter vacation. Expenses about $23. *Prerequisite:* Registration in Zool. 9 or 16 or their equivalent, and 30 hours of university work. (1). Professor SHELFORD, Assistant Professor CAHN.

Zool. 16. General Ornithology.—*Prerequisite:* 30 hours of university work.

2	Lect. or Quiz	2	TT	228 N.H.	CAHN and assistant
	A Lab.	8–10	TT	419 N.H.	
	B Lab.	8–12	S	419 N.H.	
	C Lab.	4–6	MW	419 N.H.	

(Field trips four hours per week in April and May.)

Courses for Advanced Undergraduates and Graduates

Zool. 9. Animal Ecology.—*Prerequisite:* One year of zoology and junior standing.

3 to 4*[2]	Lect. (1st half sem.)	9	TT	229 N.H.	SHELFORD
[2]For 4 hours credit, additional field work is assigned.	Lab. (2nd half sem.)	9–11	S	202 Viv.	SHELFORD
	Field	9–12	S	(Two all day trips)	

Zool. 8b. Thesis Investigation.—*Prerequisite:* Two years of zoology. (3 to 5).* Arrange. Members of the department.

Zool. 18. Protozoology.—*Prerequisite:* One year in zoology and junior standing. (2). 1-3 TT; 314 N.H. Assistant Professor KUDO.

Zool. 20b. Current Investigation.—Required of all graduate students majoring in zoology; may be elected by seniors majoring in zoology with consent of instructor. (1). 3 F; 340 N.H. Members of the department.

Zool. 21b. Introduction to Zoological Research.—*Prerequisite:* One year in zoology courses; senior standing. (2 to 5).* Arrange. Members of the department.

Zool. 23. Morphology of Vertebrates.—*Prerequisite:* Zool. 3 and 22.

2 to 4*	Lect.	4	Tu	419 N.H.	ADAMS
	Lab.	1–5	TT	419 N.H.	

Zool. 66. Vertebrate Organogeny.—*Prerequisite:* Zool. 3 or 63. (2 to 5).* Arrange. Professor SHUMWAY.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

Students entering on graduate study in the Department of Zoology should have had two years of undergraduate work in the subject. When chosen as a minor the courses listed for graduates and undergraduates must be preceded by at least one full year's undergraduate work in zoology. Work done at other institutions will be evaluated on conference with the head of the department.

Zool. 106. Topics in Vertebrate Embryology.—(1 unit). Arrange. Professor SHUMWAY.

Zool. 110. Climatic Ecology.—(½ to 1 unit).* Arrange. Professor SHELFORD.

Zool. 111. Experimental and Field Ecology.—(½ to 2 units).* Time to be arranged. Professor SHELFORD.

Zool. 115. Factors of Individual and Racial Development.—(1 unit). 3 MW; 340 N.H. Professor ZELENY.

Zool. 117. Faunistic Zoology.—(½ to 1 unit).* Time to be arranged. Professor VAN CLEAVE.

Individual Research Courses

Zool. 121. Invertebrate Morphology and Parasitology.—(1 to 2 units).* Time to be arranged. Members of the department.

Zool. 122. Vertebrate Morphology.—(1 to 2 units).* Time to be arranged. Assistant Professor ADAMS.

Zool. 123. Faunistic and Systematic Zoology.—(1 to 2 units).* Time to be arranged. Professor VAN CLEAVE.

Zool. 124. Experimental Zoology and Genetics.—(1 to 2 units).* Time to be arranged. Professor ZELENY.

Zool. 125. Animal Ecology and Behavior.—Time and credits to be arranged. Professor SHELFORD.

Zool. 126. Vertebrate Embryology.—(1 to 2 units).* Time to be arranged. Professor SHUMWAY.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

34/35
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UNIVERSITY OF ILLINOIS BULLETIN

Vol. XXXI August 21, 1934 No. 51

TIME TABLE

FIRST SEMESTER
1934-1935

This Time Table is issued early, for the convenience of faculty members and students. Preserve your copy for use during the period of registration, as there will not be a supply for general distribution at that time.

PUBLISHED WEEKLY BY THE UNIVERSITY OF ILLINOIS

[Entered as second-class matter December 11, 1912, at the post office at Urbana, Illinois, under the Act of August 24, 1912. Acceptance for mailing at the special rate of postage provided for in section 1103, Act of October 3, 1917, authorized July 31, 1918]

REGISTRATION CALENDAR

1934-35

FIRST SEMESTER

1934

Sept. 5-8, Wed.-Sat. . . . . Entrance examinations (get programs and permits at the Registrar's Office).
Sept. 13, Thurs., 7:30 p.m. . . Freshman Welcome.
Sept. 14, Fri., 8 a.m. . . . . Meetings for freshman groups with advisers.
Sept. 14, Fri., 9 a.m. . . . . Rhetoric examination.
Sept. 14, Fri., 1:30 p.m. . . . . Meetings for freshman groups with advisers.
Sept. 14, Fri., 7:30 p.m. . . . . Student night meeting.
Sept. 14-15, Fri.-Sat. . . . . Registration for graduate students.
Sept. 15, Sat., 8 a.m.-5 p.m. . Registration for freshmen.
Sept. 17-18, Mon.-Tues. . . . . Registration for upper classmen.
Sept. 17, Mon., 1:30 p.m. . . . Hygiene examination.
Sept. 18, Tues. . . . . Talks for freshmen by Dean of Men and Dean of Women.
Sept. 19, Wed., 8 a.m. . . . . Instruction begun.
Sept. 24, Mon., 12 m. . . . . Latest date for change of study-lists without fee.
Sept. 29, Sat., 12 m. . . . . Latest date for rebates in full.
Oct. 30, Tues. . . . . Latest date for announcement of subjects for theses.
Nov. 17, Sat., 12 m. . . . . Latest date for rebates of one-half fees, and latest date for seniors graduating in February to make substitutions in courses or to remove failures of the last semester or the summer session.
Nov. 22-24, Thurs.-Sat. . . . . High School Conference.
Nov. 28, Wed., 12 m. . . . . Thanksgiving recess begun.
Dec. 3, Mon., 1 p.m. . . . . Instruction resumed.
Dec. 22, Sat., 12 m. . . . . Holiday recess begun.

1935

Jan. 3, Thurs., 1 p.m. . . . . Instruction resumed.
Jan. 11, Fri. . . . . Latest date for special examinations.
Jan. 22, Tues. . . . . Semester examinations begun.
Jan. 30, Wed. . . . . Semester examinations ended.

SECOND SEMESTER

Jan. 30-Feb. 2, Wed.-Sat. . . . Entrance examinations (get programs and permits at the Registrar's Office).
Feb. 1-2, Fri.-Sat. . . . . Registration for graduate students.
Feb. 4-5, Mon.-Tues. . . . . Registration for undergraduate students.
Feb. 6, Wed., 8 a.m. . . . . Instruction begun.
Feb. 11, Mon. . . . . Earliest date for special examinations.
Feb. 11, Mon., 12 m. . . . . Latest date for change of study-lists without fee.
Feb. 16, Sat., 12 m. . . . . Latest date for rebates in full.
April 6, Sat., 12 m. . . . . Latest date for rebates of one-half fees and latest date for seniors to make substitutions in courses or to remove failures of the first semester.
April 18, Thurs., 12 m. . . . . Easter recess begun.
April 23, Tues., 1 p.m. . . . . Instruction resumed.
May 13, Mon. . . . . Latest date for special examinations.
May 23, Thurs. . . . . Military day.
May 24, Fri. . . . . Semester examinations begun.
June 3, Mon. . . . . Semester examinations ended.
June 10, Mon. . . . . Sixty-fourth Annual Commencement.

SUMMER SESSION, 1935

June 17, Mon. . . . . Registration day.

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EXPLANATION OF LISTING OF COURSES

The arrangement of subjects in the following Time Table is alphabetical by names of departments. The connections of allied departments and divisions are indicated by cross references. (See page 3 for key to names of departments and divisions.)

The courses offered by each department or division are listed, in numerical order, in groups with headings that indicate the students for whom they are designed. Groups of general, elementary, and introductory courses are listed as "Courses for Undergraduates." Intermediate and advanced groups are listed as "Courses for Advanced Undergraduates and Graduates." Courses with numbers beginning at 100 are listed as "Courses for Graduates" and are not open to undergraduates.

Following the title of each course of instruction will be found the requirements, if any, for admission to that particular course. The sequence indicated by these prerequisites must be followed. For example, on page 11, in Art 35a-35b, Commercial Art, the prerequisites given are Art 27b and 31b. These two courses must be completed before Art 35a-35b may be taken.

If a course not required for graduation is selected by fewer than five students it may be withdrawn for the semester.

Credit

Credit for undergraduate students is reckoned in *semester hours*, or simply *hours*. An *hour* is one class period a week for one semester or the equivalent in laboratory, shop, or drafting room. The number of hours for which each course counts is shown in parentheses in the description of the course, thus, (2), except where the credits, sections, etc., are tabulated.

Credit for first-year graduate students, candidates for the master's degree, is counted in *units*. A *unit* course is one which requires ten hours of time per week through one semester, irrespective of the distribution of that time in class work, laboratory work, and private study. Four such courses or their equivalent constitute a full minimum program for one semester. The unit values of graduate courses (numbered 100 and upwards) are indicated in parentheses following the titles of these courses Courses of the intermediate groups "for graduates and advanced undergraduates" generally are evaluated for graduate credit as follows: (a) courses open only to students having at least senior standing, 1 unit for a 4-hour or a 5-hour course, ½ unit for a 1-hour, 2-hour, or 3-hour course; (b) courses open to juniors, ½ unit for a 4-hour or 5-hour course, ¼ unit for a 1-hour, 2-hour, or 3-hour course.

Buildings

University buildings are designated by the following abbreviations:

Administration Building (East)	Adm.(E)
Agriculture Building (Old)	Agr.
Agricultural Engineering Building	Agr.Eng.
Animal Pathology Laboratory	An.Path.L.
Architecture Building	Arch.
Armory	Arm.
Ceramics Building	Cer.
Chemistry Annex	Chem.A.
Chemistry Building	Chem.
Civil Engineering Surveying Building	C.E.S.B.
Commerce Building	Com.
Dairy Manufactures Building	D.Mfrs.
Electrical Engineering Annex	E.E.A.
Electrical Engineering Laboratory	E.E.L.
Engineering Hall	E.H.
Entomology Building	Entom.
Experimental Zoology Laboratory	Exp.Zool.Lab.
Floriculture Greenhouses	F.G.
Genetics Building	Gen.Bldg.
Gymnasium Annex	Gym.A.
Highway Laboratory	H.L.
Horticultural Field Laboratory	H.F.L.
Law Building	Law
Library	Lib.
Lincoln Hall	L.H.
Materials Testing Laboratory	M.T.L.
Mathematics Building	Math.
Mechanical Engineering Laboratory	M.E.L.
Men's New Gymnasium	New Gym.
Men's Old Gymnasium	Old Gym.
Mining Engineering Laboratory	Min.L.
Natural History Building	N.H.
New Agriculture Building	New Agr.
Physics Laboratory	P.L.
Smith Memorial Music Hall	S.M.H.
Stock Judging Pavilion	S.P.
Transportation Building	T.B.
University Hall	U.H.
University High School	U.H.S.
Vegetable Greenhouse	V.G.
Woman's Building	W.B.
Woman's Gymnasium	W.Gym.

TIME TABLE FOR COURSES OF INSTRUCTION

FIRST SEMESTER, 1934-1935

AGRICULTURAL ECONOMICS

Courses for Undergraduates

Agr. Econ. 1. Introductory Agricultural Economics.—

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	3	W	103 New Agr.	Ross
	Disc. A	3	MF	313 New Agr.	
	Disc. B	10	MW	313 New Agr.	
	Disc. C	2	TT	313 New Agr.	

Agr. Econ. 20. Farm Management.—*Prerequisite:* Sophomore standing. Local field trips will be arranged; estimated cost, $5.

3	Lect. and Disc.	10	TT	316 New Agr.	Case and others
	S Lab.	1–3	Th	331 New Agr.	
	T Lab.	1–3	F	331 New Agr.	

Agr. Econ. 30. Marketing of Agricultural Products.—*Prerequisite:* Sophomore standing.

3	Lect.	10	M	118 New Agr.	Stewart
	Quiz	10	WF	118 New Agr.	

Agr. Econ. 40. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; approval of head of department. (5). Arrange.

(a) **Agricultural Marketing.**—Members of the department.
(c) **Agricultural Prices and Statistics.**—Assistant Professor Norton.
(e) **Farm Management.**—Professor Case.
(g) **Land Economics.**—Associate Professor Stewart.

Courses for Advanced Undergraduates and Graduates

Agr. Econ. 10. Economic Relationships of Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 11 MWF; 316 New Agr. Assistant Professor Norton.

Agr. Econ. 17. Economic History of Agriculture.—*Prerequisite:* Econ. 1 or 2. (2). Arrange. Assistant Professor Norton.

Agr. Econ. 22. Types and Systems of Farming.—*Prerequisite:* Agr. Econ. 20. Lectures and quiz. Local field trips will be arranged; estimated cost, $3. (3). 8 MWF; 316 New Agr. Professor Case and others.

Agr. Econ. 24. Farm Operation.—*Prerequisite:* Agr. Econ. 20; junior standing. Local field trips will be arranged; estimated cost, $3. (2). 11 TT; 316 New Agr. Mr. Wills.

Agr. Econ. 26. Farm Administration.—*Prerequisite:* Agr. Econ. 20; senior standing. (2). 9 TT; 316 New Agr. Professor Case.

Agr. Econ. 36. Marketing Horticultural Products.—*Prerequisite:* Econ. 1 or 2; Agr. Econ. 30; senior standing. Inspection trip required; estimated cost $12. (3). 3 MWF; 203 V.G. Professor Lloyd.

Agr. Econ. 41. Problems in Agricultural Economics.—*Prerequisite:* Senior standing; approval of head of department. (5). Arrange.

(a) **Agricultural Marketing.**—Members of the department.
(b) **Agricultural Prices and Statistics.**—Assistant Professor Norton.
(c) **Farm Management.**—Professor Case.
(d) **Land Economics.**—Associate Professor Stewart.

Courses for Graduates

Agr. Econ. 109. Seminar. Thesis Course.—All graduate students majoring in Agricultural Economics must register in Agr. Econ. 109, but only those students writing theses acceptable for the degree of Master of Science will be given credit. (1 to 2 units).* Once a week. Arrange. Members of the department.

Agr. Econ. 110. Theory of Agricultural Economics.—(1 unit). Arrange. Associate Professor Stewart.

Agr. Econ. 111. Agricultural Prices and Statistics.—(1 unit). Arrange. Assistant Professor Norton.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Agr. Econ. 112. Agricultural Economics Research.—(1 to 2 units).* Credit is conditional on completion of acceptable report of investigation. Arrange. Associate Professor STEWART.

Agr. Econ. 120. Farm Management Principles and Investigational Methods.—(1 unit). Twice a week. Arrange. Professor CASE.

Agr. Econ. 135. Marketing Fruits and Vegetables.—(1 to 2 units).* Arrange. Professor LLOYD.

AGRICULTURAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $8.

Courses for Undergraduates

Agr. Eng. 1. Introduction to Agricultural Engineering.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	8	WF	201 Agr. Eng.	YOUNG
[1]Seniors will receive only 2 hours credit.	B Quiz	9	W	201 Agr. Eng.	HAY
	J Quiz	8	Tu	201 Agr. Eng.	
	N Quiz	1	Tu	201 Agr. Eng.	
	S Quiz	9	F	201 Agr. Eng.	
	A Lab.	8–10	M		
	J Lab.	8–10	Th		
	N Lab.	1–3	Th		

Agr. Eng. 2. Field and Power-Driven Machinery.—*Prerequisite:* Agr. Eng. 1.

3	Lect.	9	TT	201 Agr. Eng.	SHAWL
	J Quiz	8	Tu	204 Agr. Eng.	
	A Quiz	8	W	204 Agr. Eng.	
	N Lab.	1–3	Th		
	A Lab.	8–10	F		

Agr. Eng. 5. Drainage and Surveying.—*Prerequisite:* Sophomore standing.

3	Lect.	1	M	204 Agr. Eng.	LEHMANN
	Quiz	1	W	204 Agr. Eng.	
	Lab.	1–4	F		

Agr. Eng. 18a. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; approval of head of department. (5). Professor LEHMANN, Assistant Professor SHAWL.

Agr. Eng. 20. Farm Concrete Construction.—*Prerequisite:* Agr. Eng. 1.

2	Lect.	3	Tu	204 Agr. Eng.	YOUNG
	P Lab.	3–5	Th		
	J Lab.	8–10	S		

Courses for Advanced Undergraduates and Graduates

Agr. Eng. 28. Advanced Gas Engines and Tractors.—*Prerequisite:* Agr. Eng. 3 and consent of instructor. (3). 2-5 MW; Lect., arrange; 201 Agr. Eng. Assistant Professor SHAWL.

Agr. Eng. 51. Special Power and Field Machinery.—*Prerequisite:* Agr. Eng. 17 or 28. Consult instructor before registering. (3). Arrange. Professor LEHMANN, Assistant Professor SHAWL.

AGRONOMY

Note: Certain courses in this department require laboratory fees varying from $2 to $4.

Courses for Undergraduates

Agron. 18. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; approval of head of department. (5). Arrange.

Soils.—Professors BAUER, DETURK, R. S. SMITH; Associate Professor SEARS.
Crops.—Professors BURLISON, WOODWORTH; Associate Professor DUNGAN.

Agron. 25. Farm Crops.—*Prerequisite:* Bot. 5.

3	Lect.	3	MW	205 Agr.	PIEPER, DUNGAN, and VANDOREN
	Lab.	1–3	Tu	600 Agr.	
	Quiz	3	F	205 Agr.	

Agron. 28. Soils.—*Prerequisite:* Chem. 5; Geol. 44. (Local field trip, cost not to exceed $1.)

5	Lect.	8	MWF	205 Agr.	WIMER, CRANE, and STAUFFER
	Quiz	8	TT	205 Agr.	
	A Lab.	1–4	Th	650 Agr.	
	C Lab.	8–11	S	650 Agr.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Agron. 7. Crop Production as Affected by Environmental Factors.—*Prerequisite:* Agron. 25; junior standing. (3). Lect., 8 MWF; 302 Agr. Professor BURLISON, Associate Professor DUNGAN.

Agron. 11. Rôle of Micro-organisms in Soil Fertility.—*Prerequisite:* Agron. 28; Bact. 5a; junior standing. (3). Lect., 9 MWF; 302 Agr. Associate Professor SEARS.

Agron. 29. Field Plot Technic.—*Prerequisite:* Senior standing. (3). Lect., 10 MWF; 302 Agr. Professor WOODWORTH, Mr. MUMM.

Agron. 32. Physical Methods of Soil Investigation.—(Given in alternate years). *Prerequisite:* Agron. 28; junior standing. (3). Lect., Disc., Lab.; 1-3 MWF; 657 Agr. Dr. STAUFFER.

Courses for Graduates

Agron. 101. Chemical Properties of Soils and Their Relation to Plant Growth.—(1 unit). Twice a week. Arrange; 306 Agr. Professor DETURK.

Agron. 104. Seminar.—(¼ unit). Once a week. Arrange; 301 Agr. Graduate staff.

Agron. 112. Theory and Analysis of Plant Breeding Problems.—(1 unit). Three times a week. Arrange. Professor WOODWORTH.

Agron. 118. Research.—(½ to 4 units).* Arrange.
Soils.—Professors BAUER, DETURK, R. S. SMITH.
Crops.—Professors BURLISON, WOODWORTH; Associate Professor DUNGAN.

ANIMAL HUSBANDRY

Courses for Undergraduates

An. Husb. 1. Introduction to Animal Husbandry.—Required of students not having had livestock judging in high school. (No credit in this course allowed to juniors and seniors). (2). 3-5 TT; S.P. Mr. CRAWFORD.

An. Husb. 3. Livestock Judging.—*Prerequisite:* An. Husb. 1 or equivalent. (5). 10-12 MTWTF; S.P. Associate Professor SNAPP.

An. Husb. 9a-s. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including 20 hours pertinent to thesis problem; approval of head of department. (5). Arrange.
(a) **Beef Cattle.**—Professor RUSK, Associate Professor SNAPP.
(c) **Horses.**—Professor EDMONDS.
(e) **Sheep.**—Assistant Professor KAMMLADE.
(g) **Swine.**—Professor CARROLL.
(j) **Poultry.**—Professor CARD.
(l) **Animal Nutrition.**—Professor MITCHELL.
(n) **Animal Genetics.**—Associate Professor ROBERTS.
(q) **Animal Pathology.**—Professor GRAHAM.
(s) **Meats.**—Associate Professor BULL.

An. Husb. 21. Principles of Feeding.—*Prerequisite:* Chem. 1 or 2.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	2	W	553 Agr.	BULL
	A Quiz	2	MF	553 Agr.	
	B Quiz	11	TT	553 Agr.	

An. Husb. 34. Anatomy and Physiology, and Non-Contagious and Parasitic Diseases of Farm Animals.—*Prerequisite:* An. Husb. 21. (3). 1 MWF; An. Path. L. Professor GRAHAM.

An. Husb. 36. Selection and Use of Meat.—(2). 9 TT; 403 Agr. Associate Professor BULL.

An. Husb. 38. Poultry Breeds and Judging.—*Prerequisite:* An. Husb. 37. (3). 3-4:30 MTWTF; Poultry Plant. (This course is concluded at the beginning of the Christmas recess). Dr. SLOAN.

From the students taking or having had this course will be chosen the team to represent the University in the Annual Mid-West Intercollegiate Student Poultry Judging Contest. The class will visit a near-by poultry show. The cost of the trip will be from $10 to $15.

Courses for Advanced Undergraduates and Graduates

An. Husb. 7. Principles of Animal Nutrition.—*Prerequisite:* Senior standing, including An. Husb. 21; Chem. 32. (5). Arrange. 553 Agr. Mr. HAMILTON.

An. Husb. 12. Special Problems.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Arrange. Members of the department.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

An. Husb. 22. Advanced Stock Judging.—*Prerequisite:* An. Husb. 3. (3). 3 MTWTF; S.P. Heads of divisions.

From the students in this class will be chosen the team to represent the University in the Annual Intercollegiate Student Judging Contest.

An. Husb. 24. Meat Judging and Special Problems.—*Prerequisite:* An. Husb. 10 or 36. (2 to 5).* Arrange. Associate Professor BULL.

From the students in this class will be chosen the team to represent the University in the Annual Intercollegiate Student Judging Contest. Students registering for meat judging only should register for 2 hours credit. This part of the course will terminate at Thanksgiving.

An. Husb. 25. Beef Production.—*Prerequisite:* An. Husb. 6. (3). 2 MWF; 316 New Agr. Professor RUSK, Associate Professor SNAPP.

An. Husb. 26. Pork Production.—*Prerequisite:* An. Husb. 6. (3). 9 MWF; 316 New Agr. Professor CARROLL.

An. Husb. 40. Economics of Poultry Keeping.—*Prerequisite:* Senior standing, including An. Husb. 37. (3). 8 MWF; 313 New Agr. Professor CARD.

Courses for Graduates

An. Husb. 112a-f. Research.—Arrange. One to three times a week. (½ to 2 units).*

(a) **Economic Factors Involved in Meat Production.**—Professor RUSK.
(b) **Systems of Livestock Farming.**—Professor CASE.
(c) **Animal Pathology.**—Professor GRAHAM.
(d) **Animal Nutrition.**—Professor MITCHELL.
(e) **Animal Genetics.**—Associate Professor ROBERTS.
(f) **Poultry Husbandry.**—Professor CARD.

An. Husb. 117. Animal Genetics.—(1 unit). One to three times a week. Arrange. Associate Professor ROBERTS.

An. Husb. 118. Animal Nutrition Seminar.—(½ unit). Two hours a week. Arrange. Professor MITCHELL.

An. Husb. 119. Laboratory Methods in Animal Nutrition.—(½ to 1 unit).* Two to five times a week. Arrange. (Lab. fee $5). Professor MITCHELL.

An. Husb. 120. Laboratory Methods in the Diagnosis of Animal Diseases.—(½ to 1 unit).* Two to five times a week. Arrange. Professor GRAHAM.

An. Husb. 121. Laboratory Methods in Animal Genetics.—(½ to 1 unit).* Two to five times a week. Arrange. Associate Professor ROBERTS.

ARCHITECTURE

Courses for Undergraduates

Arch. 11. History of Architecture.—*Prerequisite:* Sophomore standing. (Not open to students expecting a degree in Architecture). (3). 3 MWF; 120 Arch.

Arch. 13. History of Architecture.—*Prerequisite:* Arch. 31a and 32a or sophomore standing in Architecture. (2). 11 MW; 120 Arch.

Arch. 15. History of Architecture.—*Prerequisite:* Arch. 14. (2). 11 TT; 120 Arch.

Arch. 17. History of Architecture.—*Prerequisite:* Arch. 16. (2). 9 TT; 120 Arch.

Arch. 31a. Architectural Design.—

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	2	W	120 Arch.	
	A	1–4	TT	210 Arch.	
	B	8–11	MF	210 Arch.	
	C	8–11	TT	210 Arch.	

Arch. 33. Architectural Design.—*Prerequisite:* Arch. 32a.

3	A	1–4	MW	210 Arch.
		8–11	S	210 Arch.
	B	1–4	TT	210 Arch.
		8–11	S	210 Arch.
	C	1–4	WF	210 Arch.
		8–11	S	210 Arch.

Arch. 34. Architectural Design.—*Prerequisite:* Arch. 33. See Arch. 33 for hours. 210 Arch.

Arch. 35. Architectural Design.—*Prerequisite:* Arch. 34 and registration in Arch. 65.

5	A	9–12	M	200 Arch.
		1–4	MWF	200 Arch.
	B	1–4	TTF	200 Arch.
		9–12	F	200 Arch.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Arch. 36. Architectural Design.—*Prerequisite:* Arch. 35. See Arch. 35 for hours. 200 Arch.

Arch. 37. Architectural Design.—*Prerequisite:* Arch. 36 and senior standing in Architecture. (7). 8-11 S, 1-4 MTWTF; 200 Arch.

Arch. 38. Architectural Design.—*Prerequisite:* Arch. 37 and senior standing in Architecture. (7). 8-11 S, 1-4 MTWTF; 200 Arch.

Arch. 43. Technology of Materials.—*Prerequisite:* Arch. 31a and 32a.

Credit	Section	Hours	Days	Room	Instructor
3	A	1–4	TT	310 Arch.	
	Lect.	11	F	302 Arch.	
	B	8–11	TT	310 Arch.	
	Lect.	11	F	302 Arch.	
	C	1–4	MW	310 Arch.	
	Lect.	11	W	302 Arch.	

Arch. 45. Graphic Statics.—*Prerequisite:* T.A.M. 1 or 18 and registration in continuing T.A.M.

3	A	9–12	WF	310 Arch.
	Lect.	9	Tu	302 Arch.
	B	1–4	MW	310 Arch.
	Lect.	9	Tu	302 Arch.
	C	1–4	TT	310 Arch.
	Lect.	11	M	302 Arch.

Arch. 47. Steel Construction.—*Prerequisite:* Arch. 46 and registration in Arch. 57. (5). 9 TT, 1-4 MWF; 300 Arch.

Arch. 57. Reinforced Concrete, Theory.—*Prerequisite:* Arch. 46 and registration in Arch. 47. (3). 2 TT, 9 S; 301 Arch.

Arch. 65. Theory of Architecture.—*Prerequisite:* Arch. 34 and registration in Arch. 35. (1). 9 Th; 302 Arch.

Arch. 68. Specifications.—*Prerequisite:* Senior standing in Architecture. (3). 11 MWF; 301 Arch.

Arch. 71a. Architectural Design.—(Not open to students expecting a degree in Architecture).

3	A	1–4	TT	210 Arch.
		2	W	120 Arch.

Arch. 75. Frame Construction Details.—*Prerequisite:* Consent of instructor. (Not open to students expecting a degree in Architecture).

2	A	1–4	TT	310 Arch.

Arch. 83. Office Practice.—*Prerequisite:* Senior standing in Architecture. (2). 10 TT; 301 Arch.

Arch. 99. Inspection Trip.—*Prerequisite:* Senior standing in Architecture. Required for graduation. No credit.

Courses for Graduates

Arch. 101. Architectural Construction.—Theory and Design. (½ to 2 units).* Professor PALMER.

Arch. 103. Architectural Construction.—Special Problems. (½ to 2 units).* Associate Professor MORGAN.

Arch. 104. Architectural Design.—(1 to 3 units).* Professor DEAM.

Arch. 105. Architectural Practice.—(¼ to ½ unit).* Professor PROVINE.

Arch. 106. Architectural History.—(½ to 2 units).* Professor NEWCOMB.

ART

Note: Certain courses in this department require laboratory fees varying from $1.25 to $3.75.

Courses for Undergraduates

Art 1a. Design.—

Credit	Section	Hours	Days	Room	Instructor
2	A	8–11	M	342 L.H.	ANDERSON
	B	8–10	TT	342 L.H.	
	C	1–3	MW	342 L.H.	

Art 1b. Design.—*Prerequisite:* Art 1a.

2	10–12	TT	342 L.H.	ANDERSON

Art 2a-2b. Water Color.—*Prerequisite:* Art 25b.

2	1–4	TT	410b Arch.	NEARPASS

Art 3a-3b. Water Color.—*Prerequisite:* Art 2a.

2	1–4	TT	410b Arch.	NEARPASS

Art 4a-4b. Interior Design.—*Prerequisite:* Art 31a, and 2a or 1b concurrently.

2	1–3	TT	342 L.H.	ANDERSON

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Art 10a. Course for Teachers.—*Prerequisite:* Art 31a.

Credit	Section	Hours	Days	Room	Instructor
3		3–5	TT	342 L.H.	ANDERSON

Art 11. History of Fine Arts.—*Prerequisite:* Sophomore standing.

2		10	MW	120 Arch.	LAKE

Art 13. Art Appreciation.—*Prerequisite:* Art 12 or junior standing.

3		1 1–3	Tu Th	120 Arch.	NICHOLSON

Art 15. History of Italian Art.—(Primarily for students in colleges other than Fine and Applied Arts). *Prerequisite:* Junior standing.

3		9	MWF	120 Arch.	NICHOLSON

Art 17. History of Ancient Art.—(Primarily for students in colleges other than Fine and Applied Arts). *Prerequisite:* Junior standing.

3		1	MWF	120 Arch.	NICHOLSON

Art 21a-21b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture).

2	A	8–11	TT	410a Arch.	WOODROOFE
	B	9–12	TT	410b Arch.	KENNEDY
	C	9–12	MF	410a Arch.	HOGAN

Art 22a-22b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture). *Prerequisite:* Art 21b.

2	A	8–11	TT	Hall of Casts	BAILEY
	B	1–4	MF	410a Arch.	HOGAN
	C	1–4	TT	410a Arch.	KENNEDY

Art 23a-23b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture). *Prerequisite:* Art 22b.

2	A	1–4	TT	Hall of Casts	WOODROOFE
	B	9–12	MW	Hall of Casts	KENNEDY

Art 24a-24b. Freehand Drawing.—(Primarily for students in Architecture). *Prerequisite:* Art 23b.

2		8–11	MW	10 Arch.	BAILEY

Art 25a. Cast and Still Life Drawing.—

4[1]	A	9–12	MWF	403b Arch.	DONOVAN
[1]Section C, for students other than Painting curriculum, 3 hrs. credit.	B	1–4	MWF	Hall of Casts	WOODROOFE
	[1]C	9–12	TT	401a Arch.	NEARPASS

Art 25b. Cast Drawing.—*Prerequisite:* Art 25a.

2	A	9–12	MW	403b Arch.	DONOVAN
	B	1–4	MW	Hall of Casts	WOODROOFE
	C	9–12	TT	401a Arch.	NEARPASS

Art 26a. Anatomy and Sketch.—*Prerequisite:* Art 25a must precede or accompany this course.

2		9–12	S	410a Arch.	HOGAN

Art 26b. Anatomy and Sketch.—*Prerequisite:* Art 26a.

2		9–12	F	410b Arch.	KENNEDY

Art 27a-27b. Life Drawing.—*Prerequisite:* Art 25b and 26b.

3		1–4	MWF	10 Arch.	BAILEY

Art 28a-28b. Portrait.—*Prerequisite:* Art 25b and 26b.

2		9–12	TT	10 Arch.	HOGAN

Art 29a-29b. Life Drawing.—*Prerequisite:* Art 27b.

3		1–4	MWF	403a Arch.	BRADBURY

Art 30a-30b. Sketch.—*Prerequisite:* Art 27b.

1		9–12	M	403a Arch.	BRADBURY

Art 31a. Composition and Design.—*Prerequisite:* Art 25a must precede or accompany this course.

2		10	TT	302 Arch.	LAKE

Art 31b. Composition.—*Prerequisite:* Art 31a.

2		2	MF	302 Arch.	NEARPASS

Art 32a-32b. Composition.—*Prerequisite:* Art 31b.

2		9	WF	403a Arch.	NEARPASS

Art 33a-33b. Composition and Illustration.—*Prerequisite:* Art 32b.

2		10	WF	403a Arch.	NEARPASS

Art 34a-34b. Composition (Mural).—*Prerequisite:* Art 33b.

3		9–12	F	403a Arch.	NEARPASS

Art 35a-35b. Commercial Art.—*Prerequisite:* Art 27b and 31b.

Credit	Section	Hours	Days	Room	Instructor
2		8	MW	403a Arch.	Donovan
		9–12	S	310 Arch.	

Art 36a-36b. Commercial Art.—*Prerequisite:* Art 35b.

2		8	MW	403a Arch.	Donovan
		9–12	S	310 Arch.	

Art 41a-41b. Still Life.—*Prerequisite:* Art 25a.

2		1–4	TT	403 Arch.	Donovan

Art 42a-42b. Landscape.—*Prerequisite:* Art 41b.

2		1–4	TT	403 Arch.	Donovan

Art 43a-43b. Landscape.—*Prerequisite:* Art 42b.

3		1–4	TT	403 Arch.	Donovan

Art 44a-44b. Portrait.—*Prerequisite:* Art 28b.

2		9–12	TT	403a Arch.	Bradbury

Art 45a-45b. Portrait.—*Prerequisite:* Art 44b.

3		9–12	TTS	403b Arch.	Bradbury

Art 46a-46b. Sketch.—*Prerequisite:* Art 30b.

1		9–12	M	403a Arch.	Bradbury

Art 47a-47b. Life Painting.—*Prerequisite:* Art 29b.

3		1–4	MWF	403 Arch.	Bradbury

Art 50. Modeling.—*Prerequisite:* Art 25a.

2		1–4	TT	20 Arch.	Lake

Art 51a-51b. Modeling.—*Prerequisite:* Art 50.

2		1–4	TT	20 Arch.	Lake

Art 52a-52b. Modeling.—*Prerequisite:* Art 51b.

2		1–4	TT	20 Arch.	Lake

Art 90. Original Project.—*Prerequisite:* Senior standing in art. (2). Arrange.

ASTRONOMY

Course for Undergraduates

Astron. 1. Descriptive Astronomy.—*Prerequisite:* Sophomore standing. (3). 11 MWF; 229 N.H.; one hour Wednesday evening, Observatory. Professor Baker.

Course for Advanced Undergraduates and Graduates

Astron. 15. Geodetic Astronomy.—*Prerequisite:* Consent of instructor. (3). To be arranged; Observatory. Professor Baker.

Courses for Graduates

Astron. 101. Seminar.—(1 unit). 11 TTS; Observatory. Professor Baker.

Astron. 103. Celestial Mechanics.—(1 unit). 1 MWF; Observatory. Professor Baker.

BACTERIOLOGY

Note: Certain courses in this department require laboratory fees varying from $4 to $5.

Major: 20 hours chosen from the courses offered by this department. Dairy Husbandry 10 (Advanced Dairy Bacteriology) may be offered in partial satisfaction of this requirement. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: agronomy, botany, chemistry, entomology, physiology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Bact. 5a. Introductory Bacteriology.—*Prerequisite:* Sophomore standing; or consent of the instructor.

3	Lect.	8	TT	100 Chem.	Tanner
	A	8	S	301 Chem.	
	B	2	Tu	303 Chem.	
	C	3	Tu	163 Chem.	
	D	2	Th	204 Chem.	
	E	3	Th	163 Chem.	
	F	2	W	301 Chem.	
	G	3	W	301 Chem.	

Bact. 5b. Introductory Bacteriology Laboratory.—*Prerequisite:* Bact. 5a, or concurrent registration in it.

Credit	Section	Hours	Days	Room	Instructor
2	A Lab.	10–12	MW	367 Chem.	
	B Lab.	1–3	MW	367 Chem.	
	C Lab.	10–12	TT	367 Chem.	
	D Lab.	1–3	TT	367 Chem.	

Bact. 7a. Research and Special Problems.—*Prerequisite:* Junior standing; 10 hours in bacteriology; consent of instructor. (3 to 5).* Arrange. Professor TANNER, Assistant Professor WALLACE.

Courses for Advanced Undergraduates and Graduates

Bact. 20. General Bacteriology.—*Prerequisite:* Two years of college chemistry; senior standing; consent of instructor. Students with credit in Bact. 5a and 5b will not be allowed credit for Bact. 20. (5). Lect., 11 MWF; 303 Chem. Lab., 1-3 MW; 360 Chem. Assistant Professor WALLACE.

Bact. 26. Pathologenic Bacteriology.—*Prerequisite:* Bact. 5a and 5b (or 20); junior standing. (5). Lect., 8 TT; 103 Chem. Lab., 8-10 MWF; 367 Chem. Assistant Professor WALLACE.

Courses for Graduates

Bact. 103. Physiology of Bacteria.—(1 unit). Lect., 9 MW; 366 Chem. Professor TANNER.

Bact. 107. Research in Bacteriology.—(1 to 4 units).* Conference, arrange. Lab., arrange; 365 Chem. Professor TANNER.

Bact. 118a. Current Literature.—Required of all graduate students majoring in bacteriology. *Prerequisite:* 10 hours of bacteriology and consent of the instructor. (¼ unit). 2 Tu; 366 Chem. Professor TANNER.

BOTANY

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

Major: 20 hours of botany exclusive of Bot. 1 and 5, and inclusive of Bot. 2 or 12, 3, and at least five hours in courses listed for advanced undergraduates and graduates.

Minors: 20 hours in one or two departments chosen in consultation with the head of the department from the following list: agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least eight hours must be offered in each department, if two are chosen.

Courses for Undergraduates

Bot. 1a. Introductory Botany (Cultural Course).—The relation of the plant world to the physical and animal worlds. The progressive development of the plant world and its evolutional significance; its part in the formation of soils, the production of food, and the maintenance of life. Lectures, demonstrational quiz, one or two field trips. Designed to accompany Bot. 1b, but may be elected without it.

3[1]	Lect.	9	TT	228 N.H.	HOTTES, BUCHHOLZ, VESTAL, FULLER, and others
[1]Seniors will receive only 2 hours credit.	Disc. 1	8	Tu	258 N.H.	
	Disc. 2	10	Tu	258 N.H.	
	Disc. 3	11	Tu	258 N.H.	
	Disc. 4	1	Tu	258 N.H.	
	Disc. 5	8	Th	258 N.H.	
	Disc. 6	10	Th	258 N.H.	

Bot. 1b. Introductory Botany (Laboratory).—Morphology, physiology, and ecology of representative groups of the plant world. *Prerequisite:* Bot. 1a or concurrent registration therein.

2	A Lab.	8–10	MW	258 N.H.	HOTTES, BUCHHOLZ, VESTAL, FULLER, and others
	B Lab.	10–12	MW	258 N.H.	
	C Lab.	1–3	MW	258 N.H.	

Bot. 2. Morphology.—*Prerequisite:* Bot. 1 or 5. (3). 1-3 MWF; 204 Entom. Dr. HAGUE.

Bot. 3. Plant Physiology.—*Prerequisite:* Bot. 1 or 5.

5	Lect.	11	TT	229 N.H.	HOTTES and assistants
	A Lab.	8–10	MWF	153 N.H.	
	B Lab.	10–12	MWF	154 N.H.	

Bot. 5. Botany for Students in Agriculture.—

3[1]	Lect.	9	Th	229 N.H.	HOTTES, STEVENS, BUCHHOLZ, VESTAL, FULLER, and assistants
[1]Seniors will receive only 2 hours credit.	A Lab.	10–12	TT	259 N.H.	
	B Lab.	1–3	TT	259 N.H.	

Bot. 7. Plant Pathology.—*Prerequisite:* Bot. 1 or 5.

3	Lect.	9	M	425 N.H.	STEVENS and assistant
	A Lab.	8–10	WF	349 N.H.	

Bot. 90a. Thesis Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

Bot. 91a. Honors Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Bot. 33. Plant Physiology.—*Prerequisite:* Bot. 3 and junior standing. (3 or 5).* 1-3 MWF; 155 N.H. Professor HOTTES and assistant.

Bot. 43. Pteridophytes.—*Prerequisite:* One year of botany, inclusive of Bot. 2 or 12, and junior standing. (3 or 5).* 10-12 TTS; 201 Entom. Professor BUCHHOLZ.

Bot. 45. Plant Histology, Anatomy, and Technic.—*Prerequisite:* One year of botany, inclusive of Bot. 2 or 12, and junior standing. (3 or 5).* 8-10 MWF; 206 Entom. Professor BUCHHOLZ.

Bot. 56. Plant Geography.—*Prerequisite:* Bot. 8 or 81, and junior standing. (3 or 5).* 10-12 MWF; 216 N.H. Associate Professor VESTAL.

Bot. 60. Advanced Systematic Botany.—Systems of classification of flowering plants, pylogeny, use of regional manuals in the identification of plants, field trips, etc. *Prerequisite:* Bot. 6 and junior standing. (3 or 5).* Lect. 1 TT; Lab. 2-3 Tu, 2-4 Th; 350 N.H.; field hours to be arranged. Dr. FULLER.

Bot. 70. Taxonomy of Pathogenic Fungi.—*Prerequisite:* Bot. 7 or 41, and junior standing. (3 or 5).* Lect. 11 Tu, Lab. 10-12 ThS; 304 N.H. Professor STEVENS.

Bot. 81. Plant Ecology.—*Prerequisite:* One year of botany and junior standing. (3 or 5).* Lect. 8 TT; 229 N.H.; field work on four or five Saturdays. Associate Professor VESTAL.

Courses for Graduates

Bot. 110. Botanical Discussion.—No credit. Required of all graduate students in botany and members of the instructional staff. 4 Tu; 258 N.H.

Bot. 112. Discussions in Plant Morphology.—(¼ unit). 4 F; 205 Entom. Professor BUCHHOLZ.

Bot. 113. Discussions in Plant Physiology.—(¼ unit). 4 Th; 155 N.H. Professor HOTTES.

Bot. 117. Discussions in Plant Pathology and Mycology.—(¼ unit). 4 W; 304 N.H. Professor STEVENS.

Bot. 118. Discussions in Plant Ecology.—(¼ unit). 4 M; 204 N.H. Associate Professor VESTAL.

Research Courses

Bot. 120. Plant Morphology.—(½ to 2 units).* (Botany 112 to be taken concurrently.) 1 hour on either W or F, from 1 to 3, the rest arrange; 201 Entom. Professor BUCHHOLZ.

Bot. 130. Plant Physiology.—(½ to 2 units).* (Botany 113 to be taken concurrently.) 1 hour on M, W, or F, from 1 to 3, the rest arrange; Botany Annex. Professor HOTTES.

Bot. 170. Plant Pathology or Mycology.—(½ to 2 units).* (Botany 117 to be taken concurrently.) 1 hour on either M or W, from 2 to 4; the rest arrange; 304 N.H. Professor STEVENS.

Bot. 180. Plant Ecology or Geography.—(½ to 2 units).* (Botany 118 to be taken concurrently.) Conf., 1 M or 10 Tu, the rest arrange; 204 N.H. Associate Professor VESTAL.

BUSINESS ORGANIZATION AND OPERATION

(Including Accountancy and Business Law)

A. ACCOUNTANCY

Courses for Undergraduates

Accy. 1a. Principles of Accounting.—Beginners' course. (Students who present one unit of bookkeeping for entrance will not be allowed credit in Accy. 1a and should register in Accy. 1e. Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above.)

Credit	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	125 Com.	KARRENBROCK
	A2	8	MWF	119 Com.	HACKETT
	A3	8	MWF	328 Com.	LUKAS
	J1	8	TTS	123 Com.	GREEN
	J2	8	TTS	322 Com.	HUEGY
	B1	9	MWF	125 Com.	KARRENBROCK
	K1	9	TTS	123 Com.	GREEN
	K2	9	TTS	322 Com.	HUEGY
	K3	9	TTS	224 Com.	MOYER
	C1	10	MWF	119 Com.	HACKETT
	C2	10	MWF	310 Com.	LUKAS
	L1	10	TTS	310 Com.	LUKAS
	L2	10	TTS	224 Com.	MOYER
	L3	10	TTS	325 Com.	FRESE
	D1	11	MWF	125 Com.	KARRENBROCK

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Accy. 1a. Principles of Accounting.—(Concluded)

Credit	Section	Hours	Days	Room	Instructor
3	D2	11	MWF	119 Com.	Hackett
	M1	11	TTS	325 Com.	Frese
	M2	11	TTS	322 Com.	Huegy
	F1	2	MWF	325 Com.	Frese
	F2	2	MWF	219 Com.	Moyer
	G1	3	MWF	325 Com.	Frese
	G2	3	MWF	115 Com.	Theiss

Accy. 1b. Accounting Procedure.—A continuation of Accy. 1a. (Credit is given for Accy. 1a without Accy. 1b). *Prerequisite:* Accy. 1a.

3	C	10	MWF	113 Com.	Newcomer
	D	11	MWF	113 Com.	Newcomer
	J	8	TTS	310 Com.	McMahan
	K	9	TTS	310 Com.	McMahan
	F	2	MWF	119 Com.	Baily
	G	3	MWF	119 Com.	Baily

Accy. 1e. Principles of Accounting.—Similar to Accy. 1a. (Students who have one unit of bookkeeping must take this course rather than Accy. 1a).

2[1]	K	9	TT	113 Com.	Newcomer
[1]Students who have	L	10	TT	113 Com.	Newcomer
failed Accy. 1a may	O	2	TT	328 Com.	Lukas
register in Accy. 1e	P	3	TT	328 Com.	Lukas

and will receive 3 hours credit if their final grade is "C" or above.

Accy. 2a. Elementary Cost Accounting.—*Prerequisite:* Accy. 1b, registration or credit in Econ. 1.

3	B	9	MWF	115 Com.	Theiss
	K	9	TTS	115 Com.	Karrenbrock
	C	10	MWF	115 Com.	Theiss
	L1	10	TTS	115 Com.	Karrenbrock
	L2	10	TTS	119 Com.	Hackett
	D	11	MWF	123 Com.	Green
	M	11	TTS	119 Com.	Hackett
	F	2	MWF	123 Com.	Green
	G	3	MWF	123 Com.	Green

Accy. 2b. Intermediate Accounting.—*Prerequisite:* Accy. 2a.

3	A	8	MWF	222 Com.	Filbey
	B	9	MWF	222 Com.	

Accy. 12. Fundamentals of Accounting.—A survey course for non-commerce students only. *Prerequisite:* Junior standing.

3	A	8	MWF	219 Com.	Frese
	D	11	MWF	219 Com.	Schlatter

Accy. 90a. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis as part of the requirement. (2 to 4).* Arrange. Professor Littleton and others.

Accy. 91 a. Independent Study.—Seniors registered in the College of Commerce who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this Department or sixteen semester hours if divided between this Department and any other department. This course may be elected by candidates for high honors in lieu of a thesis. (3 to 5).* Arrange. Professor Littleton and others.

Courses for Advanced Undergraduates and Graduates

Accy. 3a. Advanced Accounting.—*Prerequisite:* Accy. 2a-2b; Econ. 3; an average of "C" or better in Accy. 1 and 2.

3	D	11	MWF	106 Com.	Littleton
	F	2	MWF	113 Com.	Newcomer

Accy. 3b. Auditing.—*Prerequisite:* Accy. 3a.

3	D	11	MWF	115 Com.	Filbey

Accy. 4a. Cost Accounting.—*Prerequisite:* Accy. 2a-2b.

2	L	10	TT	219 Com.	Schlatter
	M	11	TT	219 Com.	

Accy. 4b. Accounting Systems.—*Prerequisite:* Accy. 2a-2b; Econ. 3. (Credit is given for either 4a or 4b separately).

2	J	8	TT	119 Com.	Baily
	K	9	TT	119 Com.	

Accy. 5a. C. P. A. Problems.—*Prerequisite:* Accy. 3a-3b.

3	C	10	MWF	317 Com.	Scovill
	D	11	MWF	317 Com.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Accy. 13. Governmental Accounting.—*Prerequisite:* Accy. 3a.

Credit	Section	Hours	Days	Room	Instructor
2	O	2	TT	206 Adm.(E)	Morey

Accy. 30. Budgets and Accounting Control.—*Prerequisite:* Accy. 2b.

3	F	2	MWF	115 Com.	Theiss

Courses for Graduates

Accy. 103. Advanced Theory.—(1 unit). 3-5 Tu; 212 Com. Professor Littleton.

Accy. 104. Accounting Systems.—(1 unit). 3-5 Th; 212 Com. Professor Scovill.

Accy. 120. Income Tax Development.—(1 unit). Arrange. Professor Filbey.

Accy. 129. Thesis.—(1 unit). 4-6 W; 420 Com. Professor Littleton and others.

B. BUSINESS ORGANIZATION AND OPERATION

Courses for Undergraduates

B.O.O. 1. Industrial Organization and Management.—*Prerequisite:* Econ. 1 or 2; 45 credit hours. Junior and senior engineering students are admitted with consent of instructor.

3	A	8	MWF	322 Com.	Mandeville
	K	9	TTS	312 Com.	Mandeville
	C	10	MWF	307 Com.	Anderson
	D	11	MWF	307 Com.	Anderson
	F	2	MWF	328 Com.	Mandeville

B.O.O. 2. Marketing Organization and Operation.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	A	8	MWF	305 Com.	Converse
	J	8	TTS	312 Com.	Mandeville
	B	9	MWF	119 Com.	Whitlo
	C	10	MWF	305 Com.	Converse
	D	11	MWF	305 Com.	Converse
	F	2	MWF	312 Com.	Converse

B.O.O. 10. Newspaper Advertising.—(Same as Journ. 10). For students specializing in journalism. (Offered first semester only). *Prerequisite:* Journ. 5 and 6.

3	B	9	MWF	310 Com.	Russell
	D	11	MWF	310 Com.	

B.O.O. 90a. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis as part of the requirement. (2 to 4).* Arrange. Professor Russell and others.

B.O.O. 91a. Independent Study.—Seniors registered in the College of Commerce who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this Department or sixteen semester hours if divided between this Department and any other Department. This course may be elected by candidates for high honors in lieu of a thesis. (3 to 5).* Arrange. Professor Russell and others.

Courses for Advanced Undergraduates and Graduates

B.O.O. 3. Retail and Chain Store Organization and Operation.—*Prerequisite:* B.O.O. 2.

3	C	10	MWF	125 Com.	Whitlo

B.O.O. 4. Management in Manufacturing.—*Prerequisite:* B.O.O. 1.

3	A	8	MWF	329 Com.	Anderson

B.O.O. 7. Salesmanship.—*Prerequisite:* B.O.O. 2.

2	J	8	TT	223 Com.	Jones
	L	10	TT	223 Com.	
	N	1	TT	223 Com.	
	O	2	TT	223 Com.	

B.O.O. 8. Advertising.—*Prerequisite:* B.O.O. 2.

3	A	8	MWF	310 Com.	Russell
	B	9	MWF	329 Com.	Heslip
	C	10	MWF	329 Com.	Heslip
	F	2	MWF	310 Com.	Russell

B.O.O. 11. Types of Business Organizations.—Effective management of a business under various forms of organization. *Prerequisite:* Accy. 2b.

3	A	8	MWF	224 Com.	Dillavou

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

B.O.O. 14. The Technique of Executive Control.—*Prerequisite:* B.O.O. 1.

Credit	Section	Hours	Days	Room	Instructor
3	F	2	MWF	329 Com.	ANDERSON

B.O.O. 17. Problems in Sales Administration.—*Prerequisite:* Credit or concurrent registration in B.O.O. 7.

2	K	9	TT	329 Com.	HESLIP

B.O.O. 20. Credits and Collections.—*Prerequisite:* B.O.O. 2; junior standing.

3	D	11	MWF	329 Com.	HUEGY

B.O.O. 75. Management of Public Utilities.—*Prerequisite:* Econ. 1 and Accy. 2a.

3	A	8	MWF	223 Com.	GRAY

Courses for Graduates

B.O.O. 102. Marketing Policies and Problems.—(1 unit). Arrange. Professor CONVERSE.

B.O.O. 104. Scientific Management.—(1 unit). Arrange. Professor ANDERSON.

B.O.O. 107. Sales Campaigns.—(1 unit). Arrange. Professor RUSSELL.

B.O.O. 129. Thesis.—(1 unit). Arrange. Professor RUSSELL and others.

C. BUSINESS LAW

Courses for Undergraduates

Bus. Law 1a. General Principles of Business Law.—*Prerequisite:* 60 hours of university credit, including Econ. 1 and Accy. 1b.

3	A	8	MWF	106 Com.	CURTIS
	B	9	MWF	123 Com.	ROBERTS
	K	9	TTS	106 Com.	CURTIS
	C	10	MWF	106 Com.	CURTIS
	L	10	TTS	106 Com.	CURTIS
	D	11	MWF	223 Com.	ROBERTS
	F	2	MWF	224 Com.	DILLAVOU

Bus. Law 1b. General Principles of Business Law.—*Prerequisite:* Bus. Law 1a.

3	A	8	MWF	122 Com.	FRANKLIN
	J	8	TTS	122 Com.	

Bus. Law 2. Elementary Law of Business.—This course is offered exclusively for non-commerce students. *Prerequisite:* Junior standing.

3	A	8	MWF	123 Com.	ROBERTS
	K	9	TTS	223 Com.	

Course for Advanced Undergraduates and Graduates

Bus. Law 10. Law of Security Relations and Banking.—*Prerequisite:* Senior standing and registration or credit in Bus. Law 1b.

3	C	10	MWF	224 Com.	DILLAVOU
	D	11	MWF	224 Com.	

D. BUSINESS ENGLISH

(See Rhetoric 10, 21, and 22 under English Department.)

CERAMIC ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2.00 to $7.50.

Courses for Undergraduates

Cer.E. 1. Ceramic Materials.—*Prerequisite:* Chem. 4.

3	A	8	MWF	214 Cer.
	B	8	MWF	218 Cer.

Cer.E. 21. Ceramic Pyrometry.—*Prerequisite:* General physics; inorganic chemistry. (1). 4 Tu; 214 Cer.

Cer.E. 97. Thesis.—(3 to 5).* Arrange.

Cer.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Cer.E. 5. Ceramic Bodies.—*Prerequisite:* Cer. 1, 4. (5). Quiz, 10 MWF, 218 Cer.; Lab. A, 1-4 MWF, Lab B, 9-12 TTS; 113-114 Cer.

Cer.E. 7. Structural Clay Products.—*Prerequisite:* Cer. 1, 4. (3). Lect. and quiz, 11 MWF; 218 Cer.

Cer.E. 16. Enamels.—*Prerequisite:* Cer. 14. (3). 8 Th, 214 Cer.; 9-12 TT, 102, 113-114 Cer.

Cer.E. 18. Ceramic Microscopy.—*Prerequisite:* Chem. 40; Geol. 47 and 49 or equivalent. (3). 1-4 TT, 9-12 S; 312 Cer.

Cer.E. 22. Kilns and the Burning of Clay Products.—*Prerequisite:* Cer. 5 and 11. (3). 11 MWF; 214 Cer.

Cer.E. 23. Dryer and Kiln Design.—*Prerequisite:* Cer. 11; registration in Cer. 22; G.E.D. 1 or 4. (2). 2-5 TT; 212 Cer.

Courses for Graduates

Cer.E. 101. The Chemistry of the Compounds of Silicon.—*Prerequisite:* Elementary courses in organic and physical chemistry. (1 unit).

Cer.E. 102. General Technology of the Clay Industries.—*Prerequisite:* The elements of mineralogy and of physical chemistry. (1 or 2 units).*

Cer.E. 103. Chemistry of the Silicates.—Laboratory to supplement Ceramic Engineering 101, which must precede or accompany it. (1 to 2 units).*

Cer.E. 106. Research.—Professors Parmelee, Hursh, Andrews.

CHEMISTRY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $18.

Students in the curricula of chemistry and chemical engineering, majors in chemistry, and all others who desire a thorough training in the fundamentals of chemistry and their applications to modern life, should select courses from the following, and usually in the sequence given: Chemistry 1 or 2, 6, 10, 24, 34a, 36b, 37b, 40, 41, 42, 43, 50a, and courses in the chemical engineering, sanitary chemistry, and miscellaneous groups. Students in engineering should register for Chemistry 3 or 2, 4, 24. Students who are compelled to meet chemical requirements briefly may register for the following sequence: Chemistry 1 or 2, 5, 24, 32 or 33.

Students who find it impossible to take more than one semester's work are requested to register in Chemistry 1 or 2 in the second semester rather than in the first.

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, 6, 7, 93a, and inclusive of courses in qualitative, quantitative, and organic chemistry. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from not more than two of the following: bacteriology, botany, ceramic engineering, entomology, geology, mathematics, philosophy, physiology, physics, psychology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in Chemistry 1, 2, 3, 4, 5, 6, and 7.

Courses for Undergraduates

Chem. 7. General Chemistry.—Not open to students who have earned credit in high school chemistry. This course may be applied toward the science group requirements. After completing Chem. 7 a student is permitted to register in Chem. 2; or upon passing a proficiency examination in Chem. 2, he may register in Chem. 4, 5, or 6.

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	10	TT	112 Chem.A.	Hopkins
	70 Quiz	8	MW	8 Chem.A.	
[1]Seniors will receive only 3 hours credit.	Lab.	8–10	TT	1 Chem.A.	
	71 Quiz	10	MW	8 Chem.A., 116 Chem.	
	Lab.	1–3	TT	1 Chem.A.	
	72 Quiz	1	MW	9 Chem.A.	
	Lab.	1–3	TT	1 Chem.A.	
	73 Quiz	3	MW	8 Chem.A.	
	Lab.	3–5	TT	1 Chem.A.	

Chem. 93a. General Chemistry.—Lectures, demonstrations, and recitations. An elementary résumé of the various fields of chemistry. (*Note:* This course is accepted in partial fulfilment of the general science requirement. It is not accepted as a prerequisite to other chemistry courses.) *Prerequisite:* Junior standing or consent of the instructor. No credit is allowed students who have previous credit in college chemistry. (3). 2 MWF; 100 Chem. Professor Buswell and assistant.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 1. Inorganic Chemistry.—*Prerequisite:* One unit of entrance credit in physics, or 2½ units of entrance credit in mathematics, or registration in Math. 2 or 3. Students may register in either lecture section but are required to take the quiz and laboratory in some one section.

[1]Students who have received entrance credit for high school chemistry are given only 3 hours credit for Chem. 1. Seniors will receive only 3 hours credit.

Credit	Section	Hours	Days	Room	Instructor
3 or 5[1]	A Lect.	11	TT	100 Chem.	Reed
	B Lect.	9	TT	100 Chem.	Copley
	1 Quiz	3	TT	300 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	2 Quiz	10	TT	103, 163 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	3 Quiz	1	TT	103, 163 Chem.	
	Lab.	2–5	TT	101 Chem.A.	
	4 Quiz	2	WF	103 Chem.	
	Lab.	1–4	TT	101 Chem.A.	
	5 Quiz	11	MW	103 Chem.	
	Lab.	1–4	TT	212 Chem.A.	
	6 Quiz	8	TT	163, 116, 162 Chem.	
	Lab.	8–10	MWF	1 Chem.A.	
	7 Quiz	1	TT	204 Chem.	
	Lab.	1–3	MWF	101 Chem.A.	
Primarily for students in premedical courses:					
	8 Quiz	10	TT	301 Chem.	
	Lab.	1–3	MWF	101 Chem.A.	
	9 Quiz	11	MW	201 Chem.	
	Lab.	1–4	TT	212 Chem.A	
	10 Quiz	2	WF	300 Chem.	
	Lab.	1–4	TT	101 Chem.A.	
	11 Quiz	10	TT	116 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	12 Quiz	3	TT	204 Chem.	
	Lab.	10–12	MWF	201 Chem.A.	
Primarily for students in the College of Agriculture:					
	14 Quiz	3	TT	210 Chem.A.	
	Lab.	10–12	MWF	1 Chem.A.	
	15 Quiz	10	TT	210 Chem.A.	
	Lab.	10–12	MWF	201 Chem.A.	
	16 Quiz	1	TT	308 Chem.A.	
	Lab.	1–3	MWF	201 Chem.A.	
	17 Quiz	10	TT	9 Chem.A.	
	Lab.	1–3	MWF	201 Chem.A.	
For students majoring in home economics:					
	18 Quiz	1	TT	301 Chem.	
	Lab.	1–3	MWF	1 Chem.A.	
	19 Quiz	8	TT	204 Chem.	
	Lab.	8–10	MWF	1 Chem.A.	

Chem. 2. Inorganic Chemistry.—(For all students who have had high school chemistry.) *Prerequisite:* One unit of entrance credit in chemistry. Students may register for any lecture section, but are required to take the quiz and laboratory in some one section. Students in the curriculum of chemistry or chemical engineering should register in Sections 47 and 48. *Note:* Students whose preparation in chemistry is inadequate are advised to register for Chem. 1 or 3 rather than Chem. 2.

[1]Seniors will receive only 2 hours credit in Chem. 2. Students below the rank of senior receive 5 hours credit, provided their high school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.

2, 3, or 5[1]	D Lect.	10	F	100 Chem.	Audrieth
	E Lect.	11	F	100 Chem.	Quill
	F Lect.	9	F	100 Chem.	Bailar
	20 Quiz	1	TT	201, 111 Chem.	
	Lab.	8–10	S	1 Chem.A.	
	21 Quiz	10	TT	303, 300 Chem.	
	Lab.	8–10	Th	1 Chem.A.	
	22 Quiz	2	MW	201 Chem.	
	Lab.	8–10	Tu	212 Chem.A.	
	23 Quiz	1	WF	201, 204 Chem.	
	Lab.	2–4	W	212 Chem.A.	
	24 Quiz	9	MW	162 Chem.	
	Lab.	1–3	M	212 Chem.A.	
	25 Quiz	10	MW	201 Chem.	
	Lab.	10–12	Th	212 Chem.A.	
Primarily for students in premedical courses:					
	26 Quiz	10	TT	308 Chem.A.	
	Lab.	8–10	Th	1 Chem.A.	
	27 Quiz	2	MW	204 Chem.	
	Lab.	8–10	Tu	212 Chem.A.	
	28 Quiz	10	MW	300 Chem.	
	Lab.	10–12	Th	212 Chem.A.	
	29 Quiz	11	TT	204 Chem.	
	Lab.	3–5	Th	1 Chem.A.	
	30 Quiz	9	TT	9 Chem.A.	
	Lab.	1–3	W	1 Chem.A.	

Chem. 2. Inorganic Chemistry.—(Concluded)

Credit	Section	Hours	Days	Room	Instructor
Primarily for students in the College of Engineering:					
2, 3, or 5[1]	31 Quiz	11	TT	201, 303 Chem.	
	Lab.	8–10	Th	212 Chem.A.	
	32 Quiz	11	TT	300 Chem.	
	Lab.	1–3	Th	1 Chem.A.	
	33 Quiz	8	TT	300 Chem.	
	Lab.	8–10	S	101 Chem.A.	
	34 Quiz	9	TT	8 Chem.A.	
	Lab.	1–3	W	101 Chem.A.	
	35 Quiz	1	TT	303 Chem.	
	Lab.	8–10	S	101 Chem.A.	
	36 Quiz	8	WF	210 Chem.A., 103 Chem.	
	Lab.	8–10	M	101 Chem.A.	
	37 Quiz	1	WF	8 Chem.A.	
	Lab.	2–4	W	201 Chem.A.	
	38 Quiz	9	MW	210 Chem.A., 163 Chem.	
	Lab.	1–3	M	201 Chem.A.	
Primarily for students in the College of Agriculture:					
	40 Quiz	8	TT	303 Chem.	
	Lab.	8–10	S	201 Chem.A.	
	42 Quiz	10	TT	204 Chem.	
	Lab.	8–10	Th	201 Chem.A.	
For students majoring in home economics:					
	44 Quiz	8	TT	301, 111 Chem.	
	Lab.	8–10	M	201 Chem.A.	
For students in the curricula of chemistry and chemical engineering:					
	47 Quiz	11	MW	300, 301 Chem.	
	Lab.	1–3	Tu	201 Chem.A.	
	48 Quiz	10	MW	9, 308 Chem.A.	
	Lab.	1–3	Th	201 Chem.A.	

[1]Seniors will receive only 2 hours credit in Chem. 2. Students below the rank of senior receive 5 hours credit, provided their high school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.

Chem. 3. Inorganic Chemistry.—(For engineering students who have had no chemistry.) Students may register for any lecture section, but are required to take the quiz and laboratory in some one section. *Note:* Students who have credit for high school chemistry should register for Chem. 2 rather than Chem. 3.

3 or 4[1]	A Lect.	11	TT	100 Chem.	Reed
	B Lect.	9	TT	100 Chem.	Copley
	81 Quiz	8	WF	300 Chem.	
	Lab.	1–3	TT	201 Chem.A.	
	82 Quiz	1	WF	303 Chem.	
	Lab.	8–10	TT	201 Chem.A.	
	83 Quiz	11	MW	111 Chem.	
	Lab.	8–10	MW	101 Chem.A.	
	84 Quiz	10	TT	111 Chem.	
	Lab.	1–3	WF	1 Chem.A.	

[1]Students who have used their high school chemistry for entrance credit are given only 3 hours credit for Chem. 3. Seniors will receive only 3 hours credit.

Chem. 10. Qualitative Analysis.—(Open to all students; required of those majoring in chemistry or registered in the curricula of chemistry or chemical engineering.) *Prerequisite:* Chem. 6.

5 or 2[1]	Lect.	9	W	100 Chem.	Reedy
	1 Quiz	9	MF	103, 111 Chem.	
	Lab.	8–11	TTS	310 Chem.A.	
	2 Quiz	9	MF	201, 300 Chem., 308 Chem.A.	
	Lab.	1–4	MWF	310 Chem.A.	
	3 Quiz	9	MF	8, 9 Chem.A.	
	Lab.	1–4	TT	310 Chem.A.	
		8–11	S	310 Chem.A.	
	4 Quiz[1]	9	MF	116 Chem.	

[1]Students who already have credit for the laboratory work of qualitative analysis may, with the consent of the instructor, register for lecture and quiz only, and receive a credit of 2 hours. Such students must register in section 4.

Chem. 22. Elementary Quantitative Analysis.—*Prerequisite:* Chem. 4 or 5. (For all students who have not followed the sequence Chemistry 1, 2 or 3, 6 and 10.)

5	Lect.	11	W	112 Chem.A.	Englis
	A Quiz	11	MF	308 Chem.A.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	11	MF	8, 9 Chem.A.	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S	301 Chem.A.	

Chem. 24. Quantitative Analysis.—*Prerequisite:* Chem. 10.

5	Lect.	9	F	112 Chem.A.	Clark
	A Quiz	9	MW	204 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	9	MW	303 Chem.	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S	301 Chem.A.	

Chem. 24. Quantitative Analysis.—(Concluded)

Credit	Section	Hours	Days	Room	Instructor
For students majoring in ceramics:					
5	C Quiz	9	MW	301 Chem.	
	Lab.	9–12	TTS	301 Chem.A.	

Chem. 32. Elementary Organic Chemistry.—(Especially for students in agriculture.) *Prerequisite:* Chem. 5 or 10.

3	Lect.	8	TT	161 Chem.	FUSON and assistants
	Quiz	1	Tu	116, 161 Chem.	
	Lab.	2–5	Tu	250 Chem.	

Chem. 33. Elementary Organic Chemistry.—(For students in home economics and pre-medical courses.) *Prerequisite:* Chem. 10 or 5. (Limited to 120 students.)

5	Lect.	8	MW	100 Chem.	SHRINER and assistants
	Quiz	8	F	100 Chem. 204 Chem. 163 Chem. 217 Chem. 303 Chem.	
Quiz section assignments will be made by the instructor after registration is complete.					
	Conf.	8	Tu	217 Chem.	
	Lab.	9–11	Tu	250 Chem.	
		8–11	Th	250 Chem.	

Chem. 34a. Organic Chemistry.—(For students majoring in chemistry or for those registered in the curriculum of chemistry or of chemical engineering.) *Prerequisite:* Chem. 6, 10, and 24.

5	Lect.	9	MWF	217 Chem.	MARVEL and assistants
	Conf.	1	M	217 Chem.	
	Lab.	2–4	M	250 Chem.	
		1–4	W	250 Chem.	

Chem. 90a. Thesis.—(*Note:* Senior research in chemistry and chemical engineering optional instead of required. Each student who desires research must receive special permission both from the instructor under whom he is to work and from the head of the division in which the research is to be taken. Such written permission should be presented, at the time of registration, to the adviser for the chemists or chemical engineers.) *Prerequisite:* Chem. 24, 34a, 40, 41, 42, and 43, or the consent of the head of the department. (3 to 5).* Professor ADAMS (in charge).

Courses for Advanced Undergraduates and Graduates

Chem. 15a. Inorganic Chemistry.—*Prerequisite:* Senior standing, and 10 hours credit in chemistry in addition to the elementary courses.

2		9	MW	112 Chem.A.	BAILAR

Chem. 16a. Inorganic Chemistry.—(Laboratory.) *Prerequisite:* Registration or credit in Chem. 15a.

2	Conf.	9	F	301 Chem.	AUDRIETH
	Lab.	Arrange		350 Chem.	

Chem. 27. Special Methods and Instruments in Quantitative Analysis.—*Prerequisite:* Chem. 24, 34a 40 and 41, or registration in 40 and 41.

3	Lect.	11	Tu	161 Chem.	SMITH
	A Lab.	1–4	TT	305 Chem.	
	B Lab.	1–4	F	305 Chem.	
		8–11	S	305 Chem.	

Chem. 38a. Qualitative Organic Analysis.—*Prerequisite:* Chem. 36b and 37b.

3	Conf.	1	TT	217 Chem.	MARVEL
	Lab.	2–4	TT	250 Chem.	

Chem. 40. Elementary Physical Chemistry.—*Prerequisite:* Chem. 24; Physics 1a-1b or 7a-7b; Math. 7 or 8. (3). 10 MWF; 217 Chem. Professor RODEBUSH.

Chem. 41. Elementary Physical Chemistry.—(Laboratory.) To accompany Chem. 40.

1	A Lab.	1–4	Tu	124 Chem.	PHIPPS
	B Lab.	1–4	Th	124 Chem.	
	C Lab.	1–4	F	124 Chem.	

Chem. 42. Elementary Physical Chemistry.—*Prerequisite:* Chem. 40. (3). 9 TTS; 161 Chem. Associate Professor PHIPPS.

Chem. 43. Elementary Physical Chemistry.—(Laboratory.) *Prerequisite:* Chem. 40, 41, and registration in Chem. 42.

1	A Lab.	1–4	Th	124 Chem.	PHIPPS
	B Lab.	1–4	F	124 Chem.	

Chem. 44a. Advanced Physical Chemistry.—*Prerequisite:* Chem. 40, 41. (2). 10 TT; 161 Chem. Associate Professor PHIPPS.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 50a. Physiological Chemistry.—*Prerequisite:* Chem. 24 or 22, and 33 or 34a.

Credit	Section	Hours	Days	Room	Instructor
5	Lect.	9	TT	217 Chem.	ROSE, CARTER, assistants
	A Lab.	1–4	TT	450 Chem.	
		8–11	S	450 Chem.	
	B Lab.	1–4	MWF	450 Chem.	

Chem. 60a. Chemical Technology.—*Prerequisite:* Chem. 24, registration in Chem. 34a. (Estimated cost of inspection trip is $30-$35 per student.)

4	Lect.	11	MWF	161 Chem.	KISTLER
	A Lab.	1–5	M	50 Chem.	
	B Lab.	1–5	Tu	50 Chem.	
	C Lab.	1–5	Th	50 Chem.	
	D Lab.	1–5	F	50 Chem.	

Chem. 61a. Principles of Chemical Engineering.—*Prerequisite:* Chem. 42 or senior standing.

4	Lect.	9	MWF	161 Chem.	KRASE
	A Lab.	1–5	M	50 Chem.	HOWARD
	B Lab.	1–5	Tu	50 Chem.	HOWARD
	C Lab.	1–5	W	50 Chem.	HOWARD
	D Lab.	1–5	Th	50 Chem.	HOWARD

Chem. 62a. Principles of Research and Development in Chemical Engineering.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (2). Lect., 10 MW; 161 Chem. Professor KEYES.

Chem. 73a. Metallurgy.—*Prerequisite:* Senior standing in engineering courses only. (3). Lect., 8 MWF; 161 Chem. Mr. HOWARD.

Chem. 86a. Chemistry of Sanitation.—*Prerequisite:* Chem. 24. Lectures, demonstrations, and field trips. (3). 10 MWF; 162 Chem. Professor BUSWELL and assistant.

Chem. 92a. Chemical Literature and Reference Work.—(Required of juniors in chemistry; expected also of juniors taking major work in chemistry.) *Prerequisite:* 18 hours of chemistry, one year of French or German, junior standing.

1	A	10	Th	201 Chem.	BARTOW
	B	8	F	201 Chem.	
Graduates only....	K	4	W	201 Chem.	

Chem. 95a. History of Science with Particular Reference to Chemistry.—*Prerequisite:* Junior standing and 20 hours of laboratory science. (2). 8 TT; 112 Chem.A. Dr. BARTOW.

Courses for Graduates

Chem. 101a. Inorganic Chemistry.—(½ unit). (For laboratory work see Chem. 102a.) 8 MW; 303 Chem. Professor HOPKINS.

Chem. 102a. Inorganic Chemistry.—(Laboratory work to accompany or follow Chem. 101a.) Arrange. (¼ to 1 unit).* Professor HOPKINS.

Chem. 105a. Inorganic Seminar and Special Topics.—(¼ to 1 unit).* Seminar, 11 S; 162 Chem. Special topic: Non-aqueous Solvents as Media for Chemical Reactions (Dr. AUDRIETH). 9 MW; 105 Chem.A. Professor HOPKINS.

Chem. 123a. Qualitative Analysis.—(½ unit). Lectures. 11 MF; 116 Chem. Associate Professor REEDY.

Chem. 123c. Qualitative Analysis.—(Laboratory work, optional, to accompany Chem. 123a.) (¼ to ¾ unit).* Arrange. Associate Professor REEDY.

Chem. 125a. Quantitative Analysis.—(Seminar). (Required of all students taking a major or minor in analytical chemistry.) (¼ to 1 unit).* 4 Th; 162 Chem. Professor CLARK.

Chem. 126a. Quantitative Instrumental and Chemical Methods of Analysis in Chemical Research.—(Ultimate bomb analysis, gas density, polarimetry, refractometry, spectrophotometry, colorimetry, microscopy, etc.). (½ unit). Lectures. 9 TT; arrange. Assistant Professor ENGLIS.

Chem. 126c. Quantitative Instrumental and Chemical Methods of Analysis in Chemical Research.—(Laboratory work, optional, to accompany Chem. 126a.) (¼ to ¾ unit).* Arrange; 305a Chem. Assistant Professor ENGLIS.

Chem. 127a. Modern Applications of X-rays to Chemical and Industrial Problems.—(½ unit). Lectures. 10 TT; 217 Chem. Professor CLARK.

Chem. 127c. Modern Applications of X-rays to Chemical and Industrial Problems.—(Laboratory work, optional, to accompany Chem. 127a.) (¼ to ½ unit).* Arrange; 308 Chem. Professor CLARK.

Chem. 132a. Organic Chemistry.—(First course.) (¾ unit). 11 TT; 217 Chem. Associate Professor SHRINER.

Chem. 134. Organic Chemistry.—Chiefly laboratory work. (½ to 1 unit).* Arrange; 219 Chem. Associate Professor SHRINER.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 135a. Organic Chemistry.—(Seminar). (¼ unit). Once a week. 11 W; 217 Chem. Professor ADAMS.

Chem. 136a. Organic Chemistry.—Special Topics. (¾ unit). 11 TT; 112 Chem.A. Professor FUSON.

Chem. 145a. Physical Chemistry.—(Seminar). (¾ unit). 10-12 S; 176 Chem. Professor RODEBUSH.

Chem. 152a. Physiological Chemistry.—Chiefly laboratory. (½ to 1 unit).* Arrange; 467b Chem. Professor ROSE.

Chem. 155a. Physiological Chemistry.—(Seminar required of all students majoring in physiological chemistry). (¾ unit). Two hours a week. 9-11 F; 456 Chem. Professor ROSE.

Chem. 160a. Advanced Chemical Technology and Chemical Engineering.—*Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 1 MW; 162 Chem. Professor KEYES.

Chem. 161a. Chemical Plant Design.—Calculations and layout of equipment for recently developed processes. *Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 9 TT; 162 Chem. Associate Professor KRASE.

Chem. 186a. Sanitary Chemistry.—(½ to 1¼ units).* Arrange; 60b Chem. Professor BUSWELL.

Chem. 190a. Research.—Work may be taken in the following subjects:

Physical and Electrochemistry.—Professor RODEBUSH, Associate Professor PHIPPS.

Inorganic Chemistry.—Professor HOPKINS; Associate Professor REEDY; Dr. AUDRIETH, Dr. BAILAR, Dr. QUILL, Dr. COPLEY.

Analytical Chemistry.—Professor CLARK; Associate Professor REEDY; Assistant Professors SMITH, ENGLIS.

Food Chemistry.—Assistant Professor ENGLIS.

Applied X-rays.—Professor CLARK.

Organic Chemistry.—Professors ADAMS, MARVEL, FUSON; Associate Professor SHRINER; Dr. BAILAR.

Zymochemistry.—Professor BUSWELL.

Phytochemistry.—Assistant Professor ENGLIS.

Physiological Chemistry.—Professor ROSE.

Chemical Engineering.—Professor KEYES; Associate Professor KRASE; Assistant Professor KISTLER, Mr. HOWARD, Assistant Professor SWANN.

Ceramic Chemistry.—Professor PARMELEE.

CIVIL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $2.50.

Courses for Undergraduates

C.E. 1. Plane Surveying.—*Prerequisite:* Math. 4; G.E.D. 1 or 4.

Credit	Section	Hours	Days	Room	Instructor
3	E	8–10	MWF	C.E.S.B.	RAYNER
	F	10–12	MWF	C.E.S.B.	DELL
	G	1–3	MWF	C.E.S.B.	DELL
	H	1–3	MWF	C.E.S.B.	PICKELS

C.E. 3. Railway and Highway Surveying.—*Prerequisite:* C.E. 1, 15, 16 or 18.

4	E	8–10	MTTF	407 E.H.	WILEY

C.E. 15. General Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

3	E	8–11	TT	C.E.S.B.	DELL
	F	1–4	MF	C.E.S.B.	WILEY
	G	1–4	TT	C.E.S.B.	RAYNER

C.E. 17. Surveying for Landscape Architects.—*Prerequisite:* Math. 4.

3	E	1–3	MWF	C.E.S.B.	RAYNER

C.E. 20a. Highway Construction.—*Prerequisite:* C.E. 2, 15, or 18, or consent of instructor.

3	E	11	MWF	101 E.H.	WILEY

C.E. 21. Highway Construction.—*Prerequisite:* C.E. 20.

2	E	9	TT	101 E.H.	CRANDELL
	F	10	TT	102 E.H.	WILEY
	G	11	TT	112 M.T.L.	BAUER

C.E. 22. Highway and Municipal Design.—*Prerequisite:* C.E. 21.

4	E	10	MWF	101 E.H.	CRANDELL
		1–4	Th	309 E.H.	

C.E. 30. Highway Materials Laboratory.—*Prerequisite:* Registration or credit in C.E. 21 or 20a.

1	E	1–4	Th	112-201 M.T.L.	BAUER
	F	1–4	W	112-201 M.T.L.	BAUER
	G	1–4	Tu	112-201 M.T.L.	BAUER

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

C.E. 35. Plain Concrete.—*Prerequisite:* Sophomore standing in engineering, architecture, or landscape architecture.

Credit	Section	Hours	Days	Room	Instructor
2	E	8	Tu	112 M.T.L.	Bauer
		8–11	Th	112 M.T.L.	
	F	1	F	112 M.T.L.	Bauer
		1–4	M	112 M.T.L.	

C.E. 40. Water Supply.—*Prerequisite:* T.A.M. 3 and 4.

4	E	9	MWF	208 E.H.	Babbitt
		1–4	Tu	211 E.H.	
	F	10	MWF	208 E.H.	Babbitt
		1–4	Tu	214 E.H.	

C.E. 41. Sewerage.—*Prerequisite:* C.E. 40 or 40a.

3	E	11	MW	400 E.H.	Doland
		1–4	Tu	309 E.H.	

C.E. 42. Water Purification.—*Prerequisite:* Registration or credit in C.E. 40 or 40a.

4	E	11	MF	208 E.H.	Babbitt
		9–12	TT	214 E.H., 113 M.T.L.	

C.E. 49. Municipal Sanitation.—*Prerequisite:* 60 hours of university credit.

3	E	10	MWF	205 E.H.	Doland

C.E. 50. Hydrology.—*Prerequisite:* Senior standing in engineering.

2	E	9	TT	208 E.H.	Pickels
	F	10	TT	208 E.H.	Pickels

C.E. 60. Bridge and Building Construction.—*Prerequisite:* Sophomore standing in the University.

3	E	11	MWF	102 E.H.	Oliver
	F	1	MWF	102 E.H.	Doland
	G	9	MWF	102 E.H.	Doland
	H	10	MWF	102 E.H.	Oliver

C.E. 61. Structural Stresses.—*Prerequisite:* Registration or credit in T.A.M. 3.

4	E	9	MWF	405 E.H.	Shedd
		1–4	Tu	419 E.H.	
	F	10	MWF	405 E.H.	Shedd
		1–4	Tu	419 E.H.	
	G	10	MWF	400 E.H.	Vawter
		1–4	Th	419 E.H.	

C.E. 62. Elementary Structural Design.—*Prerequisite:* Registration or credit in C.E. 62.

3	E	8–10	MWF	419 E.H.	Vawter

C.E. 63. Theory of Reinforced Concrete.—*Prerequisite:* T.A.M. 3.

2	E	10	TT	205 E.H.	Vawter

C.E. 64. Structural Design.—*Prerequisite:* C.E. 62 and 63.

4	E	1	M	205-211 E.H.	Shedd
		2–5	M	205-211 E.H.	
		1–4	WF	211 E.H.	
	F	1	M	208-214 E.H.	Stubbs
		2–5	M	208-214 E.H.	
		1–4	WF	214 E.H.	
	G	1	M	405-309 E.H.	Oliver
		2–5	M	405-309 E.H.	
		1–4	WF	309 E.H.	

C.E. 66. Masonry Construction.—*Prerequisite:* C.E. 61 and 63.

3	E	8	MWF	102 E.H.	Huntington

C.E. 67. Statically Indeterminate Structures.—*Prerequisite:* Registration or credit in C.E. 64.

3	E	11	MWF	205 E.H.	Cross

C.E. 86. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 61.

4	E	9	MF	408 E.H.	Stubbs
		8–11	TT	408 E.H.	

C.E. 89. Structural Engineering.—*Prerequisite:* Senior standing in engineering or architecture.

3	E	9	MWF	400 E.H.	Oliver

C.E. 90. Contracts and Specifications.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	9	MW	101 E.H.	Crandell
	F	11	TT	205 E.H.	Vawter

C.E. 91. Estimates and Costs.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	8	MF	405 E.H.	Stubbs

C.E. 98. Thesis.—*Prerequisite:* High standing and approval of head of department.

1		To be arranged	Members of the department

C.E. 99. Inspection Trip.—No credit, but required for graduation.

Courses for Graduates

	Credit	Section	Hours	Days	Room	Instructor
C.E. 101. Water Supply.—	1 unit		11	TT	204 E.H.	Babbitt
C.E. 103. Highway Engineering.—	1 unit		11	MW	308 E.H.	Crandell
C.E. 105. Reinforced Concrete Theory.—	1 unit		4	MF	205 E.H.	Cross
C.E. 106. Reinforced Concrete Structures.—	1 unit		4	TT	205 E.H.	Cross
C.E. 109. Water Purification and General Sanitation.—	1 unit		8	MW	204 E.H.	Babbitt
C.E. 112. Masonry Construction.—	1 unit		9	MW	201 E.H.	Huntington
C.E. 130. Hydrology.—	1 unit		1	TT	208 E.H.	Pickels
C.E. 140. Research.—	½-2 units*		To be arranged			Members of the department
C.E. 198. Thesis.—	1-2 units*		To be arranged			Members of the department

CLASSICS

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, and 17.

Minors: 20 hours chosen from not more than two of the following: foreign language (Latin being especially recommended), English literature, history, and philosophy. At least eight hours must be taken in each subject, if two are chosen.

Latin

Major: 20 hours, excluding Latin 1a-1b, 6, 11a-11b, 13, and 20, and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours chosen from not more than two of the following: foreign language (Greek being especially recommended), English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17 and Latin 1a-1b, 6, 9, 11a-11b, 13, 20. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours chosen from not more than two of the following: foreign language, English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

A. GREEK

Courses for Undergraduates

Greek 1a. Elementary Greek.—(4). 11 TWTF; 120 L.H. Associate Professor Perry.

Greek 3. Second Year Greek. Plato.—*Prerequisite:* Greek 1a-1b. (3). 11 MWF; 114 L.H. Mr. Johnston.

Courses for Advanced Undergraduates and Graduates

Greek 5. Herodotus and Lyric Poets.—*Prerequisite:* Greek 3 and 4 or an equivalent. (3). 9 TTS; 114 L.H. Associate Professor Perry.

Greek Life and History

Note: For Greek 16, 18, and History 55, a knowledge of Greek is not presupposed.

Greek 16. Life of the Ancient Greeks.—*Prerequisite:* Sophomore standing. (1). 3 Th; 120 L.H. Dr. Rapp.

Greek 18. Greek Archaeology.—*Prerequisite:* Sophomore standing. (2). 2 TT; 120 L.H. Dr. Rapp.

Greek History.—See History 55. 1 MWF; 202 L.H. Professor Oldfather.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

Note: Students desiring to take graduate work in Greek should have had at least three years of college Greek or an equivalent.

Greek 105b. Plato.—(1 unit). Twice a week. Arrange. Professor OLDFATHER.

Greek 110a. See Latin 110a.

Greek 121. Thucydides.—(1 unit). Twice a week. 9 MF; 124 L.H. Associate Professor PERRY.

B. LATIN

Courses for Undergraduates

Latin 6. Cicero.—*Prerequisite:* Two entrance units in Latin or Latin 11a-11b. (4). 2 TWTF; 114 L.H. Mr. STONE.

Latin 1a. Ovid.—*Prerequisite:* Three entrance units in Latin or Latin 6. (4). 1 TWTF; 114 L.H. Mr. JOHNSTON.

Latin 12a. Plautus, Terence, Catullus.—*Prerequisite:* Four entrance units in Latin or Latin 1a-1b. (4). 9 TWTF; 120 L.H. Professor CANTER.

Latin 3. Lucretius and Horace (Odes).—*Prerequisite:* Latin 12a-12b or an equivalent. (3). 10 MWF; 120 L.H. Professor CANTER.

Latin 5a. Latin Composition.—*Prerequisite:* Three entrance units in Latin or Latin 6. Required to secure the department's recommendation to teach. (1). 4 Th; 120 L.H. Dr. RAPP.

ROMAN LIFE AND HISTORY

Latin 20. Mythology of Greece and Rome.—*Prerequisite:* Sophomore standing. *Note:* This course presupposes no knowledge of Latin and is open to all students except freshmen. (2). 2 TT; 202 L.H. Associate Professor PERRY.

Courses for Advanced Undergraduates and Graduates

Latin 18. Roman Archeology.—(2). 1 TT; 120 L.H. Dr. RAPP.

Latin 23. Livy, Tibullus, and Propertius.—*Prerequisite:* 12 hours of Latin acceptable for a major. (3). 2 MWF; 120 L.H. Professor CANTER.

Latin 30a. Honors Course.—Thesis or a special course of study approved by the department. *Prerequisite:* Senior standing and 14 hours of Latin acceptable for a major. (2). Arrange. Professor CANTER.

Courses for Graduates

Note: Students desiring to take graduate work in Latin should have had at least three years of college Latin in addition to the Latin presented to meet entrance requirements.

Latin 102. Roman Oratory.—(1 unit). 4 MW; 120 L.H. Professor CANTER.

Latin 104. Latin Paleography.—(1 unit). Twice a week. Arrange. Professor OLDFATHER.

Latin 110a. Bibliography and Criticism.—(1 unit). Arrange. Professors OLDFATHER, CANTER; Associate Professor PERRY.

DAIRY HUSBANDRY

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

Courses for Undergraduates

D.H. 1. Testing Dairy Products.—*Prerequisite:* D.H. 24b or sophomore standing. (3). 1-4 TT; 503 Agr. Assistant Professor OVERMAN, Mr. GARRETT.

D.H. 6a. Dairy Products Plant Operations.—*Prerequisite:* D.H. 24b and consent of instructor. (3). Arrange. Associate Professor TRACY, Mr. TUCKEY.

D.H. 22. Cheese Making.—*Prerequisite:* D.H. 24b and sophomore standing. (3). 8 TT; 7-12 S. D.Mfrs. Professor RUEHE, Mr. TUCKEY.

D.H. 23a-j. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; approval of head of department. (5). Arrange.

(a) **Dairy Bacteriology.**—Professor PRUCHA, Assistant Professor BRANNON.
(c) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(e) **Dairy Farming and Economic Milk Production.**—Professor FRASER.
(g) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.
(j) **Dairy Production.**—Professors GAINES, YAPP; Associate Professor NEVENS.

D.H. 24a. Elementary Dairy Production.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	9	M	127 New Agr.	NEVENS, KUHLMAN
[1]Juniors and seniors	Lab.	8-10	W	S.P.	
receive only 2 hours	Quiz	9	F	205 Agr.	
credit.				127 New Agr.	

D.H. 24b. Elementary Testing and Manufacture of Dairy Products.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	1	Th	D.Mfrs.	TUCKEY, RAMSEY
[1]Juniors and seniors	Quiz	2	Th	D.Mfrs.	
receive only 2 hours	A Lab.	1–3	Tu	D.Mfrs.	
credit.	B Lab.	10–12	Tu	D.Mfrs.	

Courses for Advanced Undergraduates and Graduates

D.H. 4. Ice Cream Making.—*Prerequisite:* D.H. 24b and junior standing. (5). 1-4 TT, 4 MWF; D.Mfrs. (Inspection trip requirement waived for 1934-35). Associate Professor TRACY, Mr. RAMSEY.

D.H. 10. Advanced Dairy Bacteriology.—*Prerequisite:* Bact. 5a and 5b; junior standing. (4). 1-4 MWF; 456 Agr. Assistant Professor BRANNON, Professor PRUCHA.

D.H. 17. Advanced Study of Dairy Breeds.—*Prerequisite:* D.H. 2 and junior standing. (3). Arrange; 553 Agr. Professor YAPP.

D.H. 20. Economic Problems in Dairy Farming.—*Prerequisite:* Junior standing. (3). 9 MWF; 553 Agr. Professor FRASER.

D.H. 25. Advanced Study of Dairy Cattle Feeding.—*Prerequisite:* D.H. 2 and junior standing. (2). Arrange; 120 Agr. Associate Professor NEVENS.

Courses for Graduates

D.H. 101. Economic Milk Production.—(½ to 2 units).* Twice a week. Arrange. Professor FRASER.

D.H. 105. Dairy Manufactures.—(½ to 2 units).* Arrange. Professor RUEHE, Associate Professor TRACY.

D.H. 106. Dairy Bacteriology.—(½ to 2 units).* Arrange. Professor PRUCHA.

D.H. 107. Dairy Chemistry.—(½ to 2 units).* Arrange. Assistant Professor OVERMAN.

D.H. 108. Physiology of Lactation.—(½ to 2 units).* Arrange. Professor GAINES.

D.H. 112a-f. Research.—(1 to 4 units).* Arrange. *Note:* Graduate students writing a thesis should so indicate when registering in D.H. 112.

(a) **Dairy Bacteriology.**—Professor PRUCHA.
(b) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(c) **Dairy Cattle Breeding.**—Professor YAPP.
(d) **Dairy Cattle Feeding.**—Associate Professor NEVENS.
(e) **Milk Production.**—Professor GAINES.
(f) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.

D.H. 113. Seminar.—Current literature in dairy bacteriology, dairy chemistry, and dairy manufactures. (½ unit). Once a week. Members of the graduate staff.

D.H. 114. Seminar.—Current literature in biology of milk production. (½ unit). Once a week. Professor GAINES.

ECONOMICS

(Including courses formerly listed as Public Utilities and Transportation)

(See also Agricultural Economics and Business Organization and Operation)

Major: For students in the College of Liberal Arts and Sciences. 20 hours made up of Economics 1 and other courses in economics for which it is a prerequisite.

Minors: 20 hours in any one or two of the following subjects: geography, history, philosophy, political science, and sociology.

Note: Economics 22 and 27 are open only to freshmen, without previous requirements.

Economics 1 is the fundamental course in economics. It is a prerequisite for most of the advanced courses, and students expecting to do advanced work in economics should take it in their sophomore year.

The courses in economics may be grouped in several rather distinct fields in which students may find it profitable to concentrate in their junior and senior years. The following fields are suggested: economic theory, history, and statistics; public and private finance, including insurance; labor; foreign trade; public utilities and transportation.

Courses for Undergraduates

Econ. 1. Principles of Economics.—*Prerequisite:* 30 hours of university work.

5	[1]Lect. I	9	TT	114 Com.	THOMPSON, BEHLING,
	B1 Quiz	9	MWF	312 Com.	and others
[1]Students registered in	B2 Quiz	9	MWF	307 Com.	
quiz sections listed under	B3 Quiz	9	MWF	328 Com.	
Lect. I must enroll in	B4 Quiz	9	MWF	326 Com.	
Lect. I; those under	B5 Quiz	9	MWF	111 Com.	
Lect. II in Lect. II.	C2 Quiz	10	MWF	108 Com.	
	E Quiz	1	MWF	113 Com.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Econ. 1. Principles of Economics.—(Concluded)

Credit	Section	Hours	Days	Room	Instructor
5	Lect. II	11	TT	114 Com.	THOMPSON, BEHLING, and others
	A Quiz	8	MWF	307 Com.	
	C1 Quiz	10	MWF	328 Com.	
	D1 Quiz	11	MWF	111 Com.	
	D2 Quiz	11	MWF	326 Com.	
	D3 Quiz	11	MWF	108 Com.	
	D4 Quiz	11	MWF	325 Com.	
	F Quiz	2	MWF	306 Com.	

Econ. 2. Elements of Economics.—*Prerequisite:* 30 hours of university work. Exclusively for non-commerce students. Not open to those who have had Econ. 1.

3	A Quiz	8	MWF	326 Com.	LOUNSBURY and others
	B Quiz	9	MWF	219 Com.	
	C1 Quiz	10	MWF	325 Com.	
	C2 Quiz	10	MWF	222 Com.	
	C3 Quiz	10	MWF	305 P.L.	
	C4 Quiz	10	MWF	111 Com.	
	C5 Quiz	10	MWF	219 Com.	
	D Quiz	11	MWF	222 Com.	
	E1 Quiz	1	MWF	111 Com.	
	E2 Quiz	1	MWF	326 Com.	
	E3 Quiz	1	MWF	222 Com.	
	F1 Quiz	2	MWF	326 Com.	
	F2 Quiz	2	MWF	222 Com.	
	J Quiz	8	TTS	307 Com.	
	K Quiz	9	TTS	326 Com.	
	L Quiz	10	TTS	326 Com.	

Econ. 3. Money, Credit, and Banking.—*Prerequisite:* Econ. 1 or 2.

3	Lect.	9	W	114 Com.	LEE and others
	B1 Quiz	9	MF	325 Com.	
	B2 Quiz	9	MF	305 Com.	
	B3 Quiz	9	MF	322 Com.	
	K Quiz	9	TT	307 Com.	
	L Quiz	10	TT	307 Com.	
	M Quiz	11	TT	306 Com.	

Econ. 22. Economic History of the United States.—Open to freshmen only.

3	[1]Lect. I	1	M	114 Com.	BOGART and others
	E1 Quiz	1	WF	101 Com.	
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II; and those under Lect. III in Lect. III.	E2 Quiz	1	WF	122 Com.	
	E3 Quiz	1	WF	106 Com.	
	E4 Quiz	1	WF	125 Com.	
	E5 Quiz	1	WF	108 Com.	
	J Quiz	8	TT	111 Com.	
	K1 Quiz	9	TT	219 Com.	
	N Quiz	1	TT	108 Com.	
	Lect. II	2	M	114 Com.	BOGART
	F1 Quiz	2	WF	108 Com.	
	F2 Quiz	2	WF	125 Com.	
	F3 Quiz	2	WF	122 Com.	
	F4 Quiz	2	WF	101 Com.	
	F5 Quiz	2	WF	106 Com.	
	O1 Quiz	2	TT	108 Com.	
	O2 Quiz	2	TT	306 Com.	
	K2 Quiz	9	TT	111 Com.	
	Lect. III	10	T	114 Com.	
	A Quiz	8	MW	111 Com.	
	B Quiz	9	MW	106 Com.	
	C Quiz	10	MW	123 Com.	
	D Quiz	11	MW	122 Com.	
	G Quiz	3	MW	326 Com.	
	K3 Quiz	9	ThS	222 Com.	
	L1 Quiz	10	ThS	306 Com.	
	L2 Quiz	10	ThS	222 Com.	

Econ. 92 (formerly Trans. 1). **Economics of Transportation.**—*Prerequisite:* Econ. 1 and junior standing.

3	A Quiz	8	MWF	306 Com.	LOCKLIN and others
	B Quiz	9	MWF	306 Com.	
	C Quiz	10	MWF	101 Com.	
	D Quiz	11	MWF	101 Com.	
	E Quiz	1	MWF	307 Com.	
	F Quiz	2	MWF	307 Com.	

Courses for Advanced Undergraduates and Graduates

Econ. 9. Advanced Theory and Practice of Banking.—*Prerequisite:* Econ. 1 or 2, and 3; senior standing.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	8	W	215 Com.	WRIGHT
	A Quiz	8	MF	325 Com.	
	J Quiz	8	TT	325 Com.	
	K Quiz	9	TT	325 Com.	

Econ. 10. Corporation Finance and Management.—*Prerequisite:* Econ. 1 and 3; Accy. 1a and 1b.

3	A Quiz	8	MWF	312 Com.	
	L Quiz	10	TTS	122 Com.	

Econ. 11. Industrial Consolidation.—*Prerequisite:* Econ. 10.

3	Lect.	9	M	114 Com.	BROWN and others
	B1 Quiz	9	WF	108 Com.	
	B2 Quiz	9	WF	122 Com.	
	K1 Quiz	9	TT	108 Com.	
	K2 Quiz	9	TT	122 Com.	
	L Quiz	10	TT	108 Com.	

Econ. 23. Current Economic Problems.—*Prerequisite:* Econ. 1 or 2; junior standing. Not open to Commerce students or L.A.S. students majoring in economics.

3	D	11	MWF	306 Com.	LEE

Econ. 25. Economic History of England.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	K	9	TTS	125 Com.	BOGART

Econ. 31. Organization of Foreign Commerce.—*Prerequisite:* Econ. 1 or 2, junior standing.

3	Lect.	10	W	215 Com.	LITMAN
	C Quiz	10	MF	322 Com.	
	L Quiz	10	TT	322 Com.	

Econ. 35. Corporation Finance.—*Prerequisite:* Econ. 1 or 2. For engineering students only.

3	C	10	MWF	108 P.L.	VAN ARSDELL

Econ. 41. Introduction to Labor Problems.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	2	F	215 Com.	BERMAN and others
	F1 Quiz	2	MW	322 Com.	
	F2 Quiz	2	MW	223 Com.	
	G Quiz	3	MW	322 Com.	

Econ. 44. Socialism and Economic Reform.—*Prerequisite:* Econ. 1 or 2, and senior standing.

3	E	1	MWF	219 Com.	HELBING

Econ. 51. Public Finance.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	11	M	114 Com.	HUNTER and others
	D1 Quiz	11	WF	312 Com.	
	D2 Quiz	11	WF	328 Com.	
	K Quiz	9	TT	328 Com.	
	L Quiz	10	TT	312 Com.	
	M1 Quiz	11	TT	312 Com.	
	M2 Quiz	11	TT	328 Com.	

Econ. 55. Economics of Insurance.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	9	M	215 Com.	DICKINSON
	J Quiz	8	TT	305 Com.	
	K Quiz	9	TT	305 Com.	

Econ. 61. Economic Theory.—*Prerequisite:* Econ. 1 or 2, and senior standing.

3	D Quiz	11	MWF	322 Com.	BERMAN

Econ. 65. Social Control of Business.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	C Quiz	10	MWF	223 Com.	GRAY

Econ. 71. Economic Statistics.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	C Quiz	10	Tu	305 Com.	DICKINSON
	Practice	1–3	TT	317 Com.	

Econ. 81 (formerly Pub. Util. 81). Principles of Public Utilities.—*Prerequisite:* Econ. 1 or 2, and 3.

3	B	9	MWF	223 Com.	GRAY

Econ. 89. Some Social Aspects of the Public Utility Industry.—*Prerequisite:* Econ. 1 or 2; senior standing and consent of instructor.

2	K	10	TT	209 Com.	THOMPSON

Econ. 90a. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis or take a comprehensive examination, as part of the requirement. (2 or 4).* Arrange. Dean THOMPSON and other members of the Department.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Econ. 91a. Independent Study.—Seniors registered in the College of Commerce who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this Department or sixteen semester hours if divided between this Department and any other department. (3 to 5).* Arrange. Dean THOMPSON and other members of the Department.

Econ. 95 (formerly Trans. 10). **Railroad Rates.**—*Prerequisite:* Econ. 92.

Credit	Section	Hours	Days	Room	Instructor
3	K	9	TTS	101 Com.	LOCKLIN

Courses for Graduates

Econ. 101. Economic Theory.—(1 unit). 3 MWF; 212 Com.

Econ. 102. Monetary Theory and Theory from the Restriction Period to the Present.—(1 unit). Arrange. Dr. LOUNSBURY.

Econ. 103. The Distribution of Wealth.—(1 unit). 11 TT; 212 Com.

Econ. 104a. Theories and Policies of Foreign Commerce.—(1 unit). 3 TT; 209 Com. Professor LITMAN.

Econ. 105. Public Finance.—(1 unit). 4-6 Tu; 209 Com. Professor HUNTER.

Econ. 107. The Corporation in Economic Evolution.—(1 unit). Arrange. Assistant Professor BROWN.

Econ. 109. Comparison of the Theory and Practice of the Leading Central and Reserve Banks, with Special Reference to England, Germany, France, and the United States.—(1 unit). Arrange. Professor WRIGHT.

Econ. 112c. Labor Problems: Trade Unionism.—(1 unit). 4-6 W; 212 Com. Associate Professor BERMAN.

Econ. 118. Seminar.—Thesis course. (All graduate students writing theses in economics must register in Economics 118; registration for other students is optional). 4-6 Th (alternate weeks); 420 Com.

(a) Third Year Seminar.—Professor LITMAN.
(b) First Year: General Economics.—Assistant Professor BROWN.
(c) First Year: Public Utilities.—Assistant Professor GRAY.

Econ. 120. History of Economic Thought.—(1 unit). 9 TT; 212 Com.

Econ. 124. International Economics and Finance.—(1 unit). 3-5 F; 209 Com. Professor BOGART.

Econ. 123. Industrial and Financial Organization of Society.—(1 unit). Arrange. Professor LEE.

Econ. 143. Administration of Industrial Relations.—(1 unit). 9 TT; 209 Com. Dr. HELBING.

Econ. 144. Economic Statistics with Special Reference to Time Series and Business Cycles.—(1 unit). Arrange. Assistant Professor DICKINSON.

Econ. 180 (formerly Pub. Util. 180). **Management of Public Utilities.**—(1 unit). 4-6 W; 209 Com. Assistant Professor GRAY.

Econ. 192 (formerly Trans. 100). **Economics of Transportation.**—(1 unit). Arrange. Assistant Professor LOCKLIN.

EDUCATION

A. GENERAL EDUCATION

Introductory Courses

Ed. 2. History of Education.—*Prerequisite:* Junior standing.

3	C	10	MWF	303 Adm.(E)	SANFORD

Ed. 5. Comparative Education.—*Prerequisite:* Junior standing.

3	E	1	MWF	204 Adm.(E)	JOHNSTON
	F	2	MWF	204 Adm.(E)	JOHNSTON
	L	10	TTS	204 Adm.(E)	JOHNSTON

Ed. 6. Principles of Secondary Education.—*Prerequisite:* Ed. 25.

3	J	8	TTS	308 Adm.(E)	CLEMENT
	K	9	TTS	308 Adm.(E)	WEBER
	L	10	TTS	206 Adm.(E)	WILLIAMS
	M	11	TTS	204 Adm.(E)	JOHNSTON
	E1	1	MWF	206 Adm.(E)	WILLIAMS
	E2	1	MWF	304 Adm.(E)	PETERS
	F	2	MWF	304 Adm.(E)	WEBER
	G1	3	MWF	304 Adm.(E)	PETERS
	G2	3	MWF	307 Adm.(E)	POTTHOFF

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Ed. 10. Technic of Teaching.—*Prerequisite:* Ed. 25.

Students who are preparing to teach biology, chemistry, civics, economics, English, general science, history, home economics, physics, or music, or who expect to teach in elementary schools, and who plan to take Educational Practice, must register in the sections indicated immediately below, and must register at the same time for the Educational Practice indicated. Only students specializing in the fields indicated may enroll in these sections.

Credit	Section	Hours	Days	Room	Instructor
3					
(Biology—Ed. Prac. 6)..... (Chemistry—Ed. Prac. 7)..... (Gen. Sci.—Ed. Prac. 13)..... (Physics—Ed. Prac. 21).....	A	8	MWF	303 U.H.S.	Harnish
(Music—Ed. Prac. 20).....	D1	11	MWF	207 U.H.S.	Holmes
(Home Econ.—Ed. Prac. 14)..	F	2	MWF	104 U.H.S.	King
(English—Ed. Prac. 11)..... (Speech—Ed. Prac. 11a).....	G1	3	MWF	205 U.H.S.	McHarry
(Civics—Ed. Prac. 8)..... (History—Ed. Prac. 15)..... (Economics—Ed. Prac. 27)....	G2	3	MWF	210 U.H.S.	Habberton
(Elem. Sch.—Ed. Prac. 25)....	H	4	MWF	206 Adm.(E)	Reagan

Students preparing to teach in other fields than those listed above and those who do *not* plan to take Educational Practice will enroll in the sections listed below:

B	9	MWF	307 Adm.(E)	Odell
C	10	MWF	206 Adm.(E)	Odell
D2	11	MWF	307 Adm.(E)	Monroe
G3	3	MWF	206 Adm.(E)	Reagan

Ed. 25. Educational Psychology.—*Prerequisite:* Psych. 1 for all sections except Section G.

Credit	Section	Hours	Days	Room	Instructor
3	J	8	TTS	307 Adm.(E)	Peters
	K	9	TTS	312 Adm.(E)	Dolch
	L	10	TTS	312 Adm.(E)	Dolch
	M	11	TTS	206 Adm.(E)	Potthoff
	E	1	MWF	308 Adm.(E)	Potthoff
	F	2	MWF	312 Adm.(E)	Peters
	F2	2	MWF	308 Adm.(E)	Potthoff
	[1]G	3	MWF	204 Adm.(E)	Cameron
	H	4	MWF	312 Adm.(E)	Dolch

[1]Section G is for students who have not taken Psych. 1. Consent of instructor must be obtained.

Ed. 99a. Thesis.—*Prerequisite:* Senior standing. (2). Arrange. Dean Benner and others.

Courses for Advanced Undergraduates and Graduates

Ed. 30. History of American Education.—*Prerequisite:* Senior standing or Ed. 2. (2). 10 TT; 303 Adm.(E). Dr. Sanford.

Ed. 18. Educational Measurements.—*Prerequisite:* Ed. 25. (3). 8 MWF; 312 Adm.(E). Associate Professor Odell.

Ed. 21. Supervision of Elementary Education.—*Prerequisite:* Junior standing and Ed. 25. (3). 2 MWF; 303 Adm.(E). Dr. Browne.

Ed. 41. Survey of Vocational Education.—(Same as Ind. Ed. 41). *Prerequisite:* Senior standing. (3). 9 MWF; 304 Adm.(E). Professor Mays.

Ed. 42. Special Education.—*Prerequisite:* Senior standing. (3). 3 MWF; 303 Adm.(E). Assistant Professor Dolch.

Ed. 45. Genetic Psychology for Teachers.—*Prerequisite:* Ed. 25 and senior standing. (3). 11 MWF; 204 Adm.(E). Associate Professor Griffith.

Ed. 50. Psychology of the Pre-School Child.—*Prerequisite:* Ed. 25. (3). 9 MWF; 204 Adm.(E). Associate Professor Griffith.

Ed. 52. Function, Organization, and Methods of the Evening School.—(Same as Ind. Ed. 52). *Prerequisite:* Junior standing. (2). 9 TT; 304 Adm.(E). Professor Mays.

Ed. 53. Problems of Industrial Education.—(Same as Ind.Ed. 53). *Prerequisite:* Junior standing or consent of instructor. (3). 10 MWF; 304 Adm.(E). Professor Mays.

Courses for Graduates

Education 6 and 25, or their equivalents, are prerequisite to all courses for graduates. For a master's degree in Education, course 125 is required. For students who have not taken a course in history of education as undergraduates, Education 11 or 30 is required.

Ed. 104. Educational Administration.—(1 unit). 4-6 W; 307 Adm.(E). Associate Professor Weber.

Ed. 106. High School Administration.—(1 unit). 10-12 S; 308 Adm.(E). Professor Clement.

Ed. 123. Educational Statistics.—(1 unit). 4-6 M; 304 Adm.(E). Associate Professor Odell.

Ed. 124. Readings in Educational Research.—(1 unit). 4-6 Th; 206 Adm.(E). Professor Monroe.

Ed. 125. Educational Psychology.—(1 unit). 10-12 S; 303 Adm.(E). Professor Cameron.

Ed. 127. High School Curricula.—(1 unit). 3-5 Tu; 308 Adm.(E). Professor Clement.

Ed. 128. Junior High School.—(1 unit). 3-5 Th; 308 Adm.(E). Professor CLEMENT.

Ed. 147. Psychology of the Elementary School Subjects.—(1 unit). 4-6 F; 204 Adm.(E). Professor CAMERON.

Ed. 150. Thesis.—(1 to 2 units).* Dean BENNER and others.

Ed. 170. Public School Finance and Business Administration.—*Prerequisite:* Ed. 104. (1 unit). 10-12 S; 307 Adm.(E). Associate Professor WEBER.

Ed. 185. Seminar in Educational Psychology.—*Prerequisite:* Ed. 125 and consent of instructor. (1 unit). Arrange. 203 Adm.(E). Professor CAMERON, Associate Professor GRIFFITH.

Ed. 187. Seminar in Industrial Education and Guidance.—(1 unit). 10-12 S; 304 Adm.(E). Professor MAYS.

Ed. 190. Research in Education.—*Prerequisite:* 3 units of graduate credit in education and consent of instructor. (1 unit). Arrange. Dean BENNER and others.

B. RELATED COURSES IN SPECIAL SUBJECTS

The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 20 hours in Education for graduation; for the 15 hours in Education for the State High School Certificate; or for the hours of Education necessary as a qualification for teachers in the North Central Association accredited schools.

Art 10a. Course for Teachers.—(3). (See Art).

English 42. Teaching of English Composition.—(2). (See English).

French 25. Methods of Teaching French.—(3). (See French).

History 18. Teaching of History.—(2). (See History).

Home Economics 11. Teachers' Course.—(3). (See Home Economics).

Mathematics 35. Teachers' Course.—(3). (See Mathematics).

Music 25a. Grade School Methods.—(3). (See Music).

Music 26a. High School Methods.—(3). (See Music).

Physical Education for Women 95a. Methods.—(3). (See Physical Education for Women).

C. EDUCATIONAL PRACTICE

The courses listed below are open only to seniors. *Prerequisite:* Ed. 25, 6, and 10, except that students who take Ed. Prac. 6, 7, 8, 11, 11a, 13, 14, 15, 20, 21, 25 or 27 must register at the same time for Ed. 10. For Educational Practice in Agriculture, see Associate Professor NOLAN at 116 Old Agriculture. For Educational Practice in Physical Education, see Mr. JACKSON at 202 New Gymnasium. For Educational Practice in Home Economics, see Miss ROBINSON and Miss KING at 119 Woman's Building. Arrange for all other courses in Educational Practice with Principal C. W. SANFORD, at 102 University High School.

Ed. Prac. 1. Physical Education for Men.—(2 to 4).*

Ed. Prac. 2. Physical Education for Men.—(2 to 4).*

Ed. Prac. 3. Physical Education for Men.—(2 to 4).*

Ed. Prac. 4. Physical Education for Men.—(2 to 4).*

Ed. Prac. 5. Agricultural Education.—(3 to 5).* (Same as Agr. Ed. 50.)

Ed. Prac. 6. Biology.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 7. Chemistry.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 8. Civics.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 9. Drawing, Art.—(3 to 5).*

Ed. Prac. 10. Drawing, Mechanical.—(3 to 5).*

Ed. Prac. 11. English.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 11a. Speech.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 12. French.—(5).

Ed. Prac. 13. General Science.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 14. Home Economics Education.—(5). Students must be registered in Ed. 10, Section F.

Ed. Prac. 15. History.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 16. Industrial Education.—(3 to 5).*

Ed. Prac. 17. Latin.—(5).

Ed. Prac. 19. Mathematics.—(5).

Ed. Prac. 20. Music.—(3 to 5).* Students must be registered in Ed. 10, Section D1.

Ed. Prac. 21. Physics.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 23. Spanish.—(5).

Ed. Prac. 24. Stenography and Typewriting.—(3 to 5).*

Ed. Prac. 25. Elementary Education.—(5). Students must be registered in Ed. 10, Section H.

Ed. Prac. 26. Bookkeeping.—(5).

Ed. Prac. 27. Economics.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 28. German.—(5).

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

D. AGRICULTURAL EDUCATION

Agr. Ed. 1. Introduction to Agricultural Education.—*Prerequisite:* Sophomore standing and 10 hours of technical agriculture. (2). 11 TT; 122 Agr. Associate Professor NOLAN.

Agr. Ed. 50. Teaching.—*Prerequisite:* Ed. 25 and senior standing. (Same as Ed. Prac. 5.)

Credit	Section	Hours	Days	Room	Instructor
2 to 5*	A	Conference 4	TT	Tolono H.S.	HENDERSON
		Teaching to be arranged			
	B	Conference 4	TT	St. Joseph H.S.	RUCKER
		Teaching to be arranged			
	C	Apprentice teaching in state			NOLAN

Agr. Ed. 51. Teachers' Course in Agriculture.—*Prerequisite:* Ed. 25 and senior standing. (3). 4 MWF; 122 Agr. Associate Professor NOLAN.

Agr. Ed. 91. Special Problems of Education in Rural Communities.—*Prerequisite:* Senior standing and at least 6 hours in Education. (2). 11 MW; 122 Agr. Associate Professor NOLAN.

E. INDUSTRIAL EDUCATION

Ind. Ed. 1. Industrial Arts.—First Course.

4	Lect.	9	TT	Wood Shop	BRAUCHER and
	Shop	8–10	MWF	Pat. Lab.	assistant

Ind. Ed. 2. Advanced Industrial Arts.—

4	Lect.	10	TT	Wood Shop	BRAUCHER and
	Shop A	10–12	MWF	Pat. Lab.	assistant

Note: The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 25 hours in Industrial Education.

G.E.D. 1. Elements of Drawing.—(4). (See General Engineering Drawing).

G.E.D. 2. Descriptive Geometry.—(4). (See General Engineering Drawing).

G.E.D. 4. Advanced Drawing.—(4). (See General Engineering Drawing).

Journ. 9a. History and Practice of Printing and Publishing.—(2). (See Journalism).

M.E. 85. Pattern and Foundry Laboratory.—(3). (See Mechanical Engineering).

M.E. 87. Machine Laboratory.—(3). (See Mechanical Engineering).

Courses for Advanced Undergraduates and Graduates

Ind. Ed. 41. Survey of Vocational Education.—(Same as Ed. 41 and Ind. Ed. E. 41.) *Prerequisite:* Senior standing. (3). 9 MWF; 304 Adm.(E). Professor MAYS.

Ind. Ed. 52. Function, Organization, and Methods of the Evening School.—(Same as Ed. 52). *Prerequisite:* Junior standing. (2). 9 TT; 304 Adm.(E). Professor MAYS.

Ind. Ed. 53. Problems of Industrial Education.—(Same as Ed. 53.) *Prerequisite:* Junior standing or consent of instructor. (3). 10 MWF; 304 Adm.(E). Professor MAYS.

Ind. Ed. 57. Methods of Trade Teaching.—(3). Arrange. 310 Adm.(E). Professor MAYS.

Ind. Ed. 62. History and Organization of Industrial Arts.—(3). 11 MWF; 310 Adm.(E). Professor MAYS.

Extra-mural Courses in Industrial Education.—Arrange. Assistant Professor DODGE.

ELECTRICAL ENGINEERING

Note: Certain courses in this department require laboratory fees of $2.

Courses for Undergraduates

E.E. 11. Direct Current Apparatus and Single Phase Alternating Current Circuits.—*Prerequisite:* Physics 1a, 1b, 3a, 3b; Math. 8 or 9; registration in E.E. 61.

3	X1	8	MWF	305 E.H.
	X2	8	MWF	111 E.H.
	Q1	10	MWF	305 E.H.
	Q2	10	MWF	111 E.H.
	J1	11	MWF	305 E.H.
	J2	11	MWF	203 T.B.
	P1	1	MWF	305 E.H.
	P2	1	MWF	109 E.H.

E.E. 14. Commercial and Industrial Wiring and Illumination.—*Prerequisite:* Sophomore standing or equivalent.

3		9	MWF	200 E.E.A.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

E.E. 25. Direct Current Apparatus.—*Prerequisite:* Math. 9; registration in E.E. 75 and Physics 44a.

Credit	Section	Hours	Days	Room	Instructor
4	K	1	MTWTF	111 E.H.	
	L	9	MTWTF	111 E.H.	
	M	11	MTWTF	111 E.H.	
	N	11	MTWTF	215 T.B.	

E.E. 35. Alternating Current Apparatus.—*Prerequisite:* E.E. 26 and 76; registration in E.E. 85.

4	K	8	MTWTF	109 E.H.
	L	10	MTWTF	109 E.H.
	M	11	MTWTF	109 E.H.

E.E. 51. Radio Communication Apparatus.—*Prerequisite:* E.E. 26 or consent of instructor.

3	Quiz	9	WF	109 E.H.
	K Lab.	2–5	Tu	311a E.E.L.
	L Lab.	2–5	W	311a E.E.L.
	M Lab.	2–5	Th	311a E.E.L.

E.E. 54. Vacuum Tubes and Control Devices.—*Prerequisite:* E.E. 26.

3		1	MWF	101 E.H.

E.E. 55. Electrical Design.—*Prerequisite:* E.E. 26; registration in E.E. 35.

2	Lect. KLMNY	9	Th	305 E.H.
	K	2–4	TT	312 E.H.
	L	2–4	TT	314 E.H.
	M	1–3	MF	312 E.H.
	N	10–12	WF	312 E.H.
	Y	{1–3	W	312 E.H.
		{8–10	S	

E.E. 61. Direct and Alternating Current Laboratory.—*Prerequisite:* Registration in E.E. 11.

1	X	1–4	M	214 E.E.L.
	Q1	9–12	Tu	200 E.E.L.
	Q2	9–12	Tu	214 E.E.L.
	R1	2–5	Tu	200 E.E.L.
	R2	2–5	Tu	214 E.E.L.
	P1	9–12	Th	200 E.E.L.
	P2	9–12	Th	214 E.E.L.
	S1	2–5	Th	200 E.E.L.
	S2	2–5	Th	214 E.E.L.
	C	1–4	F	214 E.E.L.
	Y	9–12	S	214 E.E.L.

E.E. 71. Electrical Engineering Problems.—*Prerequisite:* Registration or credit in E.E. 25.

1 to 3*	K	{8	TT	111 E.H.
		{2–5	Th	110 E.E.L.
	L	To be arranged		

E.E. 75. Electrical Engineering Laboratory.—*Prerequisite:* Registration in E.E. 25.

2	Lect. KLMNY	10	W	215 E.E.L.
	K	8–11	M	200 E.E.L.
	L1	2–5	W	200 E.E.L.
	L2	2–5	W	214 E.E.L.
	M	8–11	Th	200 E.E.L.
	N	1–4	F	200 E.E.L.
	Y	9–12	S	200 E.E.L.

E.E. 84. Vacuum Tube Laboratory.—*Prerequisite:* Registration in E.E. 54 and consent of instructor.

1	K	2–5	Tu	305 E.E.L.
	L	2–5	Th	305 E.E.L.

E.E. 85. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 76; registration in E.E. 35.

2	Lect. KLMNYZ	9	Tu	215 E.E.L.
	K	9–12	M	200 E.E.L.
	L	2–5	M	200 E.E.L.
	M	2–5	Tu	200 E.E.L.
	N	8–11	W	200 E.E.L.
	Y	2–5	W	200 E.E.L.
	Z	2–5	Th	200 E.E.L.

E.E. 90. Building Lighting.—*Prerequisite:* Junior standing.

1	K	10	Tu	200 E.E.A.
	L	11	Tu	200 E.E.A.
	M	1	Tu	200 E.E.A.

E.E. 92a. Building Wiring.—*Prerequisite:* Junior standing.

1	K	11	Th	200 E.E.A.
	L	1	Th	200 E.E.A.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

E.E. 95. Seminar.—*Prerequisite:* Senior standing in E.E.

Credit	Section	Hours	Days	Room	Instructor
1	K	9	M	305 E.H.	
	L	1	Tu	305 E.H.	
	M	9	W	305 E.H.	
	N	11	W	208 E.H.	
	Y	1	Th	305 E.H.	

E.E. 97. Thesis.—Arrange.

E.E. 90. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

Note: Entrance on graduate work in electrical engineering presupposes the equivalent of the full undergraduate course in that subject. The undergraduate courses in electrical engineering are open for minor credit to students majoring in other departments who have the proper prerequisites.

E.E. 101. Advanced Courses in Alternating Currents.—(½ to 2 units).*

(a) **Graduate Seminar.**—4 F; 200 E.E.A. Professor PAINE.
(b) **Circuit Transients.**—Arrange. Associate Professor KNIGHT.
(c) **Symmetrical Components.**—Arrange. Assistant Professor KRAEHENBUEHL.

E.E. 102. Electric Waves, Oscillations, and Transients.—(½ to 2 units).*

(c) **Theory of Energy Radiation.**—Arrange. Assistant Professor BROWN.

E.E. 103. Electrical Design.—(1 unit).

(a) **Power Plant Design.**—Arrange. Professor PAINE.
(b) **Machine Design.**—Arrange. Professor PAINE.

E.E. 104. Vacuum Tubes and Electronic Control.—(1 unit).

(a) **Theoretical Electronics.**—10 MWF, 104 P.L.; 2-5 M, 305 E.E.L. Assistant Professor REICH.
(b) **Vacuum Tubes and Amplifiers.**—Arrange. Assistant Professor REICH.

E.E. 105. Electrical Engineering Research.—(1 to 3 units).* Arrange. Professors PAINE, TYKOCINER; Associate Professor KNIGHT; Assistant Professors BROWN, REICH, KEENER, KRAEHENBUEHL.

ENGINEERING

Courses for Undergraduates

Note: Each of the following courses may be used as an approved or non-technical elective in all engineering curricula.

Eng. 10. Engineering Economics.—Evolution and growth of industry; basic industrial principles; ownership and securities; standardization; valuation and depreciation; comparisons and selections of engineering projects. *Prerequisite:* Junior standing in engineering.

3	A	9	MWF	117 T.B.	KING
	B	10	MWF	105 T.B.	KING

Eng. 39. Industrial Relations.—History of the development of industry; the factory system; manufacturers' organizations; labor organizations; works management; trade unions; wage systems; personnel problems; labor legislation. *Prerequisite:* Junior or senior standing.

3	PQ	11	MWF	1 Wood Shop	CASBERG

Eng. 92. Engineering Law.—Contracts, evidence, torts, equity, real property, corporations, agency, sales, negotiable instruments, water rights, patent rights, special assessments, contract letting, general conditions. *Prerequisite:* Senior standing in engineering or architecture.

3	A	8	MWF	101 E.H.	CRANDELL
	B	9	MWF	205 E.H.	PICKELS

ENGLISH

(Including Rhetoric, Speech, and Scandinavian Languages)

Major: 20 hours in English *excluding* Rhetoric 1, 2, 10, 12, 21, 22, English 10a, 10b, 20a, 20b, 41, 42, and *including* at least 10 hours in English literature, at least 3 hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours in (a) Latin or Greek or French or German or Spanish; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history; or (e) in history and philosophy. No language courses may be regarded as satisfying the minor require-

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

ment if they are excluded from the majors of the language departments (excepting elementary courses in Greek, Latin, French 2a, and Spanish 2a). At least eight hours must be offered in each subject.

Major in Speech

Major: 10 hours in speech, inclusive of Speech 7 and 8 and either 4 or 6; and 10 hours of English, exclusive of English 10a, 10b, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, 22, and inclusive of one course in English literature from the advanced group.

Minors: 20 hours, in any one or two of the following subjects: psychology, philosophy, Greek, Latin, French, German, history, political science, economics, law, or sociology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in English 10 and Rhetoric 1-2.

A. ENGLISH LANGUAGE AND LITERATURE

Courses for Undergraduates

Engl. 10a. An Introduction to Literature.—Forms of poetry, mainly narrative. *Prerequisite:* The minimum entrance requirement in English. (Credit is not given for Engl. 10a in addition to 20a and 20b).

Credit	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	204a L.H.	Kelso
	A2	8	MWF	311 U.H.	Goldman
[1]Seniors will receive	B1	9	MWF	113 L.H.	Parry
only 2 hours credit.	B2	9	MWF	204 U.H.	Templeman
	B3	9	MWF	219 L.H.	Tupper
	C1	10	MWF	128 L.H.	Secord
	C2	10	MWF	235 L.H.	Rinaker
	C3	10	MWF	204a L.H.	Rapp
	D1	11	MWF	238 L.H.	Landis
	D2	11	MWF	326 L.H.	Finney
	E1	1	MWF	120 L.H.	Weirick
	E2	1	MWF	148 L.H.	Busey
	F1	2	MWF	105 L.H.	Parry
	G1	3	MWF	211 L.H.	Busey

Engl. 10b. An Introduction to Literature.—Forms of poetry, mainly lyrical. (Credit is not given for Engl. 10b in addition to 20a and 20b). *Prerequisite:* Engl. 10a.

3[1]	A	8	MWF	142 L.H.	Secord
[1]Seniors will receive	B	9	MWF	204a L.H.	Rinaker
only 2 hours credit.	C	10	MWF	123 L.H.	Zeitlin

Engl. 12. American Literature.—*Prerequisite:* Sophomore standing, or exemption from Rhetoric 2.

2	A	9	TT	103 New Agr.	Paul
	B	3	TT	103 New Agr.	Paul

Engl. 20a. Chief English Writers of the Nineteenth Century.—Intended for students in professional and technical courses such as law, medicine, commerce, engineering, etc. *Prerequisite:* One year of college work. (Credit is not given for Engl. 20a in addition to Engl. 10a and 10b.)

4	A1	8	MTWT	203 U.H.	Templeman
	A2	8	MTWT	302 U.H.	Glenn
	B1	9	MTWT	203 U.H.	Jefferson
	C1	10	MTWT	311 U.H.	Trelease
	C2	10	MTWT	340 L.H.	Kelso
	D1	11	MTWT	203a L.H.	Weirick
	D2	11	MTWT	219 L.H.	Tupper
	E1	1	MTWT	207 U.H.	French

Engl. 21. Literary Study of the Bible.—*Prerequisite:* Six hours of English Literature. (3). 11 MWF; 103 New Agr. Professor E. C. Baldwin.

Engl. 23. Introduction to Shakespeare.—*Prerequisite:* Sophomore standing, or exemption from Rhet. 2.

2	B	9	MWF	109 L.H.	Landis
	F	2	MWF	109 L.H.	Baldwin, T. W.

Engl. 42. The Teaching of English Composition.—*Prerequisite:* Nine hours of composition. (2). 2 TT; 204 L.H. Professor Paul.

Engl. 56. Tennyson.—Intensive study of the principal poems of Tennyson and his contemporaries.—*Prerequisite:* Junior standing. (3). 10 MWF; 303 L.H. Professor Graham.

Courses for Advanced Undergraduates and Graduates

Prerequisite: Junior standing except as otherwise specified.

Engl. 8. Old English (Anglo-Saxon).—*Prerequisite:* Ten hours of English literature, or consent of instructor. (3). 11 MWF; 206 L.H. Professor Flom.

Engl. 25. Chaucer.—(3). 9 MWF; 114 L.H. Professor Jones.

Engl. 29. English Literature from 1557 to 1688, exclusive of the Drama.—(3). 9 MWF; 240 L.H. Professor E. C. Baldwin.

Engl. 33. English Literature from 1789 to 1837.—(3). 9 MWF; 203 L.H. Professor Zeitlin.

Engl. 34. Dr. Johnson and His Circle.—(3). 2 MWF; 123 L.H. Assistant Professor RINAKER.

Engl. 35. The English Drama (Previous to Shakespeare).—(3). 11 MWF; 204a L.H. Professor T. W. BALDWIN.

Engl. 39. Introduction to the Literature of the Middle Ages.—(3). 1 MWF; 104 L.H. Professor PARRY.

Engl. 52. The Great Novelists of the Nineteenth Century.—Scott, Jane Austen, Dickens, Thackeray, etc. (3). 9 TT; 105 L.H. Professor BERNBAUM.

Engl. 54a. Introduction to Comparative Literature.—Introductory and comparative survey of the greatest Greek, Latin, Italian, Spanish, French, German, and English authors.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	10	WF	203 L.H.	OLDFATHER, VAN HORNE, HAMILTON
	A Disc.	10	M	211 L.H.	LANDIS
	B Disc.	10	M	308 L.H.	VAN HORNE
	C Disc.	10	M	227 L.H.	PARRY

Engl. 55a. Survey of English Literature.—*Prerequisite:* Senior standing.

3	B	9	MWF	110 L.H.	FINNEY

Engl. 60a. Thesis and Honors.—(Credit to be arranged). Professor JONES, Dr. TUPPER, and others.

Courses for Graduates

Engl. 101. Research in Special Topics.—(1 to 2 units).* Professors GRAHAM, BERNBAUM, FLOM, PAUL, ZEITLIN, E. C. BALDWIN, T. W. BALDWIN, JONES, JEFFERSON; Associate Professors PARRY, FLETCHER; Assistant Professors RINAKER, SECORD, FINNEY.

Engl. 111. Caedmon and Cynewulf.—(1 unit). Arrange; 419 L.H. Professor JONES.

Engl. 114. The Development of the Essay.—(1 unit). 11 TT; 309 Lib. Professor ZEITLIN.

Engl. 129. English Literature from the Norman Conquest to 1400.—(1 unit). 10 TT; 104 L.H. Professor JONES.

Engl. 135. Problems in American Literature.—First semester, American essay. (1 unit). 8 TT; 113 L.H. Professor PAUL.

Engl. 138. The Romantic Movement.—(1 unit). 2 TT; 303a L.H. Professor BERNBAUM.

Engl. 140. Investigations in Modern English Literature.—(1 to 3 units).* Three hours once a week. Arrange; 220 L.H. Professor BERNBAUM.

Engl. 141. Literature of the Seventeenth Century.—(1 unit). 3 TT; 302 L.H. Professor E. C. BALDWIN.

Engl. 143. Seminar in the History and Theory of Prose Fiction.—(1 unit). Two hours a week. Arrange; 220 L.H. Professor BERNBAUM.

Engl. 145. Studies in Eighteenth Century Literature.—(1 unit). 2 MW; 113 L.H. Professor GRAHAM.

Engl. 147. Shakespeare and Elizabethan Drama.—(1 unit). 10 MW; 303a L.H. Professor T. W. BALDWIN.

B. RHETORIC

Courses for Undergraduates

Rhet. 1. Rhetoric and Composition.—*Prerequisite:* The minimum entrance requirements in English.

3[1]	A1	8	MWF	403 U.H.	MOOD
	A2	8	MWF	404 U.H.	GETTMANN
[1]Seniors will receive only 2 hours credit.	A3	8	MWF	321 L.H.	
	A4	8	MWF	413 U.H.	HURLEY
	A5	8	MWF	203a L.H.	BLAIR
[2]Special sections.	A6	8	MWF	303 L.H.	ALLEN
	A7	8	MWF	407 U.H.	MARTIN
	A8	8	MWF	212 U.H.	JOHNSON
	[2]A9	8	MWF	204 U.H.	WASHBURN
	[2]A10	8.	MWF	207 U.H.	GRISWOLD
	B1	9	MWF	310 U.H.	GLENN
	B2	9	MWF	315 U.H.	PETERSON
	B3	9	MWF	326 L.H.	NOBLE
	B4	9	MWF	213 U.H.	FRENCH
	B5	9	MWF	302 U.H.	TRELEASE
	B6	9	MWF	412 U.H.	GRISWOLD
	B7	9	MWF	407 U.H.	JOHNSON
	[2]B8	9	MWF	406 U.H.	MOOD
	[2]B9	9	MWF	207 U.H.	ALLEN
	C1	10	MWF	203 U.H.	GETTMANN
	C2	10	MWF	213 U.H.	DAVIDSON
	C3	10	MWF	211 U.H.	FRENCH

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Rhet. 1. Rhetoric and Composition.—(Concluded)

Credit	Section	Hours	Days	Room	Instructor
3[1]	C4	10	MWF	403 U.H.	Kelley
	C5	10	MWF	404 U.H.	Jefferson
[1]Seniors will receive only 2 hours credit.	C6	10	MWF	413 U.H.	Brawner
	C7	10	MWF	109 L.H.	
	[2]C8	10	MWF	133 L.H.	Stutzman
[2]Special sections.	[2]C9	10	MWF	302 U.H.	Noble
	D1	11	MWF	311 U.H.	Harris
	D2	11	MWF	128 L.H.	Secord
	D3	11	MWF	413 U.H.	Goldman
	D4	11	MWF	406 U.H.	Lang
	D5	11	MWF	235 L.H.	Rapp
	D6	11	MWF	411 U.H.	Peterson
	D7	11	MWF	139 L.H.	Stutzman
	D8	11	MWF	212 U.H.	
	[2]D9	11	MWF	204 U.H.	Templeman
	[2]D10	11	MWF	207 U.H.	Gettmann
	E1	1	MWF	123 L.H.	
	E2	1	MWF	213 U.H.	Fisher, R.
	E3	1	MWF	204 U.H.	Hamilton
	E4	1	MWF	302 U.H.	Bloom
	E5	1	MWF	407 U.H.	
	E6	1	MWF	406 U.H.	Osenburg
	[2]E7	1	MWF	203 U.H.	Trimble
	[2]E8	1	MWF	211 U.H.	Dolk
	F1	2	MWF	204 U.H.	Roberts
	F2	2	MWF	213 U.H.	Trimble
	F3	2	MWF	203 U.H.	Dolk
	F4	2	MWF	412 U.H.	
	F5	2	MWF	404 U.H.	Sandin
	F6	2	MWF	104 L.H.	Riebel
	[2]F7	2	MWF	411 U.H.	Fisher, R.
	[2]F8	2	MWF	302 U.H.	Wheeler
	G1	3	MWF	406 U.H.	Sweney
	G2	3	MWF	311 U.H.	Wheeler
	G3	3	MWF	403 U.H.	Fisher, R.
	G4	3	MWF	212 U.H.	Haskell
	[2]G5	3	MWF	404 U.H.	Sandin
	[2]G6	3	MWF	203a L.H.	Osenburg
	H1	4	MWF	204 U.H.	Bloom
	H2	4	MWF	404 U.H.	Wheeler
	[2]H3	4	MWF	311 U.H.	Riebel
	K1	8	TTS	204 U.H.	
	[2]K2	8	TTS	315 U.H.	Orlovich
	L1	9	TTS	315 U.H.	
	L2	9	TTS	211 L.H.	Gress
	M1	10	TTS	413 U.H.	Orlovich
	[2]M2	10	TTS	213 U.H.	Whitson
	N1	11	TTS	207 U.H.	Owen
	N2	11	TTS	212 U.H.	Whitson

Rhet. 2. Rhetoric and Composition.—Frequent individual conferences, to be arranged. *Prerequisite:* Rhet. 1.

3	A1	8	MWF	213 U.H.	Brawner
	A2	8	MWF	315 U.H.	Harris
	A3	8	MWF	310 U.H.	Peterson
	B1	9	MWF	411 U.H.	Kelley
	B2	9	MWF	211 U.H.	Martin
	C1	10	MWF	212 U.H.	Blair
	C2	10	MWF	207 U.H.	Hurley
	D1	11	MWF	123 L.H.	Davidson
	D2	11	MWF	203 U.H.	Brawner
	E1	1	MWF	312 U.H.	Haskell
	E2	1	MWF	208 U.H.	Roberts
	F	2	MWF	203 L.H.	Hamilton
	G	3	MWF	204 U.H.	Roberts
	K	8	TTS	207 U.H.	Gress
	M	10	TTS	404 U.H.	Owen

Rhet. 3. Exposition.—Individual conferences, to be arranged. *Prerequisite:* Rhet. 1 and 2.

3	B	9	MWF	104 L.H.	Goldman
	D	11	MWF	104 L.H.	Kelso
	G	3	MWF	104 L.H.	Landis

Rhet. 4. Narration and Description.—Elements of narrative writing. Individual conferences, to be arranged. (Not a course in short-story writing). *Prerequisite:* Rhet. 1 and 2.

3	B	9	MWF	304 L.H.	Rapp
	C	10	MWF	232 L.H.	Finney
	D	11	MWF	302 U.H.	Trelease
	F	2	MWF	407 U.H.	Busey

Rhet. 6. Advanced Narrative Composition.—*Prerequisite:* Two years of college work and consent of instructor. (3). 3 MWF; 204a L.H. Assistant Professor Weirick.

Rhet. 10. Business Letter Writing.—Recitation and conference. *Prerequisite:* Rhet. 1 and 2.

Credit	Section	Hours	Days	Room	Instructor
2	A1 (LAS, Agr., Ed.)	8	MW	123 L.H.	Coleman
	B1 (Com.)	9	TT	306 Com.	Coleman
	B2 (LAS, Agr., Ed.)	9	MW	133 L.H.	Anderson
	C1 (Com.)	10	MW	122 Com.	Anderson
	C2 (Com.)	10	TT	101 Com.	Lang
	D1 (Com.)	11	TT	123 Com.	Anderson
	D2 (Eng.)	11	TT	108 P.L.	Coleman
	D3 (Com.)	11	TT	101 Com.	———
	E1 (LAS, Agr., Ed.)	1	MW	203a L.H.	Coleman
	E2 (Com.)	1	MW	305 Com.	Saunders
	F1 (Com.)	2	MW	305 Com.	Saunders
	F2 (Com.)	1	TT	305 Com.	Saunders
	F3 (Eng.)	2	TT	109 E.H.	Lang

Rhet. 17. Advanced Composition.—Theory and Practice. (Open to a limited number of students and only on recommendation). (3). *Prerequisite:* Junior standing. 10 MWF; 302 L.H. Dr. Tupper.

Rhet. 21. Advanced Business Writing.—Sales letter campaign and advertising copy. *Prerequisite:* Grade of "A" or "B" in Rhet. 10. (2). 2 TT; 305 Com. Associate Professor Saunders.

Rhet. 22. Special Types of Business Writing.—Business reports and articles for business magazines. *Prerequisite:* Rhet. 10. (2). 10 TT; 123 Com. Assistant Professor C. R. Anderson.

C. SPEECH

Courses for Undergraduates

Speech 1. Principles of Effective Speaking.—*Prerequisite:* Rhet. 1 and 2.

3	A1	8	MWF	136 L.H.	Huston
	A2	8	MWF	202 Entom.	Seidenburg
	B1	9	MWF	136 L.H.	Hadley
	B2	9	MWF	202 Entom.	Seidenburg
	C1	10	MWF	136 L.H.	Nelson
	C2	10	MWF	202 Entom.	Henderson
	D1	11	MWF	136 L.H.	Nelson
	D2	11	MWF	202 Entom.	Henderson
	E1	1	MWF	202 Entom.	Hadley
	E2	1	MWF	136 L.H.	Swanson
	F1	2	MWF	142 L.H.	Judson
	F2	2	MWF	136 L.H.	Seidenburg
	G	3	MWF	136 L.H.	Henderson

Speech 2. Business and Professional Speaking.—*Prerequisite:* Speech 1.

2	K	9	TT	142 L.H.	Huston
	L	10	TT	142 L.H.	Huston
	N	11	TT	142 L.H.	Judson

Speech 3. Elements of Debating.—*Prerequisite:* Speech 1.

3	B	9	MWF	142 L.H.	Huston
	E	1	MWF	142 L.H.	Seidenburg

Speech 10. Oral Interpretation of Literature.—*Prerequisite:* Speech 1.

2	K	9	TT	136 L.H.	Nelson
	L	10	TT	136 L.H.	Nelson
	N	1	TT	136 L.H.	Henderson

Courses for Advanced Undergraduates

Speech 4. Advanced Debating.—*Prerequisite:* Speech 3 and junior standing. (3). 10 MWF; 142 L.H. Assistant Professor Judson.

Speech 6. Persuasion and the Forms of Public Address.—*Prerequisite:* Speech 2 and junior standing. (3). 11 MWF; 142 L.H. Assistant Professor Judson.

Speech 8. Dramatization.—*Prerequisite:* Speech 10, junior standing. (3). 2 MWF; L.H. Theatre. Mr. Swanson.

Speech 9. The Acting of Shakespearean Plays.—*Prerequisite:* Speech 10, junior standing. (2). 1 TT; L.H. Theatre. Miss Nelson.

Speech 16. Advanced Study of Acting.—*Prerequisite:* Speech 11, junior standing. (2). 11 TT; L.H. Theatre. Mr. Swanson.

D. SCANDINAVIAN LANGUAGES AND LITERATURE

Courses for Undergraduates

Scand. 12. Norse Mythology.—*Prerequisite:* Junior standing. (2). 9 TT; 204 L.H. Professor Flom.

Scand. 22a. Elementary Swedish.—Grammar; conversation; reading of one play. (3). 1 MWF 209 L.H. Mr. Johnson.

Scand. 4. Intermediate Swedish.—Conversation; reading of present-day writers; composition. *Prerequisite:* Scand. 22 or a reading knowledge of the language. (2). Arrange; 209 L.H. Mr. JOHNSON.

Courses for Graduates

Scand. 101. Old Norse (Old Icelandic).—(1 unit). Arrange; 209 L.H. Professor FLOM.

Scand. 130. The Runic Inscriptions: Old Scandinavian, Anglo-Saxon, Gothic and German.—(1 unit). Arrange; 209 L.H. Professor FLOM.

Scand. 150. Research.—Thesis. Conferences. (1 to 2 units).* Arrange; 209 L.H. Professor FLOM.

ENTOMOLOGY

Note: Certain courses in this department require laboratory fees varying from $1.50 to $5.

Major: 20 hours exclusive of Entomology 1, 2, 31. At least five hours must be offered from the advanced group.

Minors: 20 hours in not more than two of the following, with not less than eight hours in either department, if two subjects are chosen: zoology, botany, chemistry, physiology, horticulture, and agronomy.

Entomology 1 is open to freshmen, without prerequisite. It is prerequisite to all other courses in the department except 2, 31, and 32, and may be followed by any of the other courses for undergraduates or by 6, 10, 20, or 21 in the senior year. Agricultural students and others desiring strictly practical work may take 1, 8, and 20 in sequence. Students majoring in entomology should take as many of the courses offered as possible, including some work in classification, morphology, and control, and should consult the head of the department. Seniors receive reduced credit in Entomology 1.

Courses for Undergraduates

Entom. 1. Destructive and Useful Insects.—Two discussion periods and four hours laboratory a week.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8–10	MWF	309 Entom.	HAYES, KEARNS, HEISS
[1]Seniors will receive only 2 hours credit.	B	10–12	MWF	309 Entom.	METCALF, BALDUF, MILUM
	C	1–3	MWF	309 Entom.	METCALF, MILUM, BURKS

Entom. 2. Insects: Their Ways and Their Relations to Man.—A non-technical, cultural course of illustrated lectures. *Prerequisite:* 30 hours of university work. (Not open to students who have taken Entom. 1.)

2	A	11	TT	202 Entom.	BALDUF and others
	B	2	TT	202 Entom.	

Entom. 7a. External Insect Morphology.—*Prerequisite:* Entom. 1 and 30 hours of university work. (3). 10-12 MWF; 312 Entom. Associate Professor HAYES.

Entom. 8a. Economic Entomology.—*Prerequisite:* Entom. 1, and 30 hours of university work. (3 or 5).* For 5 hours credit additional work on an insect collection is assigned. 8-11 TT; 312 Entom. Associate Professor HAYES.

Entom. 31. Essentials of Beekeeping.—*Prerequisite:* 30 hours of university work. (1 or 2).* Lect., 4 Tu; for 2 hours credit include lab., 3-5 Th; 104 Exp. Zool. Lab. Assistant Professor MILUM.

Courses for Advanced Undergraduates and Graduates

Entom. 6. Special Problems.—*Prerequisite:* Any of the following: Entom. 3, 7, 8, 10, 20, 21, 22, or 31; senior standing. (2 to 5).* Saturday morning; additional hours to be arranged. Members of the department.

Entom. 20. Insect Control.—*Prerequisite:* Entom. 1 and senior standing. (4). 2-5 TT; 109 Entom. Professor METCALF.

Courses for Graduates

Note: The prerequisite for graduate work in entomology is two years of undergraduate biology, including zoology and entomology.

Entom. 100. Research.—(½ to 4 units).* Time to be arranged.

(a) **Morphology and Embryology of Insects.**—Associate Professor HAYES.
(b) **Economic Entomology.**—Professor METCALF.
(c) **Systematic Entomology.**—Professor METCALF, Assistant Professor BALDUF.
(d) **Biology and Ecology of Insects.**—Professor METCALF.

Entom. 107a. Insect Anatomy.—(1 unit). 10-12 MWF; 312 Entom. Associate Professor HAYES.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

GENERAL ENGINEERING DRAWING

Note: All courses in this department require laboratory fees of $1.50.

Courses for Undergraduates

G.E.D. 1. Elements of Drawing.—*Prerequisite:* Plane Geometry.

Credit	Section	Hours	Days	Room	Instructor
4	A	8–11 8–10	MF W	To be assinged at registration	
	B	1–4 1–3	MF W		
	C	8–11 8–10	TT S		
	D	1–4 10–12	TT S		

G.E.D. 2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry.

4	B	1–4 1–3	MF W	201 T.B.	
	C	8–11 8–10	TT S	204 T.B.	
	D	1–4 10–12	TT S	215 T.B.	

G.E.D. 4. Advanced Drawing.—*Prerequisite:* At least three years of drawing in high school, or the equivalent in commercial practice, to be determined by the department at registration time.

4	A	8–11 8–10	MF W	303 T.B. 303 T.B.	
	B	1–4 1–3	MF W	303 T.B. 303 T.B.	

G.E.D. 6. Elements of Drawing.—*Prerequisite:* Plane geometry. (For students in chemical engineering).

3	C	8–11	TT	316 T.B.	WALKER
	D	1–4	TT	316 T.B.	JORGENSEN

G.E.D. 7. Architectural Projections.—*Prerequisite:* Plane and solid geometry.

2	A	8–11	MF	103 T.B.	
	B	2–5	MF	103 T.B.	
	D	2–5	TT	103 T.B.	

G.E.D. 10. Pictorial Drawing.—*Prerequisite:* G.E.D. 2. (Required of students in the City Planning Option in Civil Engineering; and "approved elective" in all other curricula of the College of Engineering).

4 or 3[1]	C	8–11 8–10	TT S	316 T.B.	LENDRUM

[1]For "approved elective" group who will omit 8-10 S hours in registering.

GEOLOGY AND GEOGRAPHY

Note: Certain courses in this department require a laboratory fee varying from $1 to $2.50.

A. GEOLOGY

Major: 20 hours in geology, exclusive of Geol. 1, 43, and 44, and inclusive of at least 5 hours of courses not open to freshmen or sophomores.

Minors: 20 hours of courses in one or two of the following departments: astronomy, botany, chemistry, economics, geography, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology. At least eight hours must be offered in each subject, if two are chosen.

Note: Certain geology courses are offered only in alternate years: 4, 15, 16, 17, 24, 38, 95, 96, 122, 125, 142, 143, 151, 160, 161, 163.

Students desiring training which leads to executive positions with companies engaged in the development of various mineral industries should select appropriate courses in geology after consulting the head of the Department, and also: Accountancy 1a, 1b; Economics 2, 3, and 35; B.O.O. 11; and Business Law 1a, 1b. A minimum of one year's work after graduation should be included in the student's program if possible.

Courses for Undergraduates

Geol. 1. General Geology.—Cultural Course. Lectures; one or two field trips.

3[1]	A	8	MWF	247 N.H.	SHEPARD
[1]Seniors receive only 2 hours credit; students who have credit for Geog. 1 receive only 1 hour credit for Geol. 1.	B	9	MWF	247 N.H.	DEWOLF
	C	10	MWF	247 N.H.	QUIRKE
	D	11	MWF	247 N.H.	DEWOLF

Geol. 1a. General Geology Laboratory.—*Prerequisite:* Geol. 1 or concurrent registration in it. (Not open to students who received credit for Geol. 1 prior to September, 1932.)

Credit	Section	Hours	Days	Room	Instructor
2	Lab. 1	8–10	TT	251 N.H.	WANLESS
	Lab. 2	10–12	TT	251 N.H.	DEWOLF
	Lab. 3	1–3	TT	251 N.H.	SUTTON
	Lab. 4	3–5	TT	251 N.H.	SHEPARD

Geol. 2a. Historical Geology.—*Prerequisite:* Geol. 1.

4[1]		10	TWTF	241 N.H.	SUTTON

[1]Seniors receive only 3 hours credit.

Geol. 17. Physiographic Geology.—*Prerequisite:* Geol. 1. (3). 2 MWF; 247 N.H. Assistant Professor SHEPARD.

Geol. 20. General Mineralogy.—*Prerequisite:* One semester of chemistry. (3). 10-12 TTS; 147 N.H. Professor QUIRKE.

Geol. 43. Engineering Geology.—*Prerequisite:* Sophomore standing in the College of Engineering. (3). Lect. and quiz, 9 MWF; 241 N.H. Lab., 10-12 F; 251 N.H. Associate Professor HOWARD.

Geol. 44. Agricultural Geology.—*Prerequisite:* Sophomore standing in the College of Agriculture.

3	Lect.	1	MW	247 N.H.	WANLESS
	A Quiz	10	Tu	247 N.H.	
	B Quiz	1	F	247 N.H.	
	Lab. 1	1–3	Th	147 N.H.	
	Lab. 2	10–12	F	147 N.H.	

Courses for Advanced Undergraduates and Graduates

Geol. 9. Invertebrate Paleontology.—*Prerequisite:* Geol. 2a and junior standing. (3). 8 MWF; 236 N.H. Laboratory hours to be arranged. Assistant Professor SUTTON.

Geol. 60a. Introduction to Research.—Limited to seniors majoring in geology. (2). Members of the department.

Geol. 61a. Applied Petroleum Geology.—*Prerequisite:* Geol. 43 and 2a, or consent of head of department. Primarily for students in the College of Engineering. (3). Arrange. Associate Professor HOWARD.

Courses for Graduates

Geol. 102. Igneous Petrography.—(1 unit). Twice a week. Arrange; 253 N.H. Professor QUIRKE.

Geol. 125. Sedimentation.—(1 unit). Three times a week. Arrange. Assistant Professor WANLESS.

Geol. 134. Advanced Studies in Geology.—(½ to 2 units).* Arrange. Members of the department.

Geol. 135. Research.—(½ to 4 units).* Once a week. Arrange. Members of the department.

Geol. 142. Stratigraphic Paleontology: Paleozoic.—(1 unit). Arrange; 236 N.H. Assistant Professor SUTTON.

Geol. 151. Advanced Dynamic Geology.—(1 unit). Three times a week. Arrange. Assistant Professor SHEPARD.

Geol. 160. Principles of Petroleum Geology.—(1 unit). Three times a week. Arrange. Associate Professor HOWARD.

B. GEOGRAPHY

Major: 20 hours of courses in geography, exclusive of Geography 1, and including at least 5 hours of courses not open to freshmen.

Minors: 20 hours selected from not more than two of the following named departments: botany, economics, education, geology, history, and zoology. At least eight hours must be offered in each subject, if two are chosen.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, or 10 or 11, or 12 or 8 or 53.

Note: Certain geography courses are offered only in alternate years: 6, 9, 10, 14a.

Courses for Undergraduates

Geog. 1. Elements of Geography.—Lectures and discussions.

5[1]	A1	8	MTWTF	422 N.H.	PAGE
[1]Seniors receive only 4	A2	8	MTWTF	435 N.H.	BURGY
hours credit; students	B1	9	MTWTF	422 N.H.	PAGE
who have credit for	B2	9	MTWTF	435 N.H.	RANDALL
Geol. 1 receive only	C1	10	MTWTF	422 N.H.	BURGY
3 credits for Geog. 1.	C2	10	MTWTF	435 N.H.	RANDALL
	D	11	MTWTF	422 N.H.	COZZENS
	E	1	MTWTF	422 N.H.	RANDALL
	F	2	MTWTF	435 N.H.	POGGI
	G	3	MTWTF	435 N.H.	COZZENS

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Geog. 2. Economic Geography.—*Prerequisite:* Geog. 1. Lectures and discussion.

Credit	Section	Hours	Days	Room	Instructor
5[1]	A	8	MTWTF	434 N.H.	BLANCHARD
[1]Seniors will receive only 4 hours credit.	B	9	MTWTF	434 N.H.	POGGI
	C	11	MTWTF	434 N.H.	BURGY

Geog. 4. Geography of North America.—*Prerequisite:* Geog. 2. (3). 2 MWF; 422 N.H. Dr. BURGY.

Geog. 14. Weather and Climate.—*Prerequisite:* Geog. 1. (3). 11 MWF; 435 N.H. Assistant Professor PAGE.

Courses for Advanced Undergraduates and Graduates

Geog. 8. Geography of Europe.—*Prerequisite:* Geog. 2 and senior standing. (3). 1 MWF; 435 N.H. Professor BLANCHARD.

Geog. 53a. Production of the Great World Staples.—*Prerequisite:* Geog. 2, one regional course, and senior standing. (3). 10 MWF; 434 N.H. Professor BLANCHARD.

Geog. 60a. Introduction to Research.—Limited to seniors majoring in Geography. (2). Arrange. Members of the department.

Courses for Graduates

Geog. 134. Advanced Studies in Geography.—(½ to 2 units).* Arrange. Members of the department.

Geog. 135. Research.—(½ to 4 units).* Arrange. Members of the department.

GERMAN

Major: 20 hours in German, excluding courses 1 and 2, and including 6 hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list, with not less than eight hours in each subject: Education, English (excluding Rhetoric 1 and 2), French (excluding French 1a), Greek, History, Italian, Latin, Philosophy, Spanish (excluding 1a).

Elementary and Intermediate Courses

German 1. Elementary Course.—

4[1]	A1	8	MTWT	224 L.H.	BALD
	A2	8	MTWT	205 L.H.	STUBING
[1]Seniors will receive only 3 hours credit.	A3	8	MTWT	206 L.H.	VOLLBRECHT
	B1	9	MTWT	205 L.H.	BROOKS
	B2	9	MTWT	302 L.H.	JEHLE
	C	10	MTWT	233 L.H.	BALD
	D1	11	MTWT	233 L.H.	STUBING
	D2	11	MTWT	300 L.H.	———
	E	1	MTWT	224 L.H.	FEHLAU
	F	2	MTWT	204a L.H.	VOLLBRECHT
	G	3	MTWT	206 L.H.	SCHIMPF
	H1	4	MTWT	206 L.H.	SCHIMPF
	H2	4	MTWT	205 L.H.	FEHLAU

German 2. Elementary Course (continued).—*Prerequisite:* German 1 or one year of high school German.

4[1]	A	8	MTWT	233 L.H.	MEMMING
	B	10	MTWT	238 L.H.	KOLLER
[1]Seniors will receive only 3 hours credit.	C	1	MTWT	205 L.H.	KRAUSS
	D	3	MTWT	205 L.H.	KOLLER

German 4. Intermediate Course.—*Prerequisite:* German 2, or two years of high school German, or equivalent.

4	A1	8	MTWT	232 L.H.	KRAUSS
	A2	8	MTWT	219 L.H.	WILLIAMS
	B	9	MTWT	227 L.H.	GEISSENDOERFER
	C	11	MTWT	211 L.H.	BALD
	E	2	MTWT	205 L.H.	JEHLE
	F	4	MTWT	204a L.H.	KOLLER

German 5. Intermediate Course (continued).—Literary reading. *Prerequisite:* German 4, or three years of high school German, or equivalent.

4	A	8	MTWT	114 L.H.	GEISSENDOERFER
	B	10	MTWT	205 L.H.	JEHLE

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates

German 14. Introductory Schiller Course.—*Prerequisite:* German 5 or equivalent. (3). 11 MWF; 205 L.H. Professor ARON.

German 16a. Conversation and Writing.—*Prerequisite:* German 5 or equivalent. (2). 2 TT; 219 L.H. Assistant Professor KOLLER.

German 24a. Nineteenth Century Drama.—*Prerequisite:* German 5 or equivalent. (2). 3 TT; 204a L.H. Assistant Professor GEISSENDOERFER.

German 28a. Lyrics and Ballads.—*Prerequisite:* German 5 or equivalent, and sophomore standing. (2). 9 TT; 204a L.H. Associate Professor WILLIAMS.

German 29a. Advanced Conversation and Writing.—*Prerequisite:* German 16b or equivalent. (2). 2 TT; 211 L.H. Assistant Professor GEISSENDOERFER.

German 30a. Senior Thesis and Honors Course.—*Prerequisite:* Senior standing; three years of college German or equivalent. (2). Arrange. Professor ARON and others.

Courses for Advanced Undergraduates and Graduates

German 19a. Goethe's Faust I.—*Prerequisite:* Three years of college German or equivalent. (2). 11 TT; 425 Lib. Professor BROOKS.

German 26a. German Literature to 1800.—*Prerequisite:* Three years of college German or equivalent. (3). 9 MWF; 233 L.H. Professor ARON.

German 31. Middle High German.—*Prerequisite:* Senior or graduate standing; three years of college German or equivalent. (2). Arrange. Associate Professor WILLIAMS.

German 54. Introduction to Comparative Literature.—See English 54.

Courses for Graduates

German 101. Seminar in the German Novel.—(1 unit). Twice a week. Arrange. Professor ARON.

German 102. Thesis.—(½ to 2 units).* Arrange. Professors ARON, BROOKS; Associate Professor WILLIAMS; Assistant Professor GEISSENDOERFER.

German 103. Introduction to the Historical Study of the Germanic Languages.—(1 unit). Twice a week. Arrange. Associate Professor WILLIAMS.

German 113. German Literature of the Fifteenth and Sixteenth Centuries.—(1 unit). Twice a week. Arrange. Professor BROOKS.

German 117. German Literature of the Seventeenth and Eighteenth Centuries.—(1 unit). Twice a week. Arrange. Professor ARON.

HISTORY

Major: 20 hours, including (a) ten hours in courses having junior standing as a prerequisite, and (b) any other courses offered by the department (except courses taken in the freshman year).

Minors: 20 hours selected from one or two of the following subjects: economics, political science, geography, philosophy, law, sociology, and English and American literature (except such courses as are taken in the freshman year). Courses in one modern language (except such as are primarily designed for freshmen) will be accepted as one of two minor subjects.

Note: Seniors receive reduced credit in History 1 and 2.

Courses for Undergraduates

Hist. 1a. Continental European History.—

Credit	Section	Hours	Days	Room	Instructor
4[1]	[2]Lect. 1	10	TT	Morrow Hall	JONES
[1]Seniors will receive only 3 hours credit.	A Disc.	1	TT	335 L.H.	KING
	B Disc.	9	WF	334 L.H.	SHAY
	C Disc.	10	WF	335 L.H.	JONES
[2]Students in Lecture 1 must elect a discussion in the A-F group.	D Disc.	10	WF	211 L.H.	SHAY
	E Disc.	10	WF	308 L.H.	KING
	F Disc.	1	WF	305 L.H.	JONES
Students in Lecture 2 must elect a discussion in the G-L group.	[2]Lect. 2	2	MW	228 N.H.	RONALDS
	G Disc.	10	TT	329 L.H.	RONALDS
	H Disc.	11	TT	321 L.H.	RONALDS
	I Disc.	1	TT	305 L.H.	RONALDS
	J Disc.	2	TT	335 L.H.	
	K Disc.	2	TT	321 L.H.	SHAY
	L Disc.	3	TT	308 L.H.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hist. 2a. English History.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect. 1	11	M	L.H. Theatre	DIETZ
	Lect. 2	2	M	Morrow Hall	DIETZ
[1]Seniors will receive only 2 hours credit.	A Disc.	10	WF	321 L.H.	
	B Disc.	11	WF	321 L.H.	DIETZ
	C Disc.	11	WF	329 L.H.	SHAY
	D Disc.	11	WF	224 L.H.	
	E Disc.	11	WF	335 L.H.	
	F Disc.	11	WF	240 L.H.	
	G Disc.	1	WF	303a L.H.	ERICKSON
	H Disc.	2	WF	340 L.H.	ERICKSON
	I Disc.	2	WF	311 L.H.	
	J Disc.	2	WF	329 L.H.	SHAY
	K Disc.	2	TT	203 L.H.	ERICKSON
	L Disc.	3	TT	305 L.H.	SHAY

Hist. 3a. History of the United States to 1828.—*Prerequisite:* One year of college work.

3	[1]Lect. 1	8	MF	218 U.H.	WERNER
	A Disc.	8	Tu	305 L.H.	WERNER
[1]Students in Lecture 1 must elect a discussion in the A-G group.	B Disc.	8	W	305 L.H.	WERNER
	C Disc.	8	W	311 L.H.	
	D Disc.	8	W	303a L.H.	
Students in Lecture 2 must elect a discussion in the H-M group.	E Disc.	8	Th	305 L.H.	WERNER
	F Disc.	10	Tu	305 L.H.	
	G Disc.	11	Tu	334 L.H.	
	[1]Lect. 2	2	MF	218 U.H.	DUNBAR
	H Disc.	2	Tu	300 L.H.	DUNBAR
	I Disc.	2	Tu	235 L.H.	KING
	J Disc.	2	W	321 L.H.	DUNBAR
	K Disc.	2	W	304 L.H.	KING
	L Disc.	2	W	335 L.H.	
	M Disc.	2	Th	311 L.H.	DUNBAR

Hist. 5a. The Ancient World.—*Prerequisite:* Sophomore standing.

3	Lect.	2	MF	303 L.H.	SWAIN
	A Disc.	2	Tu	240 L.H.	
	B Disc.	2	W	240 L.H.	
	C Disc.	2	W	211 L.H.	SWAIN
	D Disc.	2	Th	240 L.H.	

Hist. 14. The American Colonies in the Seventeenth Century.—*Prerequisite:* Junior standing. (3). 11 MWF; 305 L.H. Assistant Professor WERNER.

Hist. 18. The Teaching of History.—*Prerequisite:* One year of college history and senior standing. (2). 3 TT; 303 L.H. Assistant Professor WERNER.

Hist. 23a. The Puritan Revolution in England and America, 1603-1642.—*Prerequisite:* One year of college history or political science. (2). 11 TT; 410 U.H. Professor PEASE.

Hist. 30a. The Mohammedan World: The Saracen Empire and the Crusades.—*Prerequisite:* One year of college history. (3). 10 MWF; 305 L.H. Professor LYBYER.

Hist. 33a. Tsarist Russia: Its Background, Institutions and Problems (to 1881).—*Prerequisite:* Junior standing and one year of college history. (3). 8 MWF; 105 L.H. Associate Professor RODKEY.

Hist. 34a. Development of Modern Europe: Absolutism and Colonial Expansion, 1648-1789.—*Prerequisite:* Junior standing and one year of college history. (3). 11 MWF; 109 L.H. Dr. ERICKSON.

Hist. 40. History of the British Empire.—*Prerequisite:* One year of college history. (2). 1 TT; 204 L.H. Dr. ERICKSON.

Hist. 41. The Middle Ages: Formation and the Development of the European States.—*Prerequisite:* Sophomore standing. (3). 2 MWF; 302 L.H. Professor LARSON.

Hist. 45a. History of England in the Later Seventeenth and the Eighteenth Century (1688-1760).—*Prerequisite:* Junior standing and one year of college history. (2). 2 TT; 303 L.H. Assistant Professor RONALDS.

Hist. 51a. Hebrew History: Origins to 586 B.C.—*Prerequisite:* Junior standing. (2). 2 TT; 305 L.H. Associate Professor SWAIN.

Hist. 90a. Thesis: Special Training in Historical Investigation.—*Prerequisite:* Senior standing. (2 to 4).* Arrange. Associate Professor RODKEY.

Hist. 91a. Honors Course: Readings in Selected Fields in Consultation with the Instructor.—*Prerequisite:* Senior standing. (2 to 4).* Arrange. Professor LYBYER.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student put on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

(Open to seniors and juniors of high standing)

Hist. 16a. The Foundations of American Society: The Colonies in the Eighteenth Century (to 1763).—*Prerequisite:* One year of college history. (3). 10 MWF; 311 L.H. Assistant Professor DUNBAR.

Hist. 20a. History of the Old South.—*Prerequisite:* History 3a-3b. (2). 8 TT; 335 L.H. Professor RANDALL.

Hist. 21. The Recent History of the United States (1877-1934).—*Prerequisite:* History 3b. (3). 9 TT; 303 L.H. Professor ROBERTSON.

Hist. 22a. History of the West, 1634-1774.—*Prerequisite:* One year of college history. (2). 10 TT; 410 U.H. Professor PEASE.

Hist. 25. The Civil War and Reconstruction.—*Prerequisite:* History 3b. (3). 11 MWF; 204 L.H. Professor RANDALL.

Hist. 26. History of the Latin American Colonies.—*Prerequisite:* One year of college history. (3). 2 MWF; 305 L.H. Professor ROBERTSON.

Hist. 32a. Recent European History (1878-1914).—*Prerequisite:* One year of college history, economics, or political science. (3). 8 MWF; L.H. Theatre. Professor LYBYER.

Hist. 36a. Development of Modern Germany to 1862.—*Prerequisite:* One year of college history. (3). 9 MWF; 305 L.H. Associate Professor RODKEY.

Hist. 38a. Development of the French Monarchy in Early Modern Times, 1285-1648.—*Prerequisite:* History 1a (3). 9 MWF; 329 L.H. Professor JONES.

Hist. 44a. The Constitutional History of England.—*Prerequisite:* One year of college history or political science. (3). 3 MWF; 303 L.H. Professor LARSON.

Hist. 46a. Social and Economic History of England, 1750-1882.—*Prerequisite:* One year of college history or economics. (3). 9 MWF; 335 L.H. Professor DIETZ.

Hist. 55. History of the Ancient Greek States.—*Prerequisite:* One year of college history. (3). 1 MWF; 202 L.H. Professor OLDFATHER.

Hist. 57a. Ancient Imperialism: Alexander the Great and His Successors.—*Prerequisite:* One year of college history. (3). 11 MWF; 203 L.H. Associate Professor SWAIN.

Hist. 62a. Political and Constitutional Development of the United States (to 1809).—*Prerequisite:* One year of college history or political science. (3). 10 MWF; 329 L.H. Professor RANDALL.

Courses for Graduates

Hist. 101a. Seminar in American History: Introduction to Research.—(1 unit). 4-6 Tu. Professor ROBERTSON.

Hist. 102a. Seminar in English History.—(1 unit). 4-6 Th. Professor DIETZ.

Hist. 103. Studies in Historical Method.—(1 unit). 3 TT. Professor RANDALL.

Hist. 104a. Seminar in European History.—(1 unit). 4-6 W. Professor LYBYER.

Hist. 105. Research in Special Topics (Thesis Course).—(1 to 2 units).* Professors LARSON, LYBYER, ROBERTSON, PEASE, JONES, RANDALL, DIETZ; Associate Professors SWAIN, RODKEY; Assistant Professors DUNBAR, RONALDS, WERNER.

Hist. 106a. Seminar in the History of the Later Middle Ages.—(1 unit). Arrange. Professor LARSON.

Hist. 122c. The Westward Movement, 1761-1763.—(1 unit). Two hours. 4 MTh. Professor PEASE.

Hist. 126. Spain in Europe and America, 1750-1870.—(1 unit). Arrange. Professor ROBERTSON.

Hist. 133a. Studies in the History of Europe in the Nineteenth Century, 1815-1848.—(1 unit). 9-11 S. Associate Professor RODKEY.

Hist. 138a. History of France in the First Half of the Sixteenth Century, 1515-1547.—(1 unit). Arrange. Professor JONES.

Hist. 150a. Seminar in Ancient History.—(1 unit). 3-5 M. Associate Professor SWAIN.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

HOME ECONOMICS

Note: Certain courses in this department require laboratory fees varying from $1 to $16.

For Students NOT Majoring in Home Economics

Courses 7, 38, 42, 60, 70, and 80 are open to both men and women and, with the exception of Courses 7 and 42, are NOT open to students majoring in Home Economics.

For Students in the College of Agriculture

For Curriculum in General Home Economics, see "Directions for Registration," page 50.
For Curriculum in Nutrition and Dietetics, see "Directions for Registration," page 52.

For Students in the College of Education

For Curriculum in Home Economics Education, see "Directions for Registration," page 55.
For Curriculum in Home Economics Education—Smith-Hughes, see "Directions for Registration," page 55.

For Students in the College of Liberal Arts and Sciences

Major A.—General Home Economics: 20 hours from courses offered by the department, excluding Home Economics 7 and 58, and including Home Economics 2, 5, 10, 29, 59, and two or more of the following: Home Economics 14, 20, 28, 31, 33, 35, 41, 43a, 43b, 48, 55, 57a, 57b.

Major B.—Nutrition: 20 hours excluding Home Economics 58, and including Home Economics 5, 39a, 39b, 41, 59, and two or more of the following: Home Economics 20, 33, 35, 45, 47.

Minor A.—20 hours chosen from one or two of the following subjects: chemistry, bacteriology. At least eight hours must be offered in each subject, if two are chosen.

Minor B.—20 hours chosen from one or two of the following subjects: economics, sociology. At least eight hours must be offered in each subject, if two are chosen.

For Transfer Students

To satisfy the requirements for graduation, students transferring home economics credits from other institutions must take five hours in residence from the following: Home Economics 20, 28, 31, 33, 35, 39a, 39b, 41, 43a, 43b, 47, 48, 50, 51, 55, 57a, 57b.

Electives

In addition to the required subjects in each college, it is expected that students will choose electives in accord with their special interests, as follows:

1. Textiles, clothing, and costume design: Home Economics 19, 30, 31, 42, 43a, 43b, 50, 51.
2. Institution management and hospital dietetics: Home Economics 20, 33, 35, 46, 47, 48, 55.
3. Household management: Home Economics 14, 28, 57a, 57b, and additional courses in economics.
4. House planning and furnishing: Art 11, 12; Architecture 11, 12; Home Economics 3, 43a, 43b, and additional courses in art and history.
5. Nutrition: Chemistry 24, 50a; Zoology 1; Home Economics 20, 33, 35, 39a, 39b, 41, 45.
6. Teaching of home economics: Home Economics 11, 13, 45; Education 6, 10, 25.

Courses for Undergraduates NOT Majoring in Home Economics

Home Econ. 7. Textiles.—See sections listed under Home Econ. 7 on page 47.

Home Econ. 38. Elementary Nutrition.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
2	E Lect. (for women)	2	MW	121 W.B.	Barto
	K Lect. (for men)	9	TT	231 W.B.	

Home Econ. 42. History of Costume.—See lecture listed under Home Econ. 42 on page 47.

Home Econ. 60. Food Problems of Student Groups.—(A course for commissaries). Selection, buying, and managerial problems in the preparation and serving of food for student groups. *Prerequisite:* Sophomore standing and consent of instructor.

1	Lect.	4	Tu	121 W.B.	Barto, Smith

Home Econ. 70. Clothing Selection.—Economic, artistic, psychologic, and hygienic problems in the selection of clothing.

3	Lect.	9	Tu	121 W.B.	Whitlock, Eades
	Lab.	10–12	TT	203 W.B.	

Home Econ. 80. Home Management.—Problems of home management, emphasizing personal and family finance, apportionment of time and energy, and problems of the consumer. *Prerequisite:* Junior standing and consent of instructor.

2	Lect.	11	TT	121 W.B.	Nickell

Courses for Undergraduates Majoring in Home Economics

Home Econ. 2. Home Architecture.—*Prerequisite:* Art 1a or the equivalent. *Prerequisite or concurrent:* Art 1b.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	9	TT	117 W.B.	Foster, Weaver
	Quiz	1	F	117 W.B.	
	C Conf.	10	F	309 W.B.	
	D Conf.	11	F	309 W.B.	
	F Conf.	2	F	309 W.B.	
	G Conf.	3	Th	309 W.B.	
	M Conf.	11	S	309 W.B.	

Home Econ. 3. Home Decoration.—*Prerequisite:* Art 1a, 1b, or the equivalent.

3	Lect.	10	S	117 W.B.	Weaver
	L Lab.	10–12	TT	309 W.B.	
	N Lab.	1–3	TT	309 W.B.	

Home Econ. 5. Dietetics.—*Prerequisite:* Chem. 33; Home Econ. 58; Physiol. 4. *Prerequisite or concurrent:* Home Econ. 59.

4	Lect.	9	M	121 W.B.	Barto
	B1 Quiz	9	W	121 W.B.	Barto
	B2 Quiz	9	F	121 W.B.	Barto
	C Lab.	10–12	MW	229 W.B.	Barto
	L Lab.	10–12	TT	229 W.B.	Barto
	P Lab.	3–5	TT	229 W.B.	Munger

Home Econ. 7. Textiles.—

3[1]	Lect.	10	M	210 W.B.	Jacobsen
	B Quiz	9	W	117 W.B.	Jacobsen
[1]Seniors will receive only 2 hours credit.	C1 Quiz	10	W	117 W.B.	Jacobsen
	C2 Quiz	10	F	117 W.B.	Jacobsen
	D Quiz	11	F	117 W.B.	Beam
	L1 Lab.	10–12	Tu	304 W.B.	Beam
	C Lab.	10–12	W	304 W.B.	Beam
	L2 Lab	10–12	Th	304 W.B.	Jacobsen
	E Lab.	1–3	W	304 W.B.	Jacobsen
	N Lab.	1–3	Th	304 W.B.	Jacobsen

Home Econ. 10. Organization and Management of the Home.—*Prerequisite:* Econ. 1 or 2; Home Econ. 7. *Prerequisite or concurrent:* Home Econ. 59.

3	A Quiz	8	MWF	121 W.B.	Nickell
	E Quiz	1	MWF	121 W.B.	

Home Econ. 11. The Teaching of Home Economics.—*Prerequisite:* Home Econ. 59 and 29. *Prerequisite or concurrent:* Education 10; Home Econ. 5, 10, 19. One inspection trip (approximate cost $3). Required of all who wish to be recommended to teach home economics. (3). Lecture and discussion, 2 TT; 121 W.B. Miss Robinson.

Home Econ. 13. Home Economics in Education.—*Prerequisite or concurrent:* Home Econ. 10, 29. Recommended for all seniors in Home Economics. (3). 3 TT; 117 W.B.

Home Econ. 14. Home Management House.—Conferences and laboratory work in the home management apartment and laundry. The students reside in the home management apartment four weeks during the semester. This course is required of all students expecting to meet the Smith-Hughes requirements. *Prerequisite:* Home Econ. 5, 10 and consent of the instructor. (3). Conference, 4 Th, 117 W.B.; laboratory to be arranged with instructor. Assistant Professor Nickell.

Home Econ. 19. Costume Design.—*Prerequisite:* Art 1a, 1b, or the equivalent.

3	Lect.	1	F	210 W.B.	Eades
	C Lab.	10–12	MW	309 W.B.	
	E Lab.	1–3	MW	309 W.B.	

Home Econ. 29. Clothing.—*Prerequisite:* Art 1a or 1b; Home Econ. 7.

4	Lect.	9	F	210 W.B.	Whitlock
	B1 Quiz	9	W	121 W.B.	Whitlock
	K Quiz	9	Th	121 W.B.	Whitlock
	C Lab.	10–12	MW	203 W.B.	Whitlock
	E Lab.	1–3	MW	327 W.B.	Beam
	N Lab.	1–3	TT	327 W.B.	Beam

Home Econ. 30. Clothing.—*Prerequisite:* Art 1a, 1b; Home Econ. 29. *Prerequisite or concurrent:* Home Econ. 19.

3	Lect.	2	F	121 W.B.	Whitlock
	E Lab.	1–3	MW	203 W.B.	
	N Lab.	1–3	TT	203 W.B.	

Home Econ. 42. History of Costume.—(2). Lect., 3 Tu; 117 W.B. Miss Eades.

Home Econ. 46. Quantity Cookery.—*Prerequisite:* Home Econ. 59. (3). Quiz, 4 W, 117 W.B.; Lab., 8-11 two mornings a week, to be arranged with instructor; students advised not to have eleven o'clock classes as they are required to serve at noon at least two days a week. Assistant Professor Smith, Mrs. Prudent.

Home Econ. 47. Institution Management.—*Prerequisite:* Econ. 1 or 2 and senior standing. *Prerequisite or concurrent:* Home Econ. 46. (3). Lect. and disc., 2 MWF; 117 W.B. Assistant Professor SMITH.

Home Econ. 58. Foods.—*Prerequisite:* Chemistry 1, 5.

Credit	Section	Hours	Days	Room	Instructor
5	Lect.	9	MW	210 W.B.	WOODRUFF
	B Quiz	9	F	117 W.B.	WOODRUFF, PICKENS
	D Quiz	11	F	210 W.B.	MUNGER
	C Lab.	10–12	MWF	235 W.B.	PICKENS
	E Lab.	1–3	MWF	235 W.B.	PICKENS
	N Lab.	1–3 10–12	TT S	235 W.B.	MUNGER

Home Econ. 59. Food Economics.—*Prerequisite:* Home Econ. 58.

2	Lect.	11	Th	210 W.B.	WOODRUFF
	G Lab.	3–5	W	229 W.B.	MUNGER
	P2 Lab.	3–5	Th	235 W.B.	PICKENS

Courses for Advanced Undergraduates and Graduates

Home Econ. 20. Physical Growth and Nutrition.—*Prerequisite:* Home Econ. 5, senior standing. (2). Lect. and disc., 1 MW; 117 W.B. Assistant Professor OUTHOUSE.

Home Econ. 35. Problems in Foods.—*Prerequisite:* Home Econ. 5 and consent of instructor; (Chemistry 22 is advised).

3	Conf.	1	F	113 W.B.	WOODRUFF
	Lab.	2–5	MW	113 W.B.	

Home Econ. 39a. Readings in Foods and Nutrition.—*Prerequisite:* Home Econ. 5, senior standing. *Prerequisite or concurrent:* Chem. 50a or Home Econ. 20, 33, 41, or 55. (1). Seminar, 4-5:30 Th; 203-5 W.B. Associate Professor WOODRUFF, Assistant Professors OUTHOUSE and BARTO.

Home Econ. 43a. Problems in Textiles and Clothing.—*Prerequisite:* Econ. 1 or 2; Home Econ. 30 or 51. Individual problems in some cases involve prerequisites of chemistry and physics. (3). Lect., 3 Tu; 304 W.B. Lab. to be arranged. Assistant Professor JACOBSEN, Miss EADES, Miss WHITLOCK.

Home Econ. 55. Food and Nutrition.—*Prerequisite:* Home Econ. 5 and senior standing. (5). Lect., 1 TT, 117 W.B.; Lab., 2-5 Tu, 2-4 Th, and 8-11 S; 215 W.B. Assistant Professor OUTHOUSE, Mrs. MEYER.

Home Econ. 57a. Problems in Home Management.—*Prerequisite:* Home Econ. 10 and consent of instructor. (3). To be arranged; 313 W.B. Assistant Professor NICKELL.

Courses for Graduates

Home Econ. 101. Home Economics.—(1 unit). Professor WARDALL.

Home Econ. 102. Research in Nutrition.—(½ to 3 units).* Assistant Professor OUTHOUSE.

Home Econ. 103. Seminar in Nutrition.—(½ unit). Once a week. Assistant Professor OUTHOUSE.

Home Econ. 104. Research in Foods.—(½ to 3 units).* Associate Professor WOODRUFF.

Home Econ. 105. Seminar in Foods.—(½ unit). Associate Professor WOODRUFF.

HORTICULTURE

Note: Certain courses in this department require laboratory fees varying from $0.75 to $2.50.

Courses for Undergraduates

Hort. 1. Introductory Horticulture.—(No credit allowed to juniors and seniors.)

3	S Disc.	1	WF	111 New Agr.	
	Lab.	1–3	M	H.F.L.	
	J Disc.	8	TT	127 New Agr.	
	Lab.	8–10	S	H.F.L.	
	A Disc.	8	WF	127 New Agr.	COLBY, WEAVER,
	Lab.	8–10	M	H.F.L.	MARSH
	V Disc.	8	MW	111 New Agr.	
	Lab.	8–10	F	H.F.L.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hort. 5. Plant Propagation.—(3). 1-3 MWF; F.G. Professor DORNER.

Hort. 8a. Orcharding.—*Prerequisite:* Hort. 1. (Inspection trip requirement waived for 1934-35.) (3). Lect., 10 Th; 111 New Agr. Lab., 10-12 TuS; 106 H.F.L. Mr. MCMUNN.

Hort. 15b. Commercial Floricultural Crops.—*Prerequisite:* Hort. 15a. (3). 10-12 MWF; F.G. Associate Professor HALL.

Hort. 22a-g. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; approval of head of department. (5). Arrange.

(a) **Pomology.**—Professors DORSEY, RUTH, COLBY, ANDERSON.
(c) **Olericulture.**—Professor LLOYD.
(e) **Floriculture.**—Professor DORNER, Associate Professor WEINARD.
(g) **Plant Breeding.**—Professor DORSEY.

Hort. 32a. Floral Decoration.—(For floriculture students.) (3). 8-10 TTS; F.G. Professor DORNER.

Hort. 33. Systematic Pomology.—*Prerequisite:* Junior standing. (2). 3-5 TT; H.F.L. Mr. MCMUNN.

Hort. 49. Systematic Vegetable Crops.—*Prerequisite:* Hort. 9. (2). 3-5 TT; 203 V.G. Professor LLOYD, Mr. WEAVER.

Courses for Advanced Undergraduates and Graduates

Hort. 43. Greenhouse Fertilizers.—*Prerequisite:* Botany 3; Agron. 28; Hort. 3 or 15a; senior standing. (3). 3 MWF; F.G. Associate Professor WEINARD.

Hort. 44. Current Pomological Literature.—*Prerequisite:* Junior standing. (1). 11 Th; 111 New Agr. Professor RUTH.

Hort. 46. Marketing Horticultural Products.—See Agricultural Economics 36.

Hort. 47. Fruit Storage.—*Prerequisite:* Chem. 32; Bot. 3, or concurrent registration in Bot. 3. (3). 1-3 MWF; 102 H.F.L. Professor RUTH.

Courses for Graduates

Hort. 103. Olericulture.—(1 to 2 units).* Arrange. Professor LLOYD.

Hort. 105. Marketing Fruits and Vegetables.—See Agricultural Economics 135.

Hort. 106. Olericulture Seminar.—(¼ unit). Arrange. Professor LLOYD.

Hort. 108. Pomology.—(1 to 4 units).* Arrange.

(a) **Pomological Problems.**—Professor BLAIR.
(b) **Pomology and Fruit Breeding.**—Professor DORSEY.
(c) **Pomological Physiology.**—Professor RUTH, Assistant Professor KELLEY.
(d) **Small Fruits.**—Professor COLBY.
(e) **Pomological Pathology.**—Professor ANDERSON.

Hort. 115. Floriculture.—(1 to 2 units).* Arrange.

(a) **Floricultural Problems.**—Professor DORNER.
(b) **Floricultural Physiology and Pathology.**—Associate Professor WEINARD.

Hort. 120. Pomology Seminar.—(¼ unit). Arrange. Professors DORSEY, RUTH, ANDERSON.

Hort. 125. Fruit Development.—(1 unit). Arrange. Professor DORSEY.

Hort. 130. Physiology of Fruit Production.—(1 unit). Arrange. Professor RUTH.

Hort. 135. Fruit Disease Research.—(1 unit). Arrange. Professor ANDERSON.

HYGIENE

Courses for Undergraduates

Hygiene 2. Essentials of Hygiene and Sanitation.—Required of all undergraduate women during their first year of residence. Names beginning with the letters from A through L should register the first semester.

Credit	Section	Hours	Days	Room	Instructor
2	A1	8	TT	106 L.H.	LYNCH
	A2	8	WF	106 L.H.	LYNCH
	B1	9	TT	106 L.H.	ETHEREDGE
	B2	9	MW	106 L.H.	ETHEREDGE
	C2	10	WF	106 L.H.	MILLBROOK
	F1	2	WF	106 L.H.	ETHEREDGE
	G1	3	TT	106 L.H.	MILLBROOK

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hygiene 5. Elementary Hygiene and Sanitation.—Required of all undergraduate men during their first year of residence. Students in the colleges of Agriculture and Liberal Arts and Sciences should register in the first semester. All other students should register in the second semester. Those whose schedules will not permit registration in this order will, with the proper approval, be accepted in either semester.

Credit	Section	Hours	Days	Room	Instructor
2	A1	8	TT	128 New Agr.	Judah
	A2	8	WF	128 New Agr.	Judah
	B1 (Agr.)	9	TT	128 New Agr.	Beard
	B2	9	WF	128 New Agr.	Beard
	B3	9	MW	313 New Agr.	Ross
	B4	9	TT	127 New Agr.	Gebhart
	B5	9	WF	214 New Agr.	Gebhart
	B6	9	TT	214 New Agr.	Ross
	C1 (Agr.)	10	TT	128 New Agr.	Cain
	C2	10	WF	128 New Agr.	Cain
	C3 (Eng.)	10	MF	305 E.H.	Blackstone
	C4	10	TT	127 New Agr.	Blackstone
	D1	11	TT	128 New Agr.	Lewis
	D3	11	MW	128 New Agr.	Lewis
	F1 (Eng.)	2	TT	305 E.H.	Judah
	F2	2	WF	127 New Agr.	Ross
	F3	2	MW	128 New Agr.	Beard
	G1	3	TT	128 New Agr.	Blackstone
	G2	3	WF	127 New Agr.	Lewis
	G3 (Agr.)	3	MW	128 New Agr.	Cain

Hygiene 10. Advanced Hygiene.—Especially suited to the needs of teachers, coaches, and social workers. *Prerequisite:* Hygiene 2 or 5.

2	F	2	MW	313 New Agr.	Gebhart

JOURNALISM

Note: Certain courses in this department require laboratory fees varying from $1 to $2.

Credit in journalism will be given for Rhetoric 6; English 45; Political Science 22, 27, 28; Law 2, 5; History 21.

Courses for Undergraduates

Journ. 1a. Supervised Publication Work.—Staff work and faculty conferences. Six hours of regular staff duty and one 15-minute faculty conference each week. (1). Arrange.

Section A. *Technograph* staff (editorial and business department workers). *Prerequisite:* Sophomore standing in the College of Engineering. 101 U.H. Director Murphy.

Section B. *Illini* staff (reporting staff only). *Prerequisite:* Sophomore standing in the University. 104 U.H. Associate Professor Barlow.

Journ. 3. The Newspaper and the News.—A non-laboratory, critical course for beginners and students regarding journalism as a social problem. Not open to students with credit in Journ. 5, or to students registered in Journ. 5. *Prerequisite:* Freshman standing.

2	D	11	MW	410 U.H.	Barlow

Journ. 4. Newspaper Reference Service.—Use of morgue and reference materials. *Prerequisite:* Freshman standing.

2	L	10	TT	203 U.H.	Dickinson
	M	11	TT	203 U.H.	

Journ. 5. Reporting.—*Prerequisite:* Sophomore standing. (Students register for lecture and one laboratory section.)

3	Lect. M	11	Tu	213 U.H.	Leiter
	Lab. C	10–12	MW	118 U.H.	
	Lab. E	1–3	M W	118 U.H. 311 U.H.	
	Lab. K	9–11	TT	118 U.H.	

Journ. 6. Reporting.—*Prerequisite:* Sophomore standing and Journ. 5.

3	Lect.	2	Th	311 U.H.	Leiter
	Lab.	3–5	TT	311 U.H.	

Journ. 7. Sports Writing.—(For students in Physical Education). *Prerequisite:* Sophomore standing.

3	E	1	MWF	318 U.H.	Schooley

Journ. 9a. History and Practice of Printing and Publishing.—*Prerequisite:* Sophomore standing.

2	Lect.	11	Tu	300 Math.	Allen
	Lab. J	8–10	Tu	126 U.H.	
	Lab. E	1–3	M	126 U.H.	
	Lab. N	1–3	Tu	126 U.H.	

Courses for Advanced Undergraduates

Journ. 10. Newspaper Advertising.—(Same as B.O.O. 10). (Offered first semester only). *Prerequisite:* Journ. 5 and 6.

Credit	Section	Hours	Days	Room	Instructor
3	B	9	MWF	310 Com.	RUSSELL
	D	11	MWF	310 Com.	

Journ. 12. Publicity Methods.—*Prerequisite:* Junior standing.

2	K	9	TT	113 U.H.	WRIGHT

Journ. 13. Copyreading.—*Prerequisite:* Journ. 5 and 9a or equivalent, and junior standing.

3	Lect. G	3	M	315 U.H.	SIEBERT
[1]Lab. G is for students	Lab. N	1–3	TT	118 U.H.	
with desk experience.	Lab. E	1–3	WF	118 U.H.	
Consult adviser before	Lab. P	3–5	TT	118 U.H.	
registering.	[1]Lab. G	3–5	WF	118 U.H.	

Journ. 15. Special and Feature Articles.—*Prerequisite:* Junior standing.

2	K	9	TT	204 U.H.	DICKINSON

Journ. 17. History of Journalism.—*Prerequisite:* Junior standing.

3	D	11	MWF	300 Math.	MURPHY

Journ. 21. Community and Country Journalism.—*Prerequisite:* Junior standing.

3	Lect.-Disc.	10	MW	126 U.H.	ALLEN
	Lab.	Two hours to be arranged			

Journ. 25. Newspaper Advertising Copy.—*Prerequisite:* Sophomore standing. Not open to students registered in Journ. 5.

3	C	10	MWF	113 U.H.	MURPHY and DICKINSON

Journ. 29. Advanced Reporting.—General news and correspondence. *Prerequisite:* Journ. 5 and 6 or equivalent, and junior standing.

3	F	2	MWF	113 U.H.	BARLOW

Journ. 31. Trade and Technical Journalism.—*Prerequisite:* Junior standing.

2	E	1	MW	113 U.H.	DICKINSON

Journ. 33. Newspaper Advertising Layout.—*Prerequisite:* Junior standing.

3	Lect.-Disc.	8–10	M	126 U.H.	ALLEN
	Lab.	8–10	W	126 U.H.	

Journ. 35. Contemporary Affairs.—*Prerequisite:* Junior standing and 6 hours of journalism.

2	M	11	TT	113 U.H.	SIEBERT

Journ. 39. Special Problems.—(For seniors not writing theses in journalism).

2	G	3	W	113 U.H.	BARLOW and members of the staff

Journ. 60a. Thesis Course.—Open to seniors with consent of the Director.

2	To be arranged	MURPHY and members of the staff

LANDSCAPE ARCHITECTURE

Note: Certain courses in this department require laboratory fees varying from $0.50 to $2.00.

Courses for Undergraduates

L.A. 11. History of Landscape Architecture.—(3). 11 MWF; 214 New Agr. Assistant Professor PETERSON.

L.A. 31. Landscape Design.—*Prerequisite:* Arch. 72a. (3). 8-11 MWF; 200 New Agr. Professor WHITE.

L.A. 33. Intermediate Landscape Design.—*Prerequisite:* L.A. 32. (3). 9-12 TTS; 200 New Agr. Professor WHITE.

L.A. 35. Advanced Landscape Design.—*Prerequisite:* L.A. 34. (5). 9-12 MWF, other hours to be arranged; 203 New Agr. Professor LOHMANN.

L.A. 37. Civic Design.—*Prerequisite:* Senior standing in the City Planning Option. (4). 9-11 M, 9-12 WF; 203 New Agr. Professor LOHMANN.

L.A. 43. Landscape Construction.—*Prerequisite:* C.E. 18. (3). Lect., 9 MF; 211 New Agr. Lab., 10-12 MF, 9-12 W; 200 New Agr. Professor SCHAFFER.

L.A. 51. **Trees and Shrubs.**—*Prerequisite:* Bot. 5. (Open only to students in Landscape Architecture and Floriculture). (3). Lect., 3 W; 214 New Agr. Lab., 3-5 MF; 211 New Agr. Assistant Professor ROBINSON.

L.A. 53. **Planting Design.**—*Prerequisite:* L.A. 34, 52, and Hort. 31. (3). Lect., 1 Tu, 211 New Agr. Lab., 2-5 Tu, 1-5 Th; 203 New Agr. Assistant Professor ROBINSON.

L.A. 55. **Care of Plant Materials.**—*Prerequisite:* L.A. 52. (2). 11 TT; 211 New Agr. Professor SCHAFFER.

L.A. 71. **City Planning.**—*Prerequisite:* 60 hours of university work. (2). 10 TT; 214 New Agr. Professors BARTHOLOMEW and LOHMANN.

LAW

Note: Students other than those registered in the College of Law are required to pay fees at the rate of $1 per semester hour for courses in law.

First-Year Courses

Introductory Lectures on Procedure.—Required of all first-year students. (No credit). 1 and 4 MTWTF; 300 Law. Professor MCCASKILL.

Law 1a. Contracts.—Costigan: *Cases on Contracts* (2d ed.).

Credit	Section	Hours	Days	Room	Instructor
3	A	9	MTT	106 Law	GOBLE
	B	10	MTT	106 Law	

Law 2a. Torts.—Bohlen: *Cases on Torts* (3d ed.).

4	A	8	TWTF	103 Law	WEISIGER
	B	9	TWTF	103 Law	

Law 3. Personal Property and Introduction to Law.—Bigelow, *Cases on Personal Property*, (2d ed.).

3	A	2	MTW	103 Law	HOFFMAN
	B	3	MTW	103 Law	

Law 4. Actions.—McCaskill: *Cases on Actions and Suits.*

2	A	2	ThF	103 Law	MCCASKILL
	B	3	ThF	103 Law	

Law 5. Criminal Law.—Harno: *Cases on Criminal Law and Procedure.*

3	A	11	MWF	103 Law	HARNO

Second-Year and Third-Year Courses

Note: In addition to the program for which a second- or third-year student registers, he is asked to hold open the one o'clock hour on Monday and Wednesday during the first semester for quizzes which may be scheduled during the course of the semester in room 300 Law Building.

Law 6a. International Law.—Law of Peace.

3	A	10	MWF	204 L.H.	GARNER

Law 7. Persons.—McCurdy: *Cases on Domestic Relations.*

2	A	10	ThF	303 Law	HOLT

Law 9. Sales.—Williston and McCurdy: *Cases on Sales.*

3	A	9	MTW	303 Law	BRITTON
	B	10	MTW	303 Law	

Law 14. Carriers and Warehousemen.—Green: *Cases on Carriers* (2d ed.).

2	A	2	MW	106 Law	GREEN

Law 16a. Trusts.—Scott: *Cases on Trusts* (2d ed.).

2	A	2	MW	303 Law	SCHNEBLY
	B	3	MW	303 Law	

Law 17. Business Organizations I.—Crane and Magruder: *Cases on Partnership* (shorter selection).

2	A	8	TW	303 Law	HOLT

Law 18. Wills and Administration.—Costigan: *Cases on Wills, Descent, and Administration* (2d ed.).

3	A	2	TTF	106 Law	SUMMERS

Law 19. Business Organizations II.—Richards: *Cases on Private Corporations* (2d ed.).

3	A	9	MTW	306 Law	JOHNSON

Law 21a. Credit Transactions I.—Accommodation contracts. Sturges: *Cases on Credit Transactions.*

2	A	1	ThF	106 Law	HOFFMAN

Law 22a. Constitutional Law.—Government and the individual. Rottschaefer: *Cases on Constitutional Law.*

3	A	11	WTF	106 Law	GREEN

Law 28a. Insurance.—Personal insurance. Goble: *Cases on Insurance.*

Credit	Section	Hours	Days	Room	Instructor
2		4	MW	306 Law	Goble

Law 29. Real Property II.—Rights in land. Bigelow: *Cases on Rights in Land* (2d ed.).

3	A	3	TTF	303 Law	Summers
	B	4	TTF	303 Law	

Law 30. Equity II.—Cook: *Cases on Equity* (2d ed.; one-volume ed.).

2	A	8	ThF	303 Law	Schnebly
	B	9	ThF	303 Law	

Law 31a. Conflict of Laws.—Lorenzen: *Cases on Conflict of Laws* (3d ed.).

2	A	8	ThF	306 Law	Holt

Law 35. Procedure III.—Trial practice. Hinton: *Cases on Trial Practice.*

3	A	10	MTW	103 Law	McCaskill

Law 39a. Thesis Course.—Open to students who are candidates for the J.D. degree during the academic year next preceding their graduation. Credit deferred until completion of Law 39b.

1	To be arranged	Members of the staff

Law 49. Industrial Relations I.—Trade regulation.

2	A	3	ThF	306 Law	Weisiger

Law 54. Legal Problems I.—Comments on recent decisions. *Prerequisite:* One year of law work and at least an average grade of "B" (4.) in law courses.

1	To be arranged	Holt

Law 56. Legal Problems III.—Comments on recent decisions. *Prerequisite:* Legal Problems I or II, two years of law work, and at least an average grade of "B" (4.) in law courses.

1	To be arranged	Holt

Law 59. Banks and Banking.—A study of selected legal problems in the organization, operation, and liquidation of banks.

2	A	3	MW	306 Law	Britton

Law 60. Public Utilities.—Robinson: *Cases on Public Utilities.*

2	A	11	MTu	106 Law	Green

LIBRARY SCIENCE

Course for Freshmen and Sophomores

Lib. Sci. 12. General Reference.—

2	A	9	TT	118 Lib.	Black
	B	10	TT	118 Lib.	
	C	11	TT	118 Lib.	Signor
	D	2	TT	118 Lib.	
	E	9	WF	118 Lib.	

Courses for First-Year Library School Students

Lib. Sci. 2a. Reference.—

3	A	11	MWF	314 Lib.	Phelps
	B	9	MWF	227 Lib.	Phelps

Lib. Sci. 3a. Selection of Books.—

2	A	9	TT	227 Lib.	Boyd
	B	10	TT	227 Lib.	Boyd

Lib. Sci. 31a. Cataloging.—

2	A Lect.	1	TT	314 Lib.	Bond
	Lab.	2–4	TT	306 Lib.	Bond
	B Lect.	2	TT	314 Lib.	Krieg
	Lab.	3–5	TT	306 Lib.	Krieg

Lib. Sci. 34. Library Administration and Extension.—

3	A	8	MWF	314 Lib.	Gramesly
	B	10	MWF	314 Lib.	Gramesly

Lib. Sci. 35. Order and Accessions.—

3	A	9	MWF	314 Lib.	Hostetter
	B	11	MWF	227 Lib.	Hostetter

Lib. Sci. 36. Classification.—

2	A	10	TT	314 Lib.	Bond
	B	9	TT	314 Lib.	Bond

Courses for Advanced Library School Students and Graduates

Lib. Sci. 13a. U. S. Government Publications.—*Prerequisite:* Lib. Sci. 2a-2b. (2 hours or ½ unit). 10 MW; 328 Lib. Assistant Professor BOYD.

Lib. Sci. 24a. Book Selection for Special Groups.—*Prerequisite:* Lib. Sci. 3a and 38. (2 hours or ½ unit). 11 TT; 328 Lib. Miss HOSTETTER.

Lib. Sci. 44. Book-buying for the Large Library.—*Prerequisite:* Lib. Sci. 35. (2 hours or ½ unit). 11 WF; 328 Lib. Miss GARVER.

Lib. Sci. 48. Public Library Administration.—*Prerequisite:* Lib. Sci. 34 and 33b. (3 hours or ½ unit). To be arranged; 328 Lib. Miss GRAMESLY.

Courses for Graduates

Lib. Sci. 101. Thesis.—(1 to 2 units). Professor WINDSOR and others.

Lib. Sci. 102. Seminar. Publishers.—(1 unit). 3-5 M; 328 Lib. Assistant Professor BOYD.

Lib. Sci. 103a. Advanced Reference.—*Prerequisite:* Lib. Sci. 2a-2b. (½ unit). 10 TT; 328 Lib. Miss PHELPS.

Lib. Sci. 104a. Advanced Cataloging and Classification.—*Prerequisite:* Lib. Sci. 31a, 36, and 37. (½ unit). 3-5 W; 328 Lib. Assistant Professor BOND.

MATHEMATICS

Major: 20 hours exclusive of Math. 2, 3, 4, 5, 6, 6a, 8a, 8b, and all courses taken during the freshman year, and inclusive of Mathematics 7 and 9, and two semesters of Math. 70, 71, 72.

Note: For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: first semester, Math. 2 (or 3) and 4 (or 5); second semester, Math. 6. Sophomore year: first semester, Math. 7; second semester, Math. 9 and 19. In certain courses Math. 6 may be replaced by Math. 6a, and Math. 7 and 9 by Math. 8a and 8b.

Minors: 20 hours exclusive of courses taken during the freshman year selected from one or two of the following subjects: astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), philosophy, theoretical and applied mechanics, surveying. If two subjects are chosen, at least eight hours must be offered in each.

Note: Seniors receive reduced credit in Mathematics 2, 3, 4, 5, 6, or 6a.

Mathematics 32, 35, 36, and 40 are suggested as desirable courses for students preparing to teach high school mathematics.

Courses for Undergraduates

Math. 2. College Algebra.—*Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit.

Credit	Section	Hours	Days	Room	Instructor
3[1]	[2]A1	8	MWF	102 Entom.	BRISTOW
	[2]A2	8	MWF	156 Math.	LANG
	R	8	MWF	202 U.H.	COOLEY
	[2]B1	9	MWF	155 Math.	KETCHUM
	[2]B2	9	MWF	206 U.H.	BAILEY
	S1	9	MWF	103 Entom.	MOORE
	S2	9	MWF	208 U.H.	LANG
	T1	10	MWF	103 Entom.	MOORE
	T2	10	TTS	156 Math.	LEVY
	[2]D	11	MWF	159 Math.	ARMSTRONG
	U1	11	MWF	103 Entom.	GENTRY
	[3]U2	11	MWF	208 U.H.	SCHILLING
	U3	11	TTS	103 Entom.	MOORE
	[2]E	1	MWF	154 Math.	BROWN
	W1	1	MWF	158 Math.	DENNIS
	[3]W2	1	MWF	206 U.H.	RUMSEY
	W3	1	MWF	202 U.H.	CRAMER
	[2]F1	2	MWF	103 Entom.	HUFF
	[2]F2	2	MWF	158 Math.	DENNIS
	X1	2	MWF	159 Math.	BURDETTE
	X2	2	MWF	206 U.H.	RUMSEY
	[2]G1	3	MWF	110 L.H.	STEIMLEY
	[2]G2	3	MWF	202 U.H.	CELL
	Y1	3	MWF	159 Math.	BROWN
	Y2	3	MWF	158 Math.	GENTRY
	[2]H	4	MWF	154 Math.	
	Z	4	MWF	206 U.H.	

[1]Seniors will receive only 2 hours credit.

[2]Sections A1, A2, B1, B2, D, E, F1, F2, G1, G2, and H are for freshman engineers.

[3]Sections U2 and W2 are for architects and architectural engineers.

Math. 3. Algebra.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit.

Credit	Section	Hours	Days	Room	Instructor
5[1]	R	8	MTWTF	155 Math.	Bower
[1]Students having 1½	S1	9	MTWTF	158 Math.	Peters
entrance units in alge-	S2	9	MTWTF	202 U.H.	Cooley
bra will receive only 3	T	10	MTWTF	208 U.H.	Schilling
hours credit for this	U	11	MTWTF	158 Math.	Cramer
course. Seniors will	[2]D	11	MTWTF	206 U.H.	Pepper
receive only 4 hours	W	1	MTWTF	159 Math.	Burdette
credit.	X1	2	MTWTF	155 Math.	Hoersch
[2]Section D is for	X2	2	MTWTF	102 Entom.	Wilson
freshman engineers.	Y1	3	MTWTF	156 Math.	
	Y2	3	MTWTF	206 U.H.	

Math. 4. Plane Trigonometry.—*Prerequisite:* Entrance algebra, 1½ units, or registration in Math. 3; plane geometry, 1 unit.

2[1]	[2]A	8	TT	102 Entom.	Bristow
[1]Seniors will receive	R1	8	TT	156 Math.	Emch
only 1 hour credit.	R2	8	TT	110 L.H.	Miles
[2]Sections A, B, C, D,	[4]R3	8	TT	202 U.H.	Cooley
E, F1, F2, G1, and G2	[2]B	9	TT	206 U.H.	Bower
are for freshman	[4]S1	9	TT	156 Math.	Lytle
engineers.	S2	9	TT	208 U.H.	Lang
[3]Sections U2 and W2	S3	9	TT	154 Math.	Hazlett
are for architects and	[2]C	10	TT	110 L.H.	Miles
architectural	T1	10	TT	159 Math.	Brahana
engineers.	[4]T2	10	TT	102 Entom.	Bristow
[4]Sections R3, S1, T2,	[2]D	11	TT	155 Math.	Ketchum
U3, X3, and Y3 are	U1	11	TT	156 Math.	Peters
for premedical	[3]U2	11	TT	208 U.H.	Schilling
students.	[4]U3	11	TT	159 Math.	
	[2]E	1	TT	110 L.H.	Steimley
	W1	1	TT	158 Math.	Dennis
	[3]W2	1	TT	206 U.H.	Rumsey
	W3	1	TT	154 Math.	Brown
	[2]F1	2	TT	154 Math.	Bourgin
	[2]F2	2	TT	206 U.H.	
	X1	2	TT	156 Math.	
	X2	2	TT	159 Math.	Burdette
	[4]X3	2	TT	158 Math.	
	[2]G1	3	TT	155 Math.	Hoersch
	[2]G2	3	TT	159 Math.	Brown
	Y1	3	TT	102 Entom.	Wilson
	Y2	3	TT	208 U.H.	Cramer
	[4]Y3	3	TT	158 Math.	Gentry

Math. 5. Advanced Trigonometry.—Intended for students having entrance credit in trigonometry. The course will include such topics as trigonometric equations, De Moivre's theorem, complex numbers with applications to more complicated problems in plane trigonometry, and a brief introduction to spherical trigonometry. *Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit; solid geometry, ½ unit; entrance trigonometry, ½ unit (or Math. 4).

2[1]	A	8	TT	206 U.H.	Bailey
[1]Seniors will receive	D	11	TT	202 U.H.	Armstrong
only 1 hour credit.	E	1	TT	202 U.H.	Cell
	F	2	TT	103 Entom.	Huff

Math. 6. Analytic Geometry.—*Prerequisite:* Math. 2 (or 3) and Math. 4.

5[1]	R	8	MTWTF	154 Math.	Brahana
[1]Seniors will receive	S	9	MTWTF	159 Math.	Armstrong
only 4 hours credit.	[2]D1	11	MTWTF	110 L.H.	Miles
	[2]D2	11	MTWTF	102 Entom.	Bristow
[2]Sections D1, D2, and	[2]E	1	MTWTF	103 Entom.	Huff
E are for freshman	W	1	MTWTF	102 Entom.	Wilson
engineers.	X	2	MTWTF	202 U.H.	Cell
	Y	3	MTWTF	154 Math.	Bourgin

Math. 7. Calculus.—First course for students of mathematics and engineering. *Prerequisite:* Math. 6 (or 6a).

5	A1	8	MTWTF	159 Math.	Armstrong
	A2	8	MTWTF	103 Entom.	Moore
	A3	8	MTWTF	158 Math.	Peters
	C1	10	MTWTF	154 Math.	Hazlett
	C2	10	MTWTF	155 Math.	Ketchum
	C3	10	MTWTF	206 U.H.	Pepper
	C4	10	MTWTF	202 U.H.	Bower
	C5	10	MTWTF	158 Math.	Trjitzinsky
	E1	1	MTWTF	155 Math.	Hoersch
	E2	1	MTWTF	156 Math.	
	F	2	MTWTF	110 L.H.	Steimley

Math. 9. Calculus.—Second course for students of mathematics and engineering. *Prerequisite:* Math. 7.

Credit	Section	Hours	Days	Room	Instructor
3	B1	9	MWF	154 Math.	Crathorne
	B2	9	MWF	102 Entom.	Miles
	D	11	TTS	154 Math.	Levy
	F	2	MWF	154 Math.	Bourgin
	G	3	MWF	155 Math.	Hoersch
	H	4	MWF	155 Math.	Wilson

Math. 8a. Calculus.—For students of chemistry and chemical engineering, and insurance. *Prerequisite:* Math. 6a or 6.

3	A	8	MWF	110 L.H.	Miles
	C1	10	MWF	159 Math.	Emch
	C2	10	MWF	102 Entom.	Bristow
	D1	11	MWF	156 Math.	Peters
	D2	11	MWF	202 U.H.	Bower

Courses for Advanced Undergraduates and Graduates

Math. 16. Differential Equations and Advanced Calculus.—*Prerequisite:* Math. 7 and 9 (or 8).

3	A	8	MWF	206 U.H.	Bailey
	E	1	MWF	110 L.H.	Steimley

Math. 22. Statistics.—*Prerequisite:* Math. 2 (or 3) and 6, junior standing. (3). 11 MWF; 154 Math. Associate Professor Crathorne.

Math. 35. Teachers' Course.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 10 MWF; 156 Math. Associate Professor Lytle

Math. 36. Advanced Aspects of Euclidean Geometry.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9. (3). 9 MWF; 156 Math. Associate Professor Lytle.

Math. 53a. Integral and Operational Equations in Mathematical Physics.—*Prerequisite:* Math. 9a. (3). 1 MWF; 254 Math. Dr. Bourgin.

Math. 70a. Introduction to Higher Algebra.—*Prerequisite:* Math. 7 and 9. (3). 10 TTS; 254 Math. Professor Coble.

Math. 71a. Introduction to Higher Analysis.—*Prerequisite:* Math. 7 and 9. (3). 11 MWF; 155 Math. Dr. Ketchum.

Math. 72a. Introduction to Higher Geometry.—*Prerequisite:* Math. 7 and 9. (3). 9 TTS; 155 Math. Assistant Professor Levy.

Math. 90a. Undergraduate Thesis.—*Prerequisite:* 24 hours of college mathematics. (2). Arrange.

Courses for Graduates

Math. 100. Seminar and Thesis.—(1 to 2 units).* Arrange.

Math. 112. Linear Difference Equations.—(1 unit). 11 MWF; 254 Math. Professor Carmichael.

Math. 129. Theory of Statistics.—(1 unit). 10 MWF; 254 Math. Associate Professor Crathorne.

Math. 131. Algebraic Geometry.—(1 unit). 8 MWF; 254 Math. Professor Emch.

Math. 143. Linear Algebras.—(1 unit). 9 MWF; 366 Math. Associate Professor Hazlett.

Math. 170. Algebra.—(1 unit). 10 MWF; 366 Math. Assistant Professor Brahana.

Math. 171. Analysis.—(1 unit). 9 MWF; 254 Math. Dr. Pepper.

Math. 172. Geometry.—(1 unit). 9 TTS; 254 Math. Professor Coble.

MECHANICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $4.50.

Courses for Undergraduates

M.E. 1. Steam and Air Machinery.—*Prerequisite:* Math. 9; Physics 1 and 3.

3	E	1	MWF	217 M.E.L.
	F	8	MWF	208 M.E.L.
	GU	11	MWF	217 M.E.L.

M.E. 3. Steam Engineering.—*Prerequisite:* M.E. 10; registration in M.E. 61.

3	KM	10	TTS	208 M.E.L.
	JLNV	11	TTS	208 M.E.L.

M.E. 7. Internal Combustion Engines.—*Prerequisite:* M.E. 6.

3	PQ	11	MWF	208 M.E.L.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

M.E. 10. Thermodynamics.—*Prerequisite:* Math. 9; Physics 1 and 3.

Credit	Section	Hours	Days	Room	Instructor
3	LM	8	MWF	217 M.E.L.	
	KN	2	MWF	217 M.E.L.	

M.E. 13. Thermodynamics.—*Prerequisite:* Math. 9; Physics 1 and 3.

3	PS	10	MF	202 T.B.
		3–5	W	218 Cer.
	QRW	11	TT	202 T.B.
		3–5	W	218 Cer.

M.E. 17. Refrigeration Engineering.—*Prerequisite:* M.E. 16.

3	PQ	11	MW	202 T.B.
		8–10	S	112 T.B.

M.E. 21. Mechanical Equipment of Buildings (Laboratory).—*Prerequisite:* Registration in M.E. 23.

1	C	8–11	W	M.E.L.

M.E. 23. Mechanical Equipment of Buildings.—*Prerequisite:* Senior standing.

4	C	11	MWFS	M.E.L.

M.E. 25. Heating and Ventilation for Architects.—*Prerequisite:* Senior standing.

2	A	11	TT	M.E.L.

M.E. 31. Mechanics of Machinery.—*Prerequisite:* Registration in T.A.M. 2.

5	PQ	8	MWF	216 T.B.
		8–11	TT	201, 216 T.B.
	RS	1	MWF	216 T.B.
		1–4	TT	201, 216 T.B.

M.E. 33. Aeronautical Engineering.—*Prerequisite:* Senior standing.

3	PQ	11	MWF	216 M.E.L.

M.E. 41. Mechanical Engineering Design.—*Prerequisite:* M.E. 40.

4	P	8–11	MWF	112, 114 T.B.
	Q	1–4	MWF	112, 114 T.B.

M.E. 61. Mechanical Engineering Laboratory.—*Prerequisite:* M.E. 1 or 2 or 3.

2	KCh1	2–5	MF	M.E.L.
	LVCh2	2–5	W	M.E.L.
		8–11	S	M.E.L.
	M	8–11	MF	M.E.L.

M.E. 65. Mechanical Engineering Laboratory.—*Prerequisite:* M.E. 64.

3	P	1–5	TT	M.E.L.
	Q	8–12	TT	M.E.L.

M.E. 85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing.

3	J2KP	8–11	TT	Pat. Lab.
	LQ	8–11	MF	Pat. Lab.
	MR	1–4	TT	Pat. Lab.
	J1NS	1–4	MF	Pat. Lab.

M.E. 87. Machine Laboratory.—*Prerequisite:* Sophomore standing.

3	JKS	8–11	TT	Mach. Lab.
	LR	8–11	MF	Mach. Lab.
	MPV	1–4	TT	Mach. Lab.
	NQW	1–4	MF	Mach. Lab.

M.E. 89. Heat Treatment of Metals.—*Prerequisite:* Senior standing in Mechanical or Railway Mechanical Engineering.

3	P	2–4	MWF	Mach. Lab.
	QW	8–10	MWF	Mach. Lab.

M.E. 98. Thesis.—*Prerequisite:* Senior standing. (3). Arrange.

M.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

Note: Entrance on graduate work in mechanical engineering presupposes the full undergraduate course in that subject.

M.E. 107. Thermodynamics.—Application of thermodynamics to the solution of physical and engineering problems. (1 unit). Twice a week. Arrange. Associate Professor Goff.

M.E. 108. The Flow of Fluids and Heat Transfer.—Application of dimensional analysis and other rational formulas. Special problems. (1 unit). Twice a week. Arrange. Professor Macintire.

M.E. 109. Mechanical Engineering Design.—(a) machine design; (b) power plant design; (c) dynamics of machinery. (1 unit). Twice a week. Arrange. Professors Leutwiler, Ham.

M.E. 112. Laboratory Investigations.—Special problems in: (a) combustion; (b) steam; (c) gas and oil engineering; (d) heating and ventilation; (e) refrigeration; (f) flow of fluids; (g) heat transfer; (h) mechanical transmission of power. (1½ units). Three times a week. Arrange. Professors Polson, Kratz, Ham, Macintire; Associate Professor Goff.

METALLURGICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2.50 to $7.50.

Courses for Undergraduates

Met. 3 (formerly Mining 69). **Fire Assaying.**—*Prerequisite:* Chem. 22, Geol. 20. (2). 1-5 M, 9 Tu.; Mining Lab. and 207 T.B. Assistant Professor MITCHELL.

Met. 4. Physical Metallurgy.—*Prerequisite:* Met. 2. (3). 8 MWF; 206 T.B. Assistant Professor MITCHELL.

Met. 13 (formerly Mining 13). **Utilization of Fuels.**—*Prerequisite:* Chem. 22; junior standing in College of Engineering. (3). 9 MF, 1-4 W; 207 T.B. and Mining Lab. Professor CALLEN.

MILITARY BANDS

Note: The following courses are open only to those who have passed the examination for admittance to one of the bands. All new students who play band instruments and who desire to try for places in the bands should make application at the Band Office, in the Band Building, at the earliest possible time. Those who are accepted for membership will be given a slip indicating the band to which they have been assigned, together with their rehearsal days and hours. Assignments are made according to proficiency. Service in the bands takes the place of the required military courses.

Mil. Bands 1. Freshman Band.—(1). Twice a week, by assignment. Director HARDING, Assistant Director HINDSLEY, Mr. OVERGARD.

Mil. Bands 3. Sophomore Band.—(1). Twice a week, by assignment. Director HARDING, Assistant Director HINDSLEY, Mr. OVERGARD.

Mil. Bands 5. Junior Band.—Twice a week, by assignment. Director HARDING, Assistant Director HINDSLEY.

Mil. Bands 7. Senior Band.—Twice a week, by assignment. Director HARDING, Assistant Director HINDSLEY.

MILITARY SCIENCE

All military courses consist of two parts designated by the same number: a practical course lettered with "a" and a theoretical course lettered with "b". Students who have had training in a senior R. O. T. C. unit are permitted to register for work one year advanced for each year they have had in the senior unit. All students who register for junior and senior courses are required to sign a contract with the Government to take five hours of military per week during two years in the University and to attend one summer camp of six weeks.

INFANTRY

Mil. Sci. 1a. Freshman Infantry.—

Credit	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	W	Arm.	TABACHNIK
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 1b. Freshman Infantry.—

½	1	10	M	150 Arm.	STEVENS
	2	11	M	150 Arm.	
	3	1	Tu	150 Arm.	
	4	2	Tu	150 Arm.	
	5	10	Th	150 Arm.	
	6	9	F	150 Arm.	
	7	10	F	150 Arm.	

Mil. Sci. 3a. Sophomore Infantry.—

½	1st Bn.	3–5	W	Arm.	LUMMIS
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 3b. Sophomore Infantry.—

½	51	10	M	148 Arm.	LUMMIS
	52	11	M	148 Arm.	
	53	10	Tu	148 Arm.	
	54	11	Tu	148 Arm.	
	55	3	Th	148 Arm.	
	56	9	S	148 Arm.	

Mil. Sci. 5a. Junior Infantry.—*Prerequisite:* First and second year basic credits.

½	Group I	10–12	W	Arm.	MILAN
		4	F	Arm.	
	Group II	1–3	Th	Arm.	
		4	F	Arm.	

Mil. Sci. 5b. Junior Infantry.—*Prerequisite:* First and second year basic credits.

1	81	1–3	Tu	148 Arm.	MILAN
	82	10–12	F	148 Arm.	

Mil. Sci. 7a. Senior Infantry.—(Cadet Officers only.)

½	Co.'s A-M	(See 1a and 3a for hours.)			STEVENS
		4	F	Arm.	

Mil. Sci. 7b. Senior Infantry.—(Cadet Officers only.)

1	91	9	TT	150 Arm.	TABACHNIK
	92	2	WF	150 Arm.	

FIELD ARTILLERY

Mil. Sci. 11a. Freshman Field Artillery.—

Credit	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	M	Arm.	Busch
	2nd Bn.	8–10	Tu	Arm.	Clay
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 11b. Freshman Field Artillery.—

½	100	9	M	155 Arm.	Busch
	101	10	M	155 Arm.	Clay
	102	11	M	155 Arm.	
	103	2	M	155 Arm.	
	104	10	Tu	155 Arm.	
	105	11	Tu	155 Arm.	
	106	9	W	155 Arm.	
	107	10	W	155 Arm.	
	108	11	W	155 Arm.	
	109	9	Th	155 Arm.	
	110	10	Th	155 Arm.	
	111	11	Th	155 Arm.	
	112	10	F	155 Arm.	

Mil. Sci. 13a. Sophomore Field Artillery.—

½	1st Bn.	3–5	M	Arm.	Dalferes
	2nd Bn.	8–10	Tu	Arm.	Clay
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 13b. Sophomore Field Artillery.—

½	130	9	M	154 Arm.	Dalferes
	131	10	M	154 Arm.	Clay
	132	11	M	154 Arm.	
	133	10	Tu	154 Arm.	
	134	11	Tu	154 Arm.	
	135	9	Th	154 Arm.	
	136	10	Th	154 Arm.	
	137	11	Th	154 Arm.	
	138	10	F	154 Arm.	
	139	11	F	154 Arm.	

Mil. Sci. 15a. Junior Field Artillery.—*Prerequisite:* Mil. Sci. 14a.

½	1st Bn.	3–5	M	Arm.	Weiland
	2nd Bn.	8–10	Tu	Arm.	
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 15b. Junior Field Artillery.—*Prerequisite:* Mil. Sci. 14b.

1	160	9	M	151 Arm.	Weiland
		9	W	151 Arm.	
		4	F	151 Arm.	
	161	10	M	151 Arm.	
		10	W	151 Arm.	
		4	F	151 Arm.	
	162	10	Tu	151 Arm.	
		10	Th	151 Arm.	
		4	F	151 Arm.	

Mil. Sci. 17a. Senior Field Artillery.—*Prerequisite:* Mil Sci. 16a.

½	1st Bn.	3–5	M	Arm.	Burnell
	2nd Bn.	8–10	Tu	Arm.	
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 17b. Senior Field Artillery.—*Prerequisite:* Mil. Sci. 16b.

1	190	10	M	153 Arm.	Burnell
		10	W	153 Arm.	
		4	F	153 Arm.	
	191	10	Tu	153 Arm.	
		10	Th	153 Arm.	
		4	F	153 Arm.	
	192	11	Tu	153 Arm.	
		11	Th	153 Arm.	
		4	F	153 Arm.	

CAVALRY

Mil. Sci. 21a. Freshman Cavalry.—

Credit	Section	Hours	Days	Room	Instructor
½	1A	10–12	M	Arm.	Bryan
	1B	8–10	Tu	Arm.	
	1C	8–10	W	Arm.	
	1D	10–12	Th	Arm.	
	1E	10–12	F	Arm.	

Mil. Sci. 21b. Freshman Cavalry.—

½	201	9	M	146 Arm.	Grener
	202	3	M	146 Arm.	
	203	4	M	146 Arm.	
	204	10	Tu	146 Arm.	
	205	3	Tu	146 Arm.	
	206	8	Th	146 Arm.	
	207	9	Th	146 Arm.	
	208	1	F	146 Arm.	
	209	2	F	146 Arm.	

Mil. Sci. 23a. Sophomore Cavalry.—

½	2A	10–12	Tu	Arm.	Bryan
	2B	10–12	W	Arm.	Grener
	2C	8–10	S	Arm.	

Mil. Sci. 23b. Sophomore Cavalry.—

½	221	8	M	147 Arm.	Merrill
	222	9	M	147 Arm.	
	223	2	Tu	147 Arm.	
	224	1	W	147 Arm.	
	225	2	W	147 Arm.	
	226	3	Th	147 Arm.	
	227	4	Th	147 Arm.	
	228	9	F	147 Arm.	

Mil. Sci. 25a. Junior Cavalry.—*Prerequisite:* Two years basic credit.

½	3A	8–10	Th	Arm.	Strawn
	3B	8–10	S	Arm.	

Mil. Sci. 25b. Junior Cavalry.—*Prerequisite:* Two years basic credit.

1	241	1–3	M	146 Arm.	Strawn
		4	F	146 Arm.	
	242	1–3	Tu	146 Arm.	
		4	F	146 Arm.	
	243	3–5	Th	146 Arm.	
		4	F	146 Arm.	

Mil. Sci. 27a. Senior Cavalry.—*Prerequisite:* One year advanced credit.

½	1A-1E incl. 2A-2C incl.	(See 21a and 23a for hours.)	Conard

Mil. Sci. 27b. Senior Cavalry.—*Prerequisite:* One year advanced credit.

1	251	3–5	M	147 Arm.	Conard
		4	F	147 Arm.	
	252	3–5	T	147 Arm.	
		4	F	147 Arm.	
	253	1–3	Th	147 Arm.	
		4	F	147 Arm.	

ENGINEERS

Mil. Sci. 31a. Freshman Engineers.—

½	1st Bn.	3–5	W	Arm.	McDonough
	2nd Bn.	3–5	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 31b. Freshman Engineers.—

½	301	9	Tu	144 Arm.	McDonough
	302	10	Tu	144 Arm.	
	303	11	Tu	144 Arm.	
	304	1	Tu	144 Arm.	
	305	2	Tu	144 Arm.	
	306	3	Tu	144 Arm.	
	307	8	W	144 Arm.	
	308	11	W	144 Arm.	

Mil. Sci. 33a. Sophomore Engineers.—

½	1st Bn.	3–5	W	Arm.	Matthews
	2nd Bn.	3–5	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 33b. Sophomore Engineers.—

Credit	Section	Hours	Days	Room	Instructor
½	321	9	W	145 Arm.	MATTHEWS
	322	10	W	145 Arm.	
	323	11	W	145 Arm.	
	324	1	W	145 Arm.	
	325	2	W	145 Arm.	

Mil. Sci. 35a. Junior Engineers.—*Prerequisite:* Mil. Sci. 34a.

½	1st-3rd Bn. incl.	(See 31a for hours.)		Arm.	MATTHEWS

Mil. Sci. 35b. Junior Engineers.—*Prerequisite:* Mil. Sci. 34b.

1	341	1–3	Th	145 Arm.	MATTHEWS
		4	F	145 Arm.	
		10–12	S	145 Arm.	
	342	4	F	145 Arm.	

Mil. Sci. 37a. Senior Engineers.—*Prerequisite:* Mil. Sci. 36a.

½	1st-3rd Bn. incl.	(See 31a for hours.)		Arm.	McDONOUGH

Mil. Sci. 37b. Senior Engineers.—*Prerequisite:* Mil. Sci. 36b.

1	351	9–11	F	144 Arm.	McDONOUGH
		4	F	144 Arm.	
	352	10–12	S	144 Arm.	
		4	F	144 Arm.	

SIGNAL CORPS

Mil. Sci. 41a. Freshman Signal Corps.—

½	A	3–5	Tu	Arm.	JAMES
	B	3–5	W	Arm.	STICE
	C	2–4	F	Arm.	

Mil. Sci. 41b. Freshman Signal Corps.—

½	400	10	Tu	222 Arm.	STICE
	401	8	W	222 Arm.	
	402	1	W	222 Arm.	
	403	1	Th	222 Arm.	
	404	10	F	222 Arm.	

Mil. Sci. 43a. Sophomore Signal Corps.—

½	A-C incl.	(See 41a for hours.)			STICE JAMES

Mil. Sci. 43b. Sophomore Signal Corps.—

½	410	9	Tu	222 Arm.	JAMES
	411	11	Tu	222 Arm.	
	412	1	Tu	222 Arm.	
	413	9	W	222 Arm.	
	414	9	F	222 Arm.	
	415	11	F	222 Arm.	

Mil. Sci. 45a. Junior Signal Corps.—*Prerequisite:* Mil. Sci. 44a.

½	A-C incl.	(See 41a for hours.)			STICE JAMES

Mil. Sci. 45b. Junior Signal Corps.—*Prerequisite:* Mil. Sci. 44b.

1	420	3–5	M	222 Arm.	STICE
		4	F	222 Arm.	
	421	9–11	F	222 Arm.	
		4	F	222 Arm.	

Mil. Sci. 47a. Senior Signal Corps.—*Prerequisite:* Mil. Sci. 46a.

½	A-C incl.	(See 41a for hours.)			STICE JAMES

Mil. Sci. 47b. Senior Signal Corps.—*Prerequisite:* Mil. Sci. 46b.

1	430	Radio Engineering registration in E.E. 51.			BROWN
	431	3–5	M	143 Arm.	JAMES
		4	F	143 Arm.	STICE
	432	10–12	W	143 Arm.	
		4	F	143 Arm.	

COAST ARTILLERY (ANTI-AIRCRAFT)

Mil. Sci. 51a. Freshman Coast Artillery (AA).—

½	A	3–5	Tu	Arm.	CARY
	B	1–3	Th	Arm.	
	C	8–10	S	Arm.	

Mil. Sci. 51b. Freshman Coast Artillery (AA).—

Credit	Section	Hours	Days	Room	Instructor
½	501	9	M	151 Arm.	CARY
	502	1	M	151 Arm.	
	503	2	Tu	151 Arm.	
	504	11	Th	151 Arm.	
	505	4	Th	151 Arm.	
	506	11	F	151 Arm.	
	507	1	F	151 Arm.	

Mil. Sci. 53a. Sophomore Coast Artillery (AA).—

½	D	3–5	Tu	Arm.	CARY
	E	1–3	Th	Arm.	
	F	8–10	S	Arm.	

Mil. Sci. 53b. Sophomore Coast Artillery (AA).—

½	521	2	M	151 Arm.	CARY
	522	9	Tu	151 Arm.	
	523	3	Th	151 Arm.	
	524	10	F	151 Arm.	
	525	2	F	151 Arm.	
	526	10	S	151 Arm.	

Mil. Sci. 55a. Junior Coast Artillery (AA).—*Prerequisite:* First and second year basic credits.

½	Group I	1–3	Tu	152 Arm.	CHAPMAN
		4	F	152 Arm.	
	Group II	2–4	F	152 Arm.	
		4	F	152 Arm.	

Mil. Sci. 55b. Junior Coast Artillery (AA).—*Prerequisite:* First and second year basic credits.

1	531	1–3	M	152 Arm.	CHAPMAN
	532	4	TT	152 Arm.	
	533	10–12	S	152 Arm.	

Mil. Sci. 57a. Senior Coast Artillery (AA).—*Prerequisite:* Junior credits.

½	1st Bn.	3–5	Tu	Arm.	CHAPMAN
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 57b. Senior Coast Artillery (AA).—*Prerequisite:* Junior credits.

1	541	3–5	M	152 Arm.	CHAPMAN
	542	11	TT	152 Arm.	

MINING ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $4.50.

Courses for Undergraduates

Mining 1. Elements of Mining.—(For students in Mining Engineering only.) *Prerequisite:* Physics 1b-3b. (3). 11 ThS, 10-12 Tu; 206 T.B. Mr. NICHOLSON.

Mining 2. Mining Principles.—(For students in courses other than mining.) *Prerequisite:* Chemistry; sophomore standing. (3). 9 MWF; 206 T.B. Mr. NICHOLSON.

Mining 6. Mechanical Engineering of Mines.—*Prerequisite:* Mining 4 and 10; M.E. 62; T.A.M. 2. (3). 11 MWF; 206 T.B. Professor CALLEN.

Mining 8. Mine Administration.—*Prerequisite:* Mining 4; Accy. 12. (3). 10 MWF; 207 T.B. Mr. NICHOLSON.

Mining 9. Preparation of Coal and Ores.—*Prerequisite:* Chemistry 22; Physics 1b-3b; Geol. 20 or equivalent. (3). 11 TT; 1-4 Tu; 207 T.B. and Mining Lab. Assistant Professor MITCHELL.

Mining 41. Mining and Metallurgical Design.—*Prerequisite:* Senior standing in Mining Engineering. (3). 9, 1-4 Th, 1-4 F; 207 T.B. Assistant Professor MITCHELL.

Mining 61. Elementary Mine Surveying.—*Prerequisite:* G.E.D. 1 or 4; Math. 4. (3). 1 M, 1-4 WF; 207 T.B. Mr. NICHOLSON.

Mining 97. Thesis.—Hours arranged when thesis is permitted, in accordance with the regulations of the College of Engineering.

Mining 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Graduates

Mining 101. Advanced Mining Practice.—(1 unit). Arrange. Professor CALLEN.

Mining 102. Advanced Preparation of Coal and Ores.—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 104.[1] **Mining Reports.**—(1 unit). Arrange. Professor CALLEN.

Mining 105.[1] **Welfare Work and Education among Mine Employees.**—(1 unit). Arrange. Professor CALLEN.

Mining 106.[1] **Advanced Coal, Ore, and Metallurgical Plant Design.**—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 107.[1] **Advanced Non-Ferrous Metallurgical Projects.**—(1 unit). Arrange. Assistant Professor MITCHELL.

MUSIC

Courses for Undergraduates

Music 1. History of Music.—*Prerequisite:* One year of university work. (2). 11 MWF; Lecture Room, S.M.H. Professor SCHWARTZ.

Music 3. Theory of Music (Harmony).—*Prerequisite:* Music 8 or the consent of the instructor.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	106 S.M.H.	KESSLER
	E	1	MWF	103 S.M.H.	KESSLER

Music 5. Theory of Music (Advanced Harmony).—*Prerequisite:* Music 4. (3). 2 MWF; 103 S.M.H. Assistant Professor KESSLER.

Music 6a Free Counterpoint.—*Prerequisite:* Music 4. (2). 3 TT; 103 S.M.H. Associate Professor MILES.

Music 7. Strict Counterpoint.—*Prerequisite:* Consent of instructor.

3	C	10	MWF	103 S.M.H.	KESSLER
	O	2	TT	103 S.M.H.	
		9	F	106 S.M.H.	
	D	11	MWF	103 S.M.H.	

Music 9. Analysis, Musical Form.—*Prerequisite:* Music 6b and 8.

2	T	9	MTh	103 S.M.H.	SCHWARTZ
	K	9	TT	103 S.M.H.	

Music 11a. Composition.—*Prerequisite:* Music 9-10. (2). Arrange. Associate Professor MILES.

Music 12a. Advanced Composition.—*Prerequisite:* Music 11a-11b. (4). Arrange. Associate Professor MILES.

Music 13. Music Appreciation.—

2	L	10	TT	Lecture Room, 3rd floor, S.M.H.	STIVEN
	P (P.S.M.)	3	TT	106 S.M.H.	KITCHELL

Music 15. Instrumentation.—*Prerequisite:* Junior standing. (1 or 2).* 2 TT; Band Building. Professor HARDING.

Music 17. Advanced Orchestration.—*Prerequisite:* Music 10, 15, and 16. (4). Arrange. Professor HARDING.

Music 19a. Double Counterpoint, Canon, and Fugue.—*Prerequisite:* Music 6b. (3). 3 MWF; 106 S.M.H. Assistant Professor KESSLER.

Music 21. Ear Training and Sight Singing.—

1	B	9	MW	106 S.M.H.	PERCIVAL
	W	11	MTh	106 S.M.H.	
	J	8	TT	106 S.M.H.	

Music 23. Ear Training and Sight Singing.—*Prerequisite:* Music 22.

1	K	9	TT	106 S.M.H.	PERCIVAL
	C	10	MW	106 S.M.H.	
	L	10	TT	106 S.M.H.	

Music 25a. Public School Music Methods (Grade School).—*Prerequisite:* Junior standing or consent of instructor. (3). 1 MWTF; 106 S.M.H. Mr. HOLMES.

Music 26a. Public School Music Methods (High School Vocal and Theoretical).—*Prerequisite:* Music 25a and 25b or consent of instructor. (3). 2 MWTF; 106 S.M.H. Miss KITCHELL.

Music 27. Thesis.—Arrange.

Music 30a. Ensemble.—*Prerequisite:* Junior standing or consent of instructor.

½-1	A (Piano)	3	MTh	209 S.M.H.	WATT
	B (Vocal group ensemble)	4	MW	210 S.M.H.	HAMP
	C (Chorus)	7	Th Arrange other hour	Recital Hall	STIVEN and DEMMING
	D (Opera)	3	TT	207 S.M.H.	SUTHERLIN
	E (Woman's Glee Club)	10	TT	Auditorium	————
	F (Orchestra)	4	TW	Orchestra Room	STIVEN

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

[1]Of courses 104 and 105, only one will be given, according to election of students; the same applies to courses 106 and 107.

Music 31a. Ensemble.—*Prerequisite:* Music 30b. Sections same as in Music 30a. Time to be arranged.

Music 32. Advanced History of Music.—*Prerequisite:* Music 1 and 2.

Credit	Section	Hours	Days	Room	Instructor
2	B	9	WF	103 S.M.H.	SCHWARTZ
	L	10	TT	103 S.M.H.	

Music 35. Recital Course in Applied Music.—(Required of seniors in Instrumental major). (4). Arrange.

Music 36. Recital Course in Applied Music.—(Required of seniors in Voice major). (3). Arrange.

Music 37. Recital Course in Composition.—(Required of seniors in Theory major). (4). Arrange.

Music 38a. Conducting and Organization.—*Prerequisite:* Music 16. (2). 2 M, 1 TT; Band Building. Professor HARDING.

Music 68a. String Instruments.—(2). 8 MTWTF; Orchestra Room. Mr. WICH.

Music 98a. Wind Instruments.—(2). 9 MTWTF; Band Building. Mr. HINDSLEY.

APPLIED MUSIC COURSES

Note: Students other than those registered in the curricula in Music are required to pay fees of $25 for each course in applied music.

Students in music curricula will receive 4 to 5 hours credit for their major subject in Applied Music. They will ordinarily receive 2½ hours credit for their minor subject. Students from other colleges will ordinarily receive 2 hours credit if in accordance with the regulations of their college.

Courses in Applied Music which require one half-hour lesson per week of recitation and one hour daily of preparation receive 2 hours credit.

Courses in Applied Music which require two 20-minute lessons per week of recitaton and *one* hour daily of preparation receive 2½ hours credit.

Courses in Applied Music which require two half-hour lessons per week of recitation and *two* hours daily of preparation receive 4 hours credit.

Courses in Applied Music which require two half-hour lessons per week of recitation and *three* hours daily of preparation receive 5 hours credit.

Music 42a, b to 47a, b. Piano.—(2 to 5).* Time to be arranged. Professor VAN DEN BERG, Assistant Professors WATT, SCHOONMAKER, Mrs. SULLIVAN, Miss USRY, Mr. HILL.

Music 52a-d to 57a-d. Voice.—(1 to 4).* Time to be arranged. ———— Mr. HAMP, Miss SUTHERLIN, Mr. FOOTE. (Parts *a* and *b* in each course indicate individual instruction in Voice (2-3), and parts *c* and *d* indicate classes in Singing Diction (1), required of voice major students.)

Music 62a, b to 67a, b. Violin.—(2 to 5).* Time to be arranged. Mr. COHEN, Mr. WICH.

Music 72a, b to 77a, b. Violoncello.—(2 to 5).* Time to be arranged. Mrs. SULLIVAN

Music 82a, b to 87a, b. Organ.—(2 to 5).* Time to be arranged. Associate Professor MILES, Mr. DEMMING.

Music 92a-d to 97a-d. Band and Orchestral Instruments.—(2 to 4).* All these courses are required for major work in this group. Parts *a* and *b* in each course are concerned with profesional instruments, and parts *c* and *d* with supplementary instruments. Professor HARDING, Mr. HINDSLEY.

PHILOSOPHY

Major: 20 hours from any courses offered by the department, including Phil. 1, 3, , and 7. Six hours in psychology may be counted toward a major in philosophy.

Minors: 20 hours in (a) psychology (at least 6 additional hours if psychology is counted toward a major), and one other subject in the following list; or (b) any two subjects in the samegroup in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) astronomy, botany, chemistry, mathematics, physics, zoology, geology. At least 8 hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Phil. 1. Introduction to Philosophy.—*Prerequisite:* One year of university work.

3	A	8	MWF	117 L.H.	KUBITZ
	B	9	MWF	117 L.H.	NICHOLSON
	C	10	MWF	117 L.H.	KUBITZ
	D	10	MWF	104 L.H.	GEIGER
	E	11	MWF	117 L.H.	KUBITZ
	F	1	MWF	117 L.H.	GEIGER
	G	2	MWF	117 L.H.	GEIGER
	H	10	TTS	123 L.H.	MORROW

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Phil. 3. History of Ancient and Medieval Philosophy.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
4	Lect.	10	TT	300 Math.	NICHOLSON
	A Disc.	11	Th	117 L.H.	KUBITZ
	B Disc.	1	Th	117 L.H.	GEIGER
	C Disc.	2	Th	117 L.H.	NICHOLSON
	D Disc.	3	Th	117 L.H.	NICHOLSON
	E Disc.	11	Th	123 L.H.	GOTSHALK
	F Disc.	2	F	148 L.H.	GOTSHALK
	G Disc.	(Arrange. For Graduate Students.)			MORROW

Phil. 7. Ethics.—*Prerequisite:* Three hours in philosophy and junior standing.

3	Lect.	9	TT	109 L.H.	MORROW
	A Disc.	2	Th	123 L.H.	MORROW
	B Disc.	3	Th	123 L.H.	MORROW

Phil. 8. Philosophy of the Recent Past.—*Prerequisite:* Philosophy 4. (3). 10 MWF; 114 L.H. Assistant Professor NICHOLSON.

Phil. 10. Philosophy of Science.—*Prerequisite:* Three hours of philosophy and junior standing. (3). 11 MWF; 148 L.H. Assistant Professor GOTSHALK.

Phil. 11a. Philosophy of Religion (systematic).—*Prerequisite:* Three hours in philosophy. (3). 11 MWF; 113 L.H. Professor TAWNEY.

Phil. 12. Philosophy of Art.—*Prerequisite:* Three hours in Philosophy. (3). 9 MWF; 123 L.H. Assistant Professor GOTSHALK.

Phil. 20. Honors Course.—*Prerequisite:* Senior standing. (2). Arrange.

Courses for Graduates

Phil. 103. Ethics.—(1 unit). Arrange. Professor MORROW.

Phil. 105. Seventeenth Century Continental Thought.—(1 unit). Arrange. Assistant Professor GOTSHALK.

Phil. 108. Plato.—(1 unit). Arrange. Professor TAWNEY.

Phil. 119. Seminar in Ancient Philosophy.—(1 unit). Arrange. Professor MCCLURE.

PHYSICAL EDUCATION FOR MEN

Note: Each student registering for a course or courses in physical education is assessed a locker fee of $1.00 for the semester.

Freshmen and Sophomores: Men entering the University as freshmen are required to obtain credit for four semesters of work in physical education; those entering as sophomores, two semesters. They may obtain this credit by courses listed below or by proficiency examinations which are offered at times specified by the department.

Major: For Curriculum in Physical Education for Men, see "Directions for Registration."

For information, late registration, changing sections, call at Room 201, Men's Old Gymnasium.

Courses for Undergraduates

P.E. 20-21-22-23. Individual Corrective Activities.—These courses are open only to students who fail to pass the health examinations. Students enrolling for the first time should register for P.E. 20. Students enrolling for the second, third, or fourth time should register for P.E. 21, 22, and 23, respectively.

1	C	10	MWF	New Gym.	STAFFORD
	D	11	MWF	New Gym.	STAFFORD
	F	2	MWF	New Gym.	MCCRISTAL
	G	3	MWF	New Gym.	MCCRISTAL
	H	4	MWF	New Gym.	MCCRISTAL
	K	9	MWF	Old Gym.	MCCRISTAL
	L	10	MWF	Old Gym.	DERR
	M	11	MWF	Old Gym.	DERR
	P	3	MWF	Old Gym.	DERR
	Q	4	MWF	Old Gym.	DERR

P.E. 24. Beginning Swimming.—

½	B	9	MW	Old Pool	CRAIG
	C	10	MW	Old Pool	CRAIG
	E	1	MW	Old Pool	CRAIG
	F	2	MW	Old Pool	CRAIG
	N	1	TT	Old Pool	TREECE
	O	2	TT	Old Pool	TREECE
	P	3	TT	Old Pool	TREECE

P.E. 25. Individual Tumbling Stunts.—

½	F	2	MW	Old Gym.	TREECE
	S	3	MW	Old Gym.	TREECE
	L	10	TT	Old Gym.	MCCRISTAL
	M	11	TT	Old Gym.	MCCRISTAL

P.E. 26. Double Tumbling Stunts.—

Credit	Section	Hours	Days	Room	Instructor
½	D	11	MW	Old Gym.	McCristal
	O	2	TT	Old Gym.	

P.E. 27. Apparatus Stunts.—

½	C	10	MW	Old Gym.	McCristal
	P	3	TT	Old Gym.	

P.E. 28. Boxing.—

½	F	2	MW	Old Gym.	Kenney
	L	10	TT	Old Gym.	Law
	M	11	TT	Old Gym.	Law
	O	2	TT	Old Gym.	Law

P.E. 29. Wrestling.—

½	C	10	MW	Old Gym.	Law
	G	3	MW	Old Gym.	Law
	L	10	TT	Old Gym.	Kenney
	M	11	TT	Old Gym.	Kenney
	N	1	TT	Old Gym.	Kenney
	O	2	TT	Old Gym.	Kenney
	P	3	TT	Old Gym.	Law

P.E. 30. Fencing.—

½	G	3	MW	Old Gym.	Craig
	H	4	MW	Old Gym.	
	P	3	TT	Old Gym.	
	Q	4	TT	Old Gym.	

P.E. 31. Soccer.—

½	B	9	MW	New Gym.	Brown
	C	10	MW	New Gym.	Kenney
	D	11	MW	New Gym.	Kenney
	H	4	MW	New Gym.	Paterson
	L	10	TT	New Gym.	Treece
	M	11	TT	New Gym.	Treece
	Q	4	TT	New Gym.	Paterson

P.E. 34. Playground Ball and Skating.—(Not open to students who have taken P.E. 46).

½	B	9	MW	Old Gym.	Paterson
	C	10	MW	Old Gym.	Paterson
	D	11	MW	Old Gym.	Paterson
	K	9	TT	Old Gym.	Craig
	L	10	TT	Old Gym.	Craig
	M	11	TT	Old Gym.	Craig

P.E. 35. Tap Dancing.—

½	E	1	MW	New Gym.	Treece
	K	9	TT	New Gym.	Brown
	L	10	TT	New Gym.	Brown
	M	11	TT	New Gym.	Brown

P.E. 36. Clog Dancing.—

½	N	1	TT	New Gym.	Derr
	O	2	TT	New Gym.	

P.E. 37. Individual Athletics.—

½	B	9	MW	Old Gym.	Derr
	K	9	TT	Old Gym.	
	L	10	TT	Old Gym.	
	M	11	TT	Old Gym.	

P.E. 38. Circus Stunts.—

½	H	4	MW	Old Gym.	Jackson
	Q	4	TT	Old Gym.	

P.E. 39. Advanced Circus Stunts.—

½	H	4	MW	Old Gym.	Jackson
	Q	4	TT	Old Gym.	

P.E. 40. Games, Contests, and Relays.—

½	D	11	MW	Old Gym.	Craig
	E	1	MW	Old Gym.	Law
	K	9	TT	Old Gym.	Law
	N	1	TT	Old Gym.	Law

P.E. 41. Advanced Swimming.—

½	C	10	MW	New Pool	Treece
	F	2	MW	New Pool	Paterson
	G	3	MW	New Pool	Paterson
	K	9	TT	New Pool	Paterson
	L	10	TT	New Pool	Paterson
	N	1	TT	New Pool	Paterson

P.E. 42. Life Saving and Diving.—

Credit	Section	Hours	Days	Room	Instructor
½	O	2	TT	New Pool	PATERSON
	P	3	TT	New Pool	

P.E. 43. Special Activity.—Open only to students assigned by the Health Officer.

½	Hours to be arranged.				STAFFORD

P.E. 44. Handball.—

½	B	9	MW	New Gym.	TREECE
	K	9	TT	New Gym.	
	M	11	TT	New Gym.	

P.E. 45. Squash Rackets.—

½	D	11	MW	New Gym.	TREECE
	P	3	TT	New Gym.	DERR

ELECTIVE COURSES FOR JUNIORS AND SENIORS

(Open only to students who have completed the requirements in P.E.)

P.E. 32. Golf.—

½	C	10	MW	New Gym.	BROWN
	D	11	MW	New Gym.	

P.E. 33. Tennis.—

½	E	1	MW	New Gym.	GELWICK
	F	2	MW	New Gym.	
	N	1	TT	New Gym.	
	O	2	TT	New Gym.	

PROFESSIONAL COURSES

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

FIRST YEAR

P.E. 0. Introduction to Physical Education (Orientation Course).—

2	A	10	TT	209 New Gym.	PRICE

P.E. 1. Beginning Basketball.—(Second half of semester).

2	A	1–3	MTWTF	New Gym.	Department staff

P.E. 2. Tumbling and Calisthenics.—(First half of semester).

2	A	8–10	MTWTF	New Gym.	PRICE

P.E. 4. Beginning Football.—(First half of semester).

2	A	1–3	MTWTF	Armory Field	Department staff

P.E. 10. Beginning Apparatus Stunts.—(Second half of semester).

2	A	8–10	MTWTF	Old Gym.	PRICE

SECOND YEAR

P.E. 5. Advanced Football.—(First half of semester).

2	A	8–10	MTWTF	Armory Field	Department staff

P.E. 6. Boxing and Wrestling.—(Second half of semester).

2	A	8–10	MTWTF	Wrestling Room	KENNEY and assistants

P.E. 11. Swimming.—

2	A	8	MTWTF	Pool, Old Gym.	MANLEY
	B	11	MTWTF	Pool, Old Gym.	

P.E. 12. Track and Field.—

2	A	9	MTWTF	Illinois Field and Armory	SEATON
	B	10	MTWTF	Illinois Field and Armory	

THIRD YEAR

P.E. 9. The School Program in Health.—

4	A	9	MTWTF	209 New Gym.	STAFFORD

P.E. 14. Adult Sports.—(First half of semester).

Credit	Section	Hours	Days	Room	Instructor
2	A	1–3	MTWTF	New Gym.	BROWN

P.E. 15. Recreational Sports.—(Second half of semester).

2	A	10–12	MTWTF	New Gym.	STALEY

P.E. 16. Advanced Apparatus Stunts.—(Second half of semester).

2	A	1–3	MTWTF	Old Gym.	PRICE

P.E. 19. Advanced Basketball.—(First half of semester).

2	A	10–12	MTWTF	New Gym.	RUBY

FOURTH YEAR

P.E. 3a. Theory of Sports.—

2	A	10–12	TT	207 New Gym.	Department staff

P.E. 7. Training and First Aid.—

2	A	9	TT	119-22 New Gym.	BULLOCK

P.E. 18. The Curriculum in Physical Education.—

5	A	1	MTWTF	209 New Gym.	STALEY

PHYSICAL EDUCATION FOR WOMEN

Note: Each student registering for a course or courses in physical education is assessed a locker fee of $1.00 for the semester.

Freshmen and Sophomores: Of the four required semesters in physical education, the department requires: one semester of gymnastics (P.E. 72) or rhythms (P.E. 51); one semester of swimming (P.E. 75, 76, 54); one semester of individual sports (P.E. 60) or seasonal sports (P.E. 73) or team games (P.E. 58); and one semester of an elective.

Proficiency examinations in any courses offered to freshmen and sophomores may be taken at times specified by the department. These will be given each semester.

Major: For Curriculum in Physical Education for Women, see "Directions for Registration."

Courses for Undergraduates

P.E. 51. Elementary Rhythms.—

1	B	9	MWF	South Room, W.Gym.	JOHNSON
	D	11	MWF	South Room, W.Gym.	

P.E. 54. Diving and Swimming.—*Prerequisite:* P.E. 76 or equivalent.

1		11	TT	Pool, W.B.	SMITH

P.E. 55. Life Saving.†—*Prerequisite:* P.E. 76 or equivalent.

1		3	TT	Pool, W.B.	SMITH

P.E. 56. Individual Gymnastics.—

1	B	9	MWF	Corr. Room, W.Gym.	SCHNAUBER
	C	10	MWF	Corr. Room, W.Gym.	
	D	11	MWF	Corr. Room, W.Gym.	
	F	2	MTT	Corr. Room, W.Gym.	

P.E. 57. Modified Sports and Dancing.†—

1		10	TT	North Room, W.Gym.	HUELSTER

P.E. 58. Team Games.—

1					
Speedball and Volleyball.....C		10	MWF	North Room, W.Gym.	KITZINGER
Soccer and Indoor Baseball...D		11	MWF	South Room, W.Gym.	HUELSTER
Hockey and Basketball.....V		11	TT	North Room, W.Gym.	ROBERTSON

P.E. 60. Handball, Tenikoit, and Badminton.—

1		11	TT	South Room, W.Gym.	HUELSTER

P.E. 62. Rhythms.†—For juniors in the School of Physical Education.

2		9	TT	North Room, W.Gym.	JOHNSON

†This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

P.E. 66. Elective Athletic Activities.—(Participation in W.A.A. sports; registration on recommendation of department).

Credit	Section	Hours	Days	Room	Instructor
1		Two 45-minute periods to be arranged.			

P.E. 70a. Soccer and Gymnastics.—For freshmen intending to specialize in physical education. (Freshmen will also register for P.E. 75, 76, 54, or 55, on recommendation of adviser. Pool, W.B., Miss SMITH.)

2		2	TT	W.Gym.	HUELSTER, KITZINGER

P.E. 71a. Hockey, Folk Dancing, Gymnastics.—For sophomores majoring in physical education.

2		2	MTWTF	W.Gym.	ROBERTSON, JOHNSON, KITZINGER

P.E. 72. Gymnastics.—

1	B	9	MWF	North Room, W.Gym.	KITZINGER
	F	2	MWF	North Room, W.Gym.	

P.E. 73. Seasonal Sports.—(For Skating, Sections B and C, laboratory fee $3).

1					
Tennis and Skating.....	B	9	MWF	129 W.Gym.	ROBERTSON
Tennis and Skating.....	C	10	MWF	129 W.Gym.	ROBERTSON
Golf and Volleyball.....	G†	3	MW	North Room, W.Gym.	LAWSON

P.E. 75. Elementary Swimming.—

1	D	11	MWF	Pool, W.B.	SMITH
	F	2	MWF	Pool, W.B.	

P.E. 76. Intermediate Swimming.—

1	C	10	MWF	Pool, W.B.	SMITH
	G	3	MWF	Pool, W.B.	

P.E. 77. Elementary Clog and Tap Dancing.—

1	F	2	MWF	Gym., W.B.	HUELSTER
	G	3	MWF	Gym., W.B.	HUELSTER
	S	11	TT	Gym., W.B.	KITZINGER

P.E. 78. Intermediate Clog and Tap Dancing.—

1	D	11	MWF	Gym., W.B.	KITZINGER

P.E. 79. Elementary Folk Dancing.†—

1	S	9	TT	South Room, W.Gym.	FREER
	T	10	TT	South Room, W.Gym.	JOHNSON
	X	3	TT	South Room, W.Gym.	JOHNSON

THEORY COURSES

P.E. 81. Playground Methods and Management.—For sophomores in the School of Physical Education.

2		3	TT	North Room, W.Gym.	LAWSON

P.E. 84. Therapeutics and First Aid.—For juniors in the School of Physical Education.

2		8	TT	129 W.Gym.	SCHNAUBER

P.E. 85. Pageantry and Festivals.—For seniors in the School of Physical Education. Open to students of other colleges with consent of instructor.

2		1	TT	129 W.Gym.	JOHNSON

P.E. 90a. History of Physical Education.—For seniors in the School of Physical Education.

2		11	TT	129 W.Gym.	FREER

P.E. 95a. Methods of Teaching.—For juniors in the School of Physical Education.

4	E	1	MTWTF	128 W.Gym.	ROBERTSON

P.E. 96a. Kinesiology.—For juniors in the School of Physical Education.

3	A	8	MWF	129 W.Gym.	KITZINGER

P.E. 97a. Educational Practice.—For seniors in the School of Physical Education.

3	E	1	MWF	129 W.Gym.	LAWSON

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†This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

PHYSICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $10.00.

Major: 20 hours from courses offered in the department. At least 5 hours must be offered from the group of courses for advanced undergraduates and graduates.

Minors: 20 hours in one or two of the following subjects, with not less than 8 hours in each department if two subjects are chosen: mathematics (courses in calculus and beyond), astronomy, chemistry (except Chem. 1, 2, 3, 4, 5, 6, or 7), education, or engineering.

For undergraduate students taking advanced work or a major in physics, the following courses are suggested:

Freshman year: Trigonometry and analytic geometry.

Sophomore year: Physics 1a-1b, 3a-3b, and calculus.

Junior year: Physics 14, 44, 60, 61.

Senior year: Physics 23, 30, 62, 71, 72, 78.

Physics 7a-7b and 8a-8b are recommended to students not specializing in physics, mathematics, chemistry, or engineering.

The general physics prerequisite for certain courses may be satisfied by either Physics 1a-1b and 3a-3b or by 7a-7b and 8a-8b. The calculus prerequisite may be satisfied either by Mathematics 7 and 9 or by Mathematics 8a-8b.

Introductory Courses for Undergraduates

Physics 1a. General Physics.—*Prerequisite:* Credit in Math. 2 and 4; registration in Physics 3a.

Credit	Section	Hours	Days	Room	Instructor
3	Lect. A	11	M	100 P.L.	Kruger, Almy, and others
	Lect. B	2	M	100 P.L.	
	Quiz A	8	MWF	305, 306, 406 P.L.	
	Quiz B	9	MWF	305, 306, 406 P.L.	
	Quiz D	11	MWF	302, 305, 108 P.L.	
	Quiz E	1	MWF	305, 306, 406 P.L.	
	Quiz F	8	TTS	305, 406 P.L.	

Physics 3a. General Physics Laboratory.—*Prerequisite:* Physics 1a or registration therein.

2	B	2–5	M	302, 305 P.L.	Kruger and others
	C	9–12	Tu	305, 403 P.L.	
	D	2–5	Tu	302, 305 P.L.	
	E	9–12	W	403 P.L.	
	F	2–5	W	302, 305 P.L.	
	G	9–12	Th	305, 403 P.L.	
	H	2–5	Th	302, 305 P.L.	
	J	2–5	F	302, 306 P.L.	
	K	9–12	S	305, 403 P.L.	

Physics 1b. General Physics.—*Prerequisite:* Math. 2 and 4; Physics 1a and registration in Physics 3b.

3	Lect.	11	W	119 P.L.	Schulz and others
	Quiz	11	TTF	306, 406 P.L.	

Physics 3b. General Physics Laboratory.—*Prerequisite:* Physics 1b or registration therein.

2	D	2–5	Tu	406 P.L.	Schulz and others
	F	2–5	W	406 P.L.	

Physics 7a. General Physics.—*Prerequisite:* Trigonometry; registration in Physics 8a. (The prerequisite of trigonometry may be waived by students who have passed Chemistry 1 or 2 with a grade of "C" or better.)

3	Lect. A	9	TT	100 P.L.	Watson, Paton, and others
	Lect. B	11	TT	100 P.L.	
	Quiz A	8	WF	104, 208 P.L.	
	Quiz B	9	WF	104, 208, 302 P.L.	
	Quiz C	10	WF	208, 302 P.L.	
	Quiz D	11	WF	104, 208, 403 P.L.	

Physics 8a. General Physics Laboratory.—*Prerequisite:* Physics 7a or registration therein.

2	A	9–12	M	208, 302 P.L.	Paton and others
	B	1–4	M	208, 302 P.L.	
	C	8–11	Tu	306, 403 P.L.	
	D	2–5	Tu	204, 208 P.L.	
	F	1–4	W	208, 302 P.L.	
	J	1–4	F	208, 302 P.L.	
	K	9–12	S	208 P.L.	

Intermediate Course for Undergraduates

Physics 17. Light.—*Prerequisite:* General Physics.

3	Lect. A	8	TT	208 P.L.	Schulz
	Lab.	1–4	Th	313 P.L.	
For Ceramics students....	Lect. B	8	TTS	204 P.L.	Paton

Courses for Advanced Undergraduates and Graduates

Physics 14a. Theoretical Mechanics.—*Prerequisite:* General physics and calculus.

Credit	Section	Hours	Days	Room	Instructor
3		9	TTS	306 P.L.	Mott-Smith

Physics 23. Sound.—*Prerequisite:* General physics.

3		11	MWF	204 P.L.	F. R. Watson

Physics 30. Introduction to Theoretical Electricity.—*Prerequisite:* General physics and calculus.

3		9	MWF	204 P.L.	Williams

Physics 44a. Electric and Magnetic Measurements.—*Prerequisite:* General physics and calculus.

3	A	8–11	MF	108 P.L.	Knipp, Williams, and others
	B	1–4	MF	104, 108 P.L.	
	C	8–11	TT	104, 108 P.L.	
	D	1–4	TT	104, 108 P.L.	

Physics 60. Heat.—*Prerequisite:* General physics and calculus.

3		10	TTS	208 P.L.	Paton

Physics 61. Heat Laboratory.—*Prerequisite:* Registration in Physics 60.

1		2–5	Tu	213 P.L.	Paton

Physics 80. Atomic Physics.—*Prerequisite:* General physics and calculus.

3		10	MWF	204 P.L.	Loomis

Courses for Graduates

Physics 122a. Dynamics.—(1 unit). 8 MWF; 302 P.L. Professor Kunz.

Physics 131a. Physical Laboratory Technique.—(½ to 1 unit).* Arrange. Professor Knipp.

Physics 146a. Electrodynamics.—(1 unit). 9 TTS; 302 P.L. Assistant Professor Bartlett.

Physics 160. Thermodynamics.—(1 unit). 8 TTS; 302 P.L. Professor Kunz.

Physics 184. Line Spectra and Atomic Structure.—(1 unit). 11 MWF; 202 P.L. Dr. Almy.

Physics 186a. Quantum Mechanics.—(1 unit). 11 TTS; 302 P.L. Dr. Mott-Smith.

Physics 190. Research.—(1 to 3 units).* Arrange. Profesors in the department.

Physics 198. Seminar.—(1 to 2 units).* Arrange. Professors in the department.

Physics 199. Physics Colloquium.—(No credit). 4:45 Th; 119 P.L. Dr. Mott-Smith.

PHYSIOLOGY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $3.50.

Major: 20 hours from courses offered in the department, exclusive of Physiology 1.

Minors: 20 hours in not more than two of the following: bacteriology, botany, chemistry, entomology, and zoology. At least eight hours must be offered in each subject if two are chosen.

Courses for Undergraduates

Physiol. 1. Mammalian Physiology.—A survey of the field of mammalian physiology.

3[1]	[2]Lect. A	10	TT	228 N.H.	Burge
[1]Seniors will receive only 2 hours credit.	Quiz A1	8	M	425 N.H.	Neild
	Quiz A2	1	M	425 N.H.	
	Quiz A3	11	Tu	425 N.H.	
[2]Students in Lect. A must elect an A quiz.	[3]Lect. B	11	MW	Morrow Hall	Steggerda
	Quiz B1	10	W	425 N.H.	
[3]Students in Lect. B must elect a B quiz.	Quiz B2	8	Th	425 N.H.	
	Quiz B3	9	S	425 N.H.	

Physiol. 1a. Mammalian Physiology Laboratory.—*Prerequisite:* Physiol. 1 or registration therein. (Students must elect Lect. B if registered in Physiol. 1.)

2	Lab. A	8–10	MW	413 N.H.
	Lab. B	1–3	MW	413 N.H.
	Lab. C	3–5	MW	413 N.H.
	Lab. D	8–10	TT	413 N.H.
	Lab. E	3–5	TT	413 N.H.
	Lab. F	10–12	FS	413 N.H.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Physiol. 3a. Physiological Anatomy.—(For Physical Education students).

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	11	MW	218 U.H.	ELHART
[1]Seniors will receive	Lab. A	3–5	MW	405 N.H.	ORTH
only 4 hours credit.	Lab. B	8–10	TT	408 N.H.	NEILD
[2]Lab. C and G are for	[2]Lab. C	10–12	TT	405 N.H.	
women students only.	Lab. D	1–3	TT	408 N.H.	
	Quiz E	9	F	405 N.H.	
	Quiz F	10	F	408 N.H.	
	[2]Quiz G	11	F	405 N.H.	
	Quiz H	2	F	408 N.H.	

Physiol. 9. Physiology of the Special Senses and Nervous System.—(Recommended for the general student). *Prerequisite:* Physiol. 1 or 4a.

5	Lect.	10	TT	423 N.H.	WICKWIRE
	Quiz A	3	Tu	423 N.H.	
	Quiz B	10	F	423 N.H.	
	Lab. A	10–12	MW	415 N.H.	
	Lab. B	1–3	TT	415 N.H.	
	Lab. C	8–10	WF	415 N.H.	
	Lab. D	3–5	WF	415 N.H.	

Courses for Advanced Undergraduates and Graduates

Physiol. 6. Advanced Mammalian Physiology.—(To be followed by Physiol. 7 in the second semester. Either course being optional). *Prerequisite:* Physiol. 1 and 1a, one semester of general chemistry or consent of instructor.

5	Lect.	9	TT	423 N.H.	STEGGERDA
	Lab. A	10–12	MW	415 N.H.	JONES
	Quiz A	3	Tu	425 N.H.	
	Quiz B	10	F	425 N.H.	

Physiol. 8. Thesis.—*Prerequisite:* Senior standing and 15 hours of physiology. (3 to 5).* Time to be arranged before registration. Associate Professor BURGE and Mr. WICKWIRE.

Courses for Graduates

Physiol. 101. Journal Club.—Review of literature. (¼ unit). Arrange. Members of the staff.

Physiol. 102. Research.—(1 to 2 units).* Arrange. Associate Professor BURGE.

Physiol. 103. Experimental Physiology.—(½ to 1 unit).* Arrange. Sect. A, Associate Professor BURGE; Sect. B, Associate STEGGERDA.

POLITICAL SCIENCE

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 44 or 62).

Minors: 20 hours selected from one or two of the following subjects: history, economics, law, sociology, philosophy, and education. At least eight hours must be offered in each subject, if two are chosen.

Courses 1 and 3 give a general survey of national, state, and local government in the United States. Undergraduates beginning the study of political science are advised to take first, course 1, 3, or 16, and those planning for advanced work should take course 1 and either 3 or 16 in their sophomore year. Course 3 is offered the second semester.

Courses for Undergraduates

Pol. Sci. 1. American National Government.—*Prerequisite:* Sophomore standing.

3	A1	8	MWF	300 L.H.	SNIDER
	A2	8	MWF	204 L.H.	
	A3	8	MWF	238 L.H.	
	B1	9	MWF	300 L.H.	BERDAHL
	B2	9	MWF	204 L.H.	HYNEMAN
	B3	9	MWF	340 L.H.	MATHEWS
	C1	10	MWF	300 L.H.	SNIDER
	C2	10	MWF	240 L.H.	
	C3	10	MWF	304 L.H.	
	D1	11	MWF	340 L.H.	HYNEMAN
	D2	11	MWF	302 L.H.	SNIDER
	E1	1	MWF	340 L.H.	SNIDER
	E2	1	MWF	204 L.H.	POWELL
	F	2	MWF	204 L.H.	POWELL
	G	3	MWF	204 L.H.	POWELL
	K	9	TTS	304 L.H.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Note: Junior standing is required for admission to the following courses.

Pol. Sci. 4. Municipal Government.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	9	TT	L.H. Theatre	Hill
	A Quiz	9	W	303 L.H.	Hill
	B Quiz	10	W	227 L.H.	Hill
	C Quiz	1	W	302 L.H.	Hill
	D Quiz	11	Th	308 L.H.	Hill
	E Quiz	1	Th	308 L.H.	Hill
	F Quiz	9	F	302 L.H.	Hill
	G Quiz	10	F	233 L.H.	Hill
	H Quiz	11	F	306 L.H.	Hill

Pol. Sci. 5. American Constitutional System.—*Prerequisite:* Pol. Sci. 1; junior standing. (3). 11 MWF; 202 L.H. Professor Mathews.

Pol. Sci. 6a. International Law.—*Prerequisite:* Open to seniors, graduate students, and second-year law students. (3). 10 MWF; 204 L.H. Professor Garner.

Pol. Sci. 8. International Organization.—*Prerequisite:* Junior standing. (3). 11 TT; 304 L.H. Professor Berdahl.

Pol. Sci. 12. Public Administration.—*Prerequisite:* Pol. Sci. 1 or 3; junior standing. (3). 9 MWF; 308 L.H. Professor Fairlie.

Pol. Sci. 13. Government Regulation of Business.—*Prerequisite:* Senior standing, or junior standing with five hours of political science or of economics, or of both. (3). 10 MWF; 206 L.H. Assistant Professor Hyneman.

Pol. Sci. 21. British Government.—*Prerequisite:* Graduate or senior standing, or junior standing with six hours of political science. (2 to 3).* 2 TT; 308 L.H. Professor Fairlie.

Pol. Sci. 36a. Thesis and Honors Course.—*Prerequisite:* Senior standing. (2 to 5).* Arrange. Members of the department.

Courses for Graduates

Pol. Sci. 101. History of Political Theories.—(1 unit). 11 MWF; 308 L.H. Professor Garner.

Pol. Sci. 103. Seminar in Political Science and Public Law.—Once a week. Arrange. Members of the department.

Pol. Sci. 105. Constitutional Law: Research in Selected Topics.—(1 unit). Arrange. Professor Mathews.

Pol. Sci. 106a. Special Topics in International Law.—(1 unit). Twice a week. Arrange. Professor Garner.

Pol. Sci. 108. Problems of International Organization.—(1 unit). Twice a week. Arrange. Professor Berdahl.

Pol. Sci. 112. Special Topics in Public Administration.—(1 unit). Twice a week. Arrange. Professor Fairlie.

Pol. Sci. 113. State Government: Research in Selected Topics.—(1 unit). Arrange. Professor Mathews.

Pol. Sci. 121. Problems in British Government.—(1 unit). Once a week. Arrange. Professor Fairlie.

PSYCHOLOGY

Note: Certain courses in this department require a laboratory fee of $1.

Major: 20 hours chosen from courses announced by the department, excepting Psychology 1. At least 8 hours must be offered in the advanced group.

Minors: 20 hours chosen from not more than two of the following subjects: education, mathematics, philosophy, sociology, physiology, and zoology. At least 8 hours must be offered in each, if two are chosen.

Courses for Undergraduates

Psych. 1. Introduction to Psychology.—*Prerequisite:* One year of university work.

4	Lect. A	9	MW	218 U.H.	Culler
	Quiz A1	8	TT	406 U.H.	
	Quiz A2	9	TT	411 U.H.	
	Quiz A3	9	TT	403 U.H.	
	Quiz A4	10	TT	403 U.H.	
	Quiz A5	10	TT	406 U.H.	
	Quiz A6	11	TT	403 U.H.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Psych. 1. Introduction to Psychology.—(Concluded)

Credit	Section	Hours	Days	Room	Instructor
4	Quiz A7	2	TT	403 U.H.	
	Quiz A8	3	TT	407 U.H.	
	Lect. B	9	TT	218 U.H.	RUCH
	Quiz B1	8	MW	411 U.H.	
	Quiz B2	9	MW	403 U.H.	
	Quiz B3	9	MW	404 U.H.	
	Quiz B4	10	MW	411 U.H.	
	Quiz B5	10	MW	406 U.H.	
	Quiz B6	11	MW	403 U.H.	
	Quiz B7	2	MW	403 U.H.	
	Quiz B8	3	MW	411 U.H.	
	Lect. C	11	TT	218 U.H.	YOUNG
	Quiz C1	8	MW	412 U.H.	
	Quiz C2	8	MW	406 U.H.	
	Quiz C3	9	MW	413 U.H.	
	Quiz C4	10	MW	412 U.H.	
	Quiz C5	11	MW	404 U.H.	
	Quiz C6	11	MW	412 U.H.	
	Quiz C7	2	MW	406 U.H.	
	Quiz C8	3	MW	412 U.H.	

Psych. 2. General Psychology.—*Prerequisite:* Psych. 1 or junior standing.

4	Lect.	10	MW	410 U.H.	HIGGINSON
	Quiz A	9	TT	407 U.H.	
	Quiz B	10	TT	211 U.H.	
	Quiz C	11	TT	407 U.H.	
	Quiz D	2	TT	407 U.H.	

Psych. 3. Laboratory Practice.—*Prerequisite:* Psych. 1.

2	Lab. A	10–12	MW	417 U.H.	HIGGINSON, STOTT
	Lab. B	2–4	MW	417 U.H.	
	Lab. C	10–12	TT	417 U.H.	
	Lab. D	2–4	TT	417 U.H.	

Courses for Advanced Undergraduates and Graduates

Psych. 5. Comparative Psychology.—*Prerequisite:* Psych. 1 and either one other course in psychology or a course in zoology. (3). 10 MWF; 315 U.H. Dr. MCALLISTER.

Psych. 9. Physiological Psychology.—*Prerequisite:* Psych. 1 and one course in zoology or physiology. (2). 11 TT; 315 U.H. Associate Professor CULLER.

Psych. 11. Learning and Comprehension.—*Prerequisite:* Psych. 1 and junior standing. (2). 9 TT; 318 U.H. Associate Professor CULLER.

Psych. 16. Genetic Psychology.—*Prerequisite:* Psych. 1 and junior standing. (2). 10 TT; 315 U.H. Dr. RUCH.

Psych. 21. Character and Personality.—*Prerequisite:* Psych. 1 and junior standing.

3	Lect.	11	MW	315 U.H.	SEARS
	Quiz A	10	F	406 U.H.	
	Quiz B	11	F	403 U.H.	

Psych. 27a. Thesis Course and Honors Course.—*Prerequisite:* Psych. 3 and consent of department. (2). Arrange; 419 U.H. Professor WOODROW.

Psych. 28. The Psychology of Motivation.—*Prerequisite:* Psych. 1 and junior standing. (2). 2 TT; 404 U.H. Professor YOUNG.

Psych. 34. Individual Differences.—*Prerequisite:* Psych. 1 and senior standing. (3). 9 MWF; 311 U.H. Professor WOODROW.

Courses for Graduates

Psych. 103. Research.—(½ to 2 units).* Arrange. Professors WOODROW and YOUNG, Associate Professor CULLER, Assistant Professor HIGGINSON.

Psych. 105. Seminar.—(1 unit). 7:15-9:15 p.m. M; 419 U.H. Professor WOODROW.

PUBLIC UTILITIES AND TRANSPORTATION

(See Economics and Business Organization and Operation)

A. PUBLIC UTILITIES

Pub. Util. 81. Principles of Public Utilities.—See Economics 81.

Pub. Util. 118. Seminar for First-Year Graduate Students.—See Economics 118c.

Pub. Util. 180. Management of Public Utilities.—See Economics 180.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

B. TRANSPORTATION

Trans. 1. Economics of Transportation.—See Economics 92.

Trans. 10. Railroad Rates.—See Economics 95.

Trans. 100. Economics of Transportation.—See Economics 192.

RAILWAY ENGINEERING

Note: Certain courses in this department require a laboratory fee of $3.

Courses for Undergraduates

R.E. 2. Locomotive Design.—*Prerequisite:* M.E. 16, 64; R.E. 4. (3). Sec. W, 1-4 MWF; 104 T.B.

R.E. 5. Railway Laboratory.—*Prerequisite:* M.E. 16, 64; R.E. 4. (3). Sec. W, 1-4 TT, 11 Tu; 104 T.B.

R.E. 9. Seminar.—*Prerequisite:* Open to seniors in railway courses only. (1). Sec. W, 9 Tu; 117 T.B.

R.E. 25. Railway Development.—*Prerequisite:* Sophomore standing. (2). Sec. UVW, 10 WF; 105 T.B.

R.E. 32. Railway Construction.—*Prerequisite:* Registration in C.E. 61a. (3). Sec. U, 11 MF, 1-4 W; 117 T.B.

R.E. 59. Electric Railway Principles.—*Prerequisite:* Registration in E.E. 25 and 75. (2). Sec. V, 9 MW; 117 T.B.

R.E. 97. Thesis.—(1 or 2).* Arrange. *Prerequisite:* Senior standing in railway engineering.

R.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. No credit.

Courses for Advanced Undergraduates and Graduates

R.E. 3. Locomotives.—*Prerequisite:* Junior standing in the College of Engineering. (2). Sec. W, 10 TT; 104 T.B.

R.E. 31. Railway Yards and Terminals.—*Prerequisite:* C.E. 3, or senior standing in R.E. (3). Sec. U, 11 TT, 9-12 S; 117 T.B.

R.E. 35. Railway Signaling.—*Prerequisite:* Senior standing in Engineering. (2). Sec. UV, 10 TT; 105 T.B.

R.E. 62. Electric Railway Laboratory.—*Prerequisite:* R.E. 60. (2). Sec. V, 1-4 TT; 117 T.B.

R.E. 64. Electric Railway Practice.—*Prerequisite:* E.E. 26 and 76; R.E. 60. (3). Sec. V, 11 MWF; 105 T.B.

Courses for Graduates

R.E. 102. Locomotive Design.—(1 unit). Arrange. Professor Young.

R.E. 106. Locomotive Operation.—(1 unit). Arrange. Professor Schmidt.

R.E. 110. Railway Location.—(1 unit). Arrange. Professor King.

ROMANCE LANGUAGES AND LITERATURE

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, and 6b, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), German, Greek, history, Italian, Latin, philosophy, Spanish, provided that at least 8 hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, and 2a, and including at least 5 hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), French, German, Greek, history, Italian, Latin, philosophy, provided that at least 8 hours be taken in any subject chosen.

A. FRENCH

Courses for Undergraduates

French 1a. Elementary Course.—For students who have no credit in French.

Credit	Section	Hours	Days	Room	Instructor
4[1]	A1	8	TWTF	214 U.H.	Bussard
[1]Seniors will receive	A2	8	TWTF	208 U.H.	Alexander
only 3 hours credit.	A3	8	TWTF	148 L.H.	Rowe

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

French 1a. Elementary Course.—(Concluded)

Credit	Section	Hours	Days	Room	Instructor
4[1]	B1	9	TWTF	303a L.H.	Ramsey
	B2	9	TWTF	203a L.H.	Goggin
[1]Seniors will receive only 3 hours credit.	B3	9	TWTF	122 New Agr.	Favreau
	C1	10	TWTF	204 U.H.	Carter
	C2	10	TWTF	214 U.H.	Amiel
	C3	10	TWTF	407 U.H.	Hilton
	D1	11	TWTF	303 L.H.	Herdman
	D2	11	TWTF	116 New Agr.	Favreau
	E1	1	MTWT	133 L.H.	Allen
	E2	1	MTWT	212 U.H.	Alexander
	F	2	MTWT	212 U.H.	Alexander
	G	3	MTWT	214 U.H.	Alexander

French 1b. Elementary Course (continued).—*Prerequisite:* French 1a, or one year of high school French.

4[1]	A	8	TWTF	235 L.H.	Ralph
[1]Seniors will receive only 3 hours credit.	B	9	TWTF	312 U.H.	Bussard
	C	10	TWTF	318 U.H.	Herdman
	F1	2	MTWT	206 L.H.	Hilton
	F2	2	MTWT	211 U.H.	Pietrangeli

French 2a. Modern French.—*Prerequisite:* French 1b, or two years of high school French.

4	[1]A1	8	TWTF	120 L.H.	Hilton
[1]Sections A1, B1, C1, D1, and E are primarily for students who expect to go beyond French 2b. More attention is paid to the speaking and hearing of French.	A2	8	TWTF	133 L.H.	Goggin
	[1]B1	9	TWTF	311 L.H.	Roche
	B2	9	TWTF	206 L.H.	Rowe
	[1]C1	10	TWTF	113 L.H.	Bussard
	C2	10	TWTF	123 New Agr.	Rew
	[1]D1	11	TWTF	227 L.H.	Bussard
	D2	11	TWTF	311 L.H.	Amiel
	[1]E	1	MTWT	214 U.H.	Pietrangeli
	F	2	MTWT	133 L.H.	Allen
	G	3	MTWT	139 L.H.	Dismukes

French 2b. Modern French.—*Prerequisite:* French 2a, or three years of high school French.

4	A	8	TWTF	334 L.H.	Ramsey
	B	9	TWTF	123 New Agr.	Rew
	C	10	TWTF	122 New Agr.	Ralph
	F	2	MTWT	214 U.H.	Carter

French 3a. Introduction to French Literature.—*Prerequisite:* French 2b, or four years of high school French.

3	A	8	MWF	128 L.H.	Jacob
	B	9	MWF	224 L.H.	Will
(In French).....	C	10	MWF	224 L.H.	Will
	D	11	MWF	232 L.H.	Oliver
	E	1	MWF	128 L.H.	Roche
	F	2	MWF	303a L.H.	Jacob

French 6a. Second-Year Composition and Conversation.—*Prerequisite:* French 1b, or two years of high school French.

2	K	9	TT	232 L.H.	Hilton
	N	1	TT	104 L.H.	Hilton

French 7a. Intermediate Composition and Conversation.—*Prerequisite:* French 2b or 6b, or the equivalent. (*Note:* Prospective teachers of French are strongly advised to take French 7a and 7b.)

2	K	9	TT	300 L.H.	Amiel
	L	10	TT	211 L.H.	Roche
	M	11	TT	113 L.H.	Roche
	N	1	TT	105 L.H.	Amiel
	O	2	TT	105 L.H.	Amiel

French 8a. Advanced Composition and Conversation.—*Prerequisite:* French 7b.

2	[1]K	9	TT	219 L.H.	Jacob
[1]Plus particulièrement: exercices de grammaire avancée.	O	2	TT	128 L.H.	Roche

French 25. Methods of Teaching French.—Discussion and laboratory work in phonetics. *Prerequisite:* 20 hours in French, or 16 hours in French plus 20 in Spanish. Not open to students other than seniors except by permission of the instructor. *Note:* French 25 will be given only in first semester; Spanish 25 only in second semester. Laboratory fee, 50 cents.

3	F	2	MWF	310 U.H.	Gullette

French 28a. Senior Thesis.—For candidates for honors in French. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in French have the following prerequisites: French 3b or the equivalent, and junior standing; or senior standing and consent of instructor.

French 10a. Survey of French Literature.—

3	B	9	MWF	232 L.H.	Carnahan

French 17a. French Drama of the Nineteenth Century.—

Credit	Section	Hours	Days	Room	Instructor
2	K	9	TT	224 L.H.	Will
	L	10	TT	224 L.H.	Hamilton

French 24a. French Drama of the Seventeenth and Eighteenth Centuries.—

3	C	10	MWF	219 L.H.	Oliver

French 32a. French Novel of the Nineteenth Century.—

3	B	9	MWF	128 L.H.	Jacob

French 33a. La Littérature Contemporaine.—(In French).

2	M	11	TT	109 L.H.	Michaud

Courses for Graduates

French 101. Old French Literature.—(1 unit). 11 TT; 206 L.H. Professor Oliver.

French 102. Villon, Rabelais, Montaigne, La Pléiade.—(1 unit). 4 TT; 425a Lib. Assistant Professor Will.

French 104. Eighteenth Century Literature.—(1 unit). 9 TT; 233 L.H. Professor Oliver.

French 127. French Romanticism.—(1 unit). 3 TT; 425a Lib. Professor Carnahan.

French 132. French Symbolism in Prose and Verse and the English and American Influences.—(1 unit). 3 MW; 222 L.H. Professor Michaud.

French 144. Le Realisme et le Naturalisme Français.—(In French). (1 unit). 3-5 F; 120 L.H. Professor Michaud.

French 195. Seminar.—Research work in preparation for theses in French. (1 to 2 units).* Members of the department.

B. ITALIAN

Courses for Undergraduates

Italian 1a. Elementary Course.—For students who have no credit in Italian.

4[1]	C	10	TWTF	312 U.H.	Pietrangeli
[1]Seniors will receive only 3 hours credit.	F	2	MTWT	139 L.H.	Dismukes

Italian 2a. Intermediate Italian.—*Prerequisite:* Italian 1b.

3	D	11	MWF	312 U.H.	Pietrangeli

Course for Advanced Undergraduates and Graduates

Italian 3a. Dante: The Divine Comedy.—*Prerequisite:* Italian 1b; junior standing.

2	P	3	TT	214 L.H.	Van Horne

Courses for Graduates

Italian 140. Italian Literature in the Middle Ages: Petrarch, Boccaccio.—(1 unit). 1 TT; 214 L.H. Professor Van Horne.

Italian 195. Seminar.—Research work in preparation for theses in Italian. (1 to 2 units).* Professor Van Horne.

C. SPANISH

Courses for Undergraduates

Spanish 1a. Elementary Course.—For students who have no credit in Spanish.

4[1]	A1	8	TWTF	302 L.H.	Utley
[1]Seniors will receive only 3 hours credit.	A2	8	TWTF	211 U.H.	Brown
	B1	9	TWTF	116 New Agr.	Adam
	B2	9	TWTF	321 L.H.	Young
	C1	10	TWTF	310 U.H.	Lodge
	C2	10	TWTF	105 L.H.	Bushart
	D1	11	TWTF	211 U.H.	Young
	D2	11	TWTF	214 U.H.	Kaar
	E	1	MTWT	139 L.H.	Kidder
	F	2	MTWT	312 U.H.	Kaar
	G	3	MTWT	148 L.H.	Dallera
	H	4	MTWT	227 L.H.	Dallera

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Spanish 1b. Elementary Course (continued).—*Prerequisite:* Spanish 1a, or one year of high school Spanish.

Credit	Section	Hours	Days	Room	Instructor
4[1]	A	8	TWTF	318 U.H.	BUSHART
[1]Seniors will receive only 3 hours credit.	B	9	TWTF	214 U.H.	LODGE
	C	10	TWTF	139 L.H.	BURNER
	D	11	TWTF	122 New Agr.	UTLEY
	F	2	MTWT	203a L.H.	KIDDER

Spanish 2a. Modern Spanish.—*Prerequisite:* Spanish 1b, or two years of high school Spanish.

4	[1]A1	8	TWTF	139 L.H.	AVILÉS
[1]In Section A1, more attention is paid to the speaking and hearing of Spanish.	A2	8	TWTF	240 L.H.	BURNER
	B	9	TWTF	139 L.H.	UTLEY
	C	10	TWTF	116 New Agr.	ADAM
	D	11	TWTF	303a L.H.	HAMILTON
	E	1	MTWT	227 L.H.	YOUNG
	F	2	MTWT	227 L.H.	BURNER

Spanish 2b. Modern Spanish.—*Prerequisite:* Spanish 2a, or three years of high school Spanish.

4	C	10	TWTF	203a L.H.	YOUNG
	F	2	MTWT	233 L.H.	ADAM

Spanish 3a. Introduction to Spanish Literature.—*Prerequisite:* Spanish 2b, or four years of high school Spanish.

3	B	9	MWF	235 L.H.	BURNER
	D	11	MWF	133 L.H.	BALSEIRO
	E	1	MWF	240 L.H.	ADAM

Spanish 5a. Commercial Spanish.—*Prerequisite:* Spanish 2b or the equivalent.

2	K	9	TT	133 L.H.	AVILÉS

Spanish 7a. Intermediate Composition and Conversation.—*Prerequisite:* Spanish 2b or the equivalent. (*Note:* Prospective teachers of Spanish are strongly advised to take Spanish 7a and 7b.)

2	B	9	MW	211 L.H.	AVILÉS
	L	10	TT	204a L.H.	AVILÉS

Spanish 8a. Advanced Composition and Conversation.—*Prerequisite:* Spanish 7b.

2	M	11	TT	104 L.H.	AVILÉS

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in Spanish have the following prerequisites: Spanish 3b or the equivalent, and junior standing; or senior standing and consent of instructor.

Spanish 10a. Survey of Spanish Literature.—

3	C	10	MWF	148 L.H.	HAMILTON

Spanish 11a. Cervantes: Don Quijote.—

2	M	11	TT	114 L.H.	VAN HORNE

Spanish 17a. El Teatro Español Moderno.—

2	L	10	TT	303a L.H.	BALSEIRO

Courses for Graduates

Spanish 131. Spanish Literature in the Seventeenth Century.—(1 unit). To be arranged; 216 L.H. Associate Professor HAMILTON.

Spanish 135. La Novela Española Moderna.—(In Spanish). (1 unit). To be arranged; 429 Lib. Associate Professor BALSEIRO.

Spanish 138. Spanish-American Literature.—(1 unit). 5 MW; 425a Lib. Professor VAN HORNE.

Spanish 195. Seminar.—Research work in preparation for theses in Spanish. (1 to 2 units).* Members of the department.

SOCIOLOGY

Major: 20 hours from any courses in the department.

Minors: 20 hours from one or two of the following subjects: history, philosophy, psychology, economics, political science. At least 8 hours must be offered in either minor subject, if two are chosen.

Courses for Undergraduates

Sociol. 1. Principles of Sociology.—*Prerequisite:* Junior standing, or sophomore standing with a course in either economics or psychology or history.

3	A	8	MWF	304 L.H.	HILLER
	B	9	MWF	238 L.H.	ALBIG
	C	9	MWF	306 L.H.	HOUGHTON
	D	10	MWF	326 L.H.	TYLOR
	E	10	MWF	306 L.H.	HOUGHTON

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Sociol. 1. Principles of Sociology.—(Concluded)

Credit	Section	Hours	Days	Room	Instructor
3	F	11	MWF	304 L.H.	HILLER
	G	1	MWF	334 L.H.	TYLOR
	H	2	MWF	306 L.H.	HOUGHTON
	J	3	MWF	326 L.H.	ALBIG

Sociol. 2. Social Factors in Personality.—*Prerequisite:* Sociol. 1.

3	A	8	MWF	202 L.H.	AHRENS
	B	9	MWF	202 L.H.	

Sociol. 90a. Honors Course.—For majors in sociology and other seniors. Consent of instructor required. (2). Arrange. Members of the department.

Courses for Advanced Undergraduates and Graduates

Sociol. 3. Social Evolution.—*Prerequisite:* Sociol. 1 and junior standing. (3). 11 MWF; 105 L.H. Mr. AHRENS.

Sociol. 6. Urban Sociology.—*Prerequisite:* Sociol. 1 and junior standing. (3). 8 MWF; 326 L.H. Assistant Professor TYLOR.

Sociol. 8. Charities.—*Prerequisite:* Sociol. 1 and one semester either of economics or of history.

3	A	11	MWF	334 L.H.	TIMMONS
	B	2	MWF	334 L.H.	

Sociol. 9. Criminology.—*Prerequisite:* Sociol. 1 and senior standing.

3	A	9	MWF	148 L.H.	TAFT
	B	3	MWF	334 L.H.	

Sociol. 14. Group Opinion.—*Prerequisite:* Sociol. 1 and senior standing. (3). 1 MWF; 326 L.H. Assistant Professor ALBIG.

Sociol. 17. Methods of Sociological Research.—*Prerequisite:* 8 hours credit in sociology. (3). 9 TT and two hours of supervised research weekly at time to be arranged; 306 L.H. Professor HILLER.

Sociol. 29. Modern Human Migrations.—*Prerequisite:* Sociol. 1 and junior standing. (3). 2 MWF; 326 L.H. Professor TAFT.

Sociol. 42. Early Civilizations.—*Prerequisite:* Junior standing. (3). 10 MWF; 334 L.H. Assistant Professor ALBIG.

Courses for Graduates

Sociol. 106. Urban Communities and Urbanization.—(1 unit). Twice a week. Arrange; 201 L.H. Assistant Professor TYLOR.

Sociol. 108. Social Effects of Poverty, Their Prevention and Treatment.—(1 unit). Twice a week. Arrange; 201 L.H. Assistant Professor TIMMONS.

Sociol. 129. Modern Human Migrations.—(1 unit). Twice a week. Arrange; 201 L.H. Professor TAFT.

Sociol. 150. Seminar.—Thesis. (1 to 2 units).* Twice a week. Arrange. Members of the department.

THEORETICAL AND APPLIED MECHANICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $2.50.

Courses for Undergraduates

T.A.M. 1. Analytical Mechanics (Statics).—*Prerequisite:* Math. 7; registration in Math. 9.

2	A	9	TT	310 M.T.L.
	B	9	TT	202 E.H.
	C	11	TT	202 E.H.
	D	4	TT	305 M.T.L.
	E	4	TT	202 E.H.

T.A.M. 2. Analytical Mechanics (Dynamics).—*Prerequisite:* T.A.M. 1.

3	G	8	MWF	202 E.H.
	S	8	MWF	310 M.T.L.
	M	8	TTS	305 M.T.L.
	R	8	TTS	202 E.H.
	X	8	TTS	310 M.T.L.
	F	9	MWF	310 M.T.L.
	E	10	MWF	310 M.T.L.
	K	11	MWF	305 M.T.L.
	L	11	MWF	202 E.H.
	P	11	MWF	310 M.T.L.
	Q	11	MWF	204 T.B.
	J	3	MWF	305 M.T.L.
	N	3	MWF	310 M.T.L.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

T.A.M. 3. Resistance of Materials.—*Prerequisite:* T.A.M. 1.

Credit	Section	Hours	Days	Room	Instructor
3	J	8	MWF	313 M.T.L.	
	X	8	MWF	316 M.T.L.	
	Ch1	8	MWF	208 E.H.	
	C	9	MWF	202 E.H.	
	G	9	MWF	313 M.T.L.	
	Q	9	MWF	316 M.T.L.	
	S	9	MWF	202 T.B.	
	F	11	MWF	313 M.T.L.	
	Ch2	11	MWF	316 M.T.L.	
	P	1	MWF	305 M.T.L.	
	E	2	MWF	305 M.T.L.	
	R	2	MWF	202 E.H.	

T.A.M. 4. Hydraulics.—*Prerequisite:* T.A.M. 1 and registration in T.A.M. 2.

2	M	9	TT	305 M.T.L.
	L	10	TT	305 M.T.L.
	K	2	TT	305 M.T.L.
	N	2	TT	310 M.T.L.

T.A.M. 17. Statics.—*Prerequisite:* Math. 6a.

3	A	8–10	M	305 M.T.L.
		8	WF	305 M.T.L.
	B	9–11	F	305 M.T.L.
		10	MW	305 M.T.L.

T.A.M. 63. Resistance of Materials Laboratory.—*Prerequisite:* Registration in T.A.M. 3.

1	F	1–3	M	223 M.T.L.
	P	3–5	M	223 M.T.L.
	Ch1	10–12	Tu	223 M.T.L.
	Q	3–5	Tu	223 M.T.L.
	R	8–10	W	223 M.T.L.
	S	10–12	W	223 M.T.L.
	J	1–3	W	223 M.T.L.
	E	3–5	W	223 M.T.L.
	G	8–10	Th	223 M.T.L.
	Ch2	10–12	Th	223 M.T.L.
	C	10–12	F	223 M.T.L.

T.A.M. 64. Hydraulics Laboratory.—*Prerequisite:* Registration in T.A.M. 4.

1	L	1–3	M	M.T.L.
	K	3–5	Tu	M.T.L.
	N	8–10	W	M.T.L.
	M	3–5	Th	M.T.L.

Courses for Advanced Undergraduates and Graduates

T.A.M. 41. Advanced Mechanics of Materials.—*Prerequisite:* T.A.M. 3 and 63. (3). Arrange. Professor SEELY.

T.A.M. 43. Laboratory Work in Hydraulics.—(3). Twice a week. Arrange. Professor ENGER and Mr. LANSFORD.

T.A.M. 44. Laboratory Work in Testing Materials.—*Prerequisite:* T.A.M. 1, 3, and 63. (3 credits or ½ to 1 unit).* 1-3 TuF. Professors MOORE and PUTNAM.

Courses for Graduates

T.A.M. 101. The Development of Basic Ideas in Mechanics.—(1 unit). Twice a week. Arrange. Professor MOORE.

T.A.M. 103. Hydraulics.—(1 unit). Twice a week. Arrange. Professor ENGER.

T.A.M. 107. Laboratory Investigations in Strength of Materials.—(1 to 2 units).* Twice a week. Arrange. Professor MOORE.

T.A.M. 108. Laboratory Investigations in Hydraulics.—(1 to 2 units).* Twice a week. Arrange. Professor ENGER.

T.A.M. 109. Laboratory Investigations in Plain and Reinforced Concrete.—(1 to 2 units).* Twice a week. Arrange. Professor RICHART.

T.A.M. 110. Analytical Study of Experimental Work on Reinforced Concrete: Beams, Frames, and Footings.—(1 unit). Twice a week. Arrange. Professor RICHART.

T.A.M. 112. Structural Mechanics.—(1 unit). Three times a week. Arrange. Professor WESTERGAARD.

T.A.M. 114. Theory of Elasticity with Applications to Engineering Problems.—(1 unit). Three times a week. Arrange. Professor WESTERGAARD.

T.A.M. 116. Resistance of Materials.—(1 unit). Three times a week. Arrange. Professor SEELY.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

ZOOLOGY

Note: Certain courses in this department require laboratory fees varying from $1 to $4.50.

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: animal husbandry, bacteriology, botany, chemistry, entomology, geology, physics, physiology, psychology. At least 8 hours must be offered in each subject, if two are chosen.

Note: Credit for seniors who take Zoology 1 or 2 will be reduced one hour.

Courses for Undergraduates

Zool. 1. General Zoology.—

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	9	MWF	228 N.H.	THOMAS, KUDO, LUCE, and assistants
	A Lab. & Quiz	8–10	TTS	310 N.H.	
[1]Seniors will receive only 4 hours credit.	B Lab. & Quiz	8–10	TTS	312 N.H.	
	C Lab. & Quiz	8–10	TTS	314 N.H.	
	D Lab. & Quiz	10–12	MWF	310 N.H.	
	E Lab. & Quiz	10–12	MWF	312 N.H.	
	F Lab. & Quiz	10–12	MWF	314 N.H.	
	G Lab. & Quiz	1–3	MWF	310 N.H.	
	H Lab. & Quiz	1–3	MWF	312 N.H.	
	I Lab. & Quiz	1–3	MWF	314 N.H.	
	K Lab. & Quiz	1–4	TT	310 N.H.	
	L Lab. & Quiz	1–4	TT	312 N.H.	
	M Lab. & Quiz	1–4	TT	314 N.H.	
	N Lab. & Quiz	10–12	TTS	310 N.H.	

Zool. 2. Vertebrate Zoology and Comparative Anatomy.—*Prerequisite:* Zool. 1.

5[1]	Lect.	10	MWF	228 N.H.	ADAMS, CAHN, and assistants
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	MWF	330 N.H.	
	B Lab. & Quiz	8–10	TTS	330 N.H.	
	C Lab. & Quiz	1–3	MWF	330 N.H.	

Zool. 3. Vertebrate Embryology.—*Prerequisite:* Zool. 1 and 2.

5	Lect.	1	TT	228 N.H.	SHUMWAY ADAMSTONE and assistants
	A Lab.	8–10	MWF	323 N.H.	
[2]Lab. section D and quiz section 4 will not be opened until others are filled.	B Lab.	10–12	MWF	323 N.H.	
	C Lab.	1–3	MWF	323 N.H.	
	[2]D Lab.	3–5	MWF	323 N.H.	
	1 Quiz	8	Tu	423 N.H.	
	2 Quiz	10	Th	229 N.H.	
	3 Quiz	2	Tu	229 N.H.	
	[2]4 Quiz	2	Th	229 N.H.	

Zool. 7. Evolution.—With special reference to the biological processes in which man is involved. *Prerequisite:* Sophomore standing.

3	Lect.	9	MW	300 Math.	ZELENY and others
	A Quiz	8	F	229 N.H.	
	B Quiz	2	F	229 N.H.	
	C Quiz	9	Th	425 N.H.	
	D Quiz	10	Th	425 N.H.	
	E Quiz	9	F	229 N.H.	

Zool. 15. Genetics.—(For students in the College of Agriculture). *Prerequisite:* Two years of university work; Botany 1 or 5; and Zool. 1 or Entom. 1.

3	Lect.	11	MW	228 N.H.	LUCE and assistants
	A Disc.	9	Th	241 N.H.	
	B Disc.	11	F	423 N.H.	
	C Disc.	11	Th	423 N.H.	
	D Disc.	9	M	423 N.H.	

Courses for Advanced Undergraduates and Graduates

Zool. 8a. Thesis Investigation.—*Prerequisite:* Two years of zoology.

3 to 5*	To be arranged	Members of the department

Zool. 11. Animal Ecology and Geography.—*Prerequisite:* One year of zoology; senior standing. Three hours credit requires the lectures and field all day September 22, September 29, and October 20, and one selected day; 4 and 5 hours credit requires additional field work, or the laboratory work, or both as arranged for the individual.

3 to 5*	Lect.	4	MWF	229 N.H.	SHELFORD
	Lab. or Field	8–12	S	202 Exp. Zool. Lab.	

Zool. 17. Field Zoology.—*Prerequisite:* One year of zoology; senior standing.

3 to 5*		8–12	TT	420 N.H.	VAN CLEAVE

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Zool. 18. Protozoology.—*Prerequisite:* One year of zoology; junior standing.

Credit	Section	Hours	Days	Room	Instructor
2		1–3	TT	420 N.H.	KUDO

Zool. 19a. Vertebrate Ecology.—*Prerequisite:* Zool. 1 and 2 (Zool. 9 or registration therein also recommended).

2 or 3*	Lect.	1	TT	229 N.H.	CAHN
	Lab.	To be arranged			

Zool. 20a. Current Investigation.—Required of all graduate students majoring in zoology; may be elected by seniors majoring in zoology, with consent of instructor.

1		3	F	340 N.H.	Members of the department

Zool. 21a. Introduction to Zoological Research.—*Prerequisite:* One year of zoology; senior standing.

2 to 5*	To be arranged	Members of the department

Zool. 22. Comparative Anatomy of Vertebrates.—*Prerequisite:* Zool. 3.

2 to 4*	Lect.	4	Tu	419 N.H.	ADAMS
	Lab.	1–5	TT	419 N.H.	

Zool. 63. Comparative Vertebrate Embryology.—*Prerequisite:* One year of zoology; senior standing.

2 to 5*		10	MW	326 N.H.	SHUMWAY
		Other hours to be arranged			

Courses for Graduates

Students entering on graduate study in the department of zoology should have had two years of undergraduate work in the subject. When chosen as a minor the courses listed for graduates and undergraduates must be preceded by at least one full year of undergraduate work in zoology. Work done at other institutions will be evaluated on conference with the head of the department.

Zool. 103. Cytology: The Animal Cell.—(1 unit). 2 MW; 340 N.H. Professor SHUMWAY.

Zool. 111. Experimental and Field Ecology.—(½ to 2 units).* Arrange. Professor SHELFORD.

Zool. 115. Factors of Individual and Racial Development.—(1 unit). 3 MW; 340 N.H. Professor ZELENY.

Zool. 131. Helminthology.—(½ to 1 unit).* 2-5 TT; 418 N.H. Professor VAN CLEAVE, Assistant Professor THOMAS.

Individual Research Courses

Zool. 121. Invertebrate Zoology and Parasitology.—(1 to 2 units).* Arrange. Professor VAN CLEAVE, Assistant Professor THOMAS.

Zool. 122. Vertebrate Morphology.—(1 to 2 units).* Arrange. Assistant Professor ADAMS.

Zool. 124. Experimental Zoology and Genetics.—(1 to 2 units).* Arrange. Professor ZELENY.

Zool. 125. Animal Ecology and Behavior.—(1 to 2 units).* Arrange. Professor SHELFORD.

Zool. 126. Vertebrate Embryology and Cytology.—(1 to 2 units).* Arrange. 432 N.H. Professor SHUMWAY.

Zool. 128. Protozoology.—(1 to 2 units).* Arrange. Assistant Professor KUDO.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

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UNIVERSITY OF ILLINOIS BULLETIN

Vol. XXXII January 22, 1935 No. 21

TIME TABLE

SECOND SEMESTER
1934-1935

THE LIBRARY OF THE
JAN 29 1935
UNIVERSITY OF ILLINOIS

This Time Table is issued early, for the convenience of faculty members and students. Preserve your copy for use during the period of registration, as there will not be a supply for general distribution at that time.

PUBLISHED WEEKLY BY THE UNIVERSITY OF ILLINOIS

[Entered as second-class matter December 11, 1912, at the post office at Urbana, Illinois, under the Act of August 24, 1912. Acceptance for mailing at the special rate of postage provided for in section 1103, Act of October 3, 1917, authorized July 31, 1918]

REGISTRATION CALENDAR

SECOND SEMESTER, 1934-35

1935

Feb. 1-2, Fri.-Sat..... Registration for graduate students.

Feb. 4-5, Mon.-Tues..... Registration for undergraduate students.

Feb. 6, Wed., 8 a.m..... Instruction begun.

Feb. 11, Mon., 8 a.m..... Earliest date for special examinations.

Feb. 11, Mon., 12 m..... Latest date for change of study-lists without fee.

Feb. 16, Sat., 12 m..... Latest date for rebates in full.

Apr. 6, Sat., 12 m..... Latest date for rebates of one-half fees, and latest date for seniors to make substitutions in courses or to remove failures of the first semester.

Apr. 18, Thurs., 12 m..... Easter recess begun.

Apr. 23, Tues., 1 p.m..... Instruction resumed.

May 13, Mon..... Latest date for special examinations.

May 23, Thurs..... Military day.

May 24, Fri..... Semester examinations begun.

June 3, Mon..... Semester examinations ended.

June 10, Mon..... Sixty-fourth Annual Commencement.

SUMMER SESSION, 1935

June 17, Mon..... Registration day.

June 18, Tues..... Instruction begun.

Aug. 9-10, Fri.-Sat..... Final examinations.

FIRST SEMESTER, 1935-36

Sept. 13-14, Fri.-Sat..... Registration for graduate students.

Sept. 14, Sat..... Registration for freshmen.

Sept. 16-17, Mon.-Tues..... Registration for upperclassmen.

Sept. 18, Wed., 8 a.m..... Instruction begun.

KEY TO NAMES OF DEPARTMENTS AND DIVISIONS

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EXPLANATION OF LISTING OF COURSES

The arrangement of subjects in the following Time Table is alphabetical by names of departments. The connections of allied departments and divisions are indicated by cross references. (See page 3 for key to names of departments and divisions.)

The courses offered by each department or division are listed, in numerical order, in groups with headings that indicate the students for whom they are designed. Groups of general, elementary, and introductory courses are listed as "Courses for Undergraduates." Intermediate and advanced groups are listed as "Courses for Advanced Undergraduates and Graduates." Courses with numbers beginning at 100 are listed as "Courses for Graduates" and are not open to undergraduates.

Following the title of each course of instruction will be found the requirements, if any, for admission to that particular course. The sequence indicated by these prerequisites must be followed. For example, on page 11, in Art 35a-35b, Commercial Art, the prerequisites given are Art 27b and 31b. These two courses must be completed before Art 35a-35b may be taken.

If a course not required for graduation is selected by fewer than five students it may be withdrawn for the semester.

Credit

Credit for undergraduate students is reckoned in *semester hours*, or simply *hours*. An *hour* is one class period a week for one semester or the equivalent in laboratory, shop, or drafting room. The number of hours for which each course counts is shown in parentheses in the description of the course, thus, (2), except where the credits, sections, etc., are tabulated.

Credit for first-year graduate students, candidates for the master's degree, is counted in *units*. A *unit* course is one which requires ten hours of time per week through one semester, irrespective of the distribution of that time in class work, laboratory work, and private study. Four such courses or their equivalent constitute a full minimum program for one semester. The unit values of graduate courses (numbered 100 and upwards) are indicated in parentheses following the titles of these courses. Courses of the intermediate groups "for graduates and advanced undergraduates" generally are evaluated for graduate credit as follows: (a) courses open only to students having at least senior standing, 1 unit for a 4-hour or a 5-hour course, ½ unit for a 1-hour, 2-hour, or 3-hour course; (b) courses open to juniors, ½ unit for a 4-hour or 5-hour course, ¼ unit for a 1-hour, 2-hour, or 3-hour course.

Buildings

University buildings are designated by the following abbreviations:

Administration Building (East)	Adm.(E)
Agriculture Building (Old)	Agr.
Agricultural Engineering Building	Agr.Eng.
Animal Pathology Laboratory	An.Path.L.
Architecture Building	Arch.
Armory	Arm.
Ceramics Building	Cer.
Chemistry Annex	Chem.A.
Chemistry Building	Chem.
Civil Engineering Surveying Building	C.E.S.B.
Commerce Building	Com.
Dairy Manufactures Building	D.Mfrs.
Electrical Engineering Annex	E.E.A.
Electrical Engineering Laboratory	E.E.L.
Engineering Hall	E.H.
Entomology Building	Entom.
Experimental Zoology Laboratory	Exp.Zool.Lab.
Floriculture Greenhouses	F.G.
Genetics Building	Gen.Bldg.
Gymnasium Annex	Gym.A.
Highway Laboratory	H.L.
Horticultural Field Laboratory	H.F.L.
Law Building	Law
Library	Lib.
Lincoln Hall	L.H.
Materials Testing Laboratory	M.T.L.
Mathematics Building	Math.
Mechanical Engineering Laboratory	M.E.L.
Men's New Gymnasium	New Gym.
Men's Old Gymnasium	Old Gym.
Mining Engineering Laboratory	Min.L.
Natural History Building	N.H.
New Agriculture Building	New Agr.
Physics Laboratory	P.L.
Smith Memorial Music Hall	S.M.H.
Stock Judging Pavilion	S.P.
Transportation Building	T.B.
University Hall	U.H.
University High School	U.H.S.
Vegetable Greenhouse	V.G.
Woman's Building	W.B.
Woman's Gymnasium	W.Gym.

TIME TABLE FOR COURSES OF INSTRUCTION SECOND SEMESTER, 1934-1935

AGRICULTURAL COLLEGE ADMINISTRATION

Course for Undergraduates

Agr. Coll. Adm. 6. Agricultural Extension.—*Prerequisite:* Junior standing. (2). 10 TT; 118 New Agr. Associate Professor HUDELSON and others.

AGRICULTURAL ECONOMICS

Courses for Undergraduates

Agr. Econ. 1. Introductory Agricultural Economics.—

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	3	W	103 New Agr.	ROSS
	Disc. A	3	MF	313 New Agr.	JORDAN
	Disc. B	10	MW	313 New Agr.	
	Disc. C	2	TT	313 New Agr.	

Agr. Econ. 20. Farm Management.—*Prerequisite:* Sophomore standing. Local field trips will be arranged; estimated cost, $3.

3	Lect. and Disc.	10	TT	316 New Agr.	CASE
	S Lab.	1–3	Th	331 New Agr.	WILLS
	T Lab.	1–3	F	331 New Agr.	ACKERMAN

Agr. Econ. 40. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange.

(b) **Agricultural Marketing.**—Members of the department.
(d) **Agricultural Prices and Statistics.**—Members of the department.
(f) **Farm Management.**—Professor CASE.
(h) **Land Economics.**—Associate Professor STEWART.

Courses for Advanced Undergraduates and Graduates

Agr. Econ. 14. Cooperation in Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing. (2). 11 TT; 313 New Agr. Assistant Professor BARTLETT.

Agr. Econ. 15. Financing Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 11 MWF; 118 New Agr. Dr. JORDAN.

Agr. Econ. 18. Land Economics.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 9 MWF; 118 New Agr. Associate Professor STEWART.

Agr. Econ. 23. Farm Business Analysis.—*Prerequisite:* Agr. Econ. 20 and Accountancy 1a. Lectures and quiz. Local field trips will be arranged; estimated cost, $5. (3). 1 MWF; 316 New Agr. Mr. WILLS.

Agr. Econ. 25. Farm Organization.—*Prerequisite:* Agr. Econ. 20. Local field trips will be arranged; estimated cost, $5. (3). 2 MWF; 310 New Agr. Professor CASE, Mr. ACKERMAN.

Agr. Econ. 34. Marketing Dairy Products.—*Prerequisite:* Junior standing. (2). Arrange; D. Mfrs. Assistant Professor BARTLETT and others. (Inspection trip requirement waived for 1934-35).

Agr. Econ. 37. Marketing Live Stock.—*Prerequisite:* Senior standing; An. Husb. 3. *Prerequisite or concurrent:* An. Husb. 6. (2). 9 TT; 316 New Agr. Associate Professor ASHBY. (Inspection trip requirement waived for 1934-35).

Agr. Econ. 41. Problems in Agricultural Economics.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Arrange.

(a) **Agricultural Marketing.**—Members of the department.
(b) **Agricultural Prices and Statistics.**—Members of the department.
(c) **Farm Management.**—Professor CASE.
(d) **Land Economics.**—Associate Professor STEWART.

Agr. Econ. 42. Farm Appraisals.—Valuation of farm real estate and other agricultural property. Factors studied include soils, crops, farm management, buildings, drainage, livestock, fruit, land titles, prices and taxes in relation to value. *Prerequisites:* Agron. 28, Agr. Econ. 20, or their equivalents; approval of Dean as supervisor. Local field trips to be arranged; estimated cost, $5. (5). 8 MWF, 8-12 S; 116 New Agr. Members of departments involved.

Courses for Graduates

Agr. Econ. 109. Seminar. Thesis Course.—All graduate students majoring in Agricultural Economics must register in Agr. Econ. 109, but only those students writing theses acceptable for the degree of Master of Science will be given credit. (1 to 2 units).* Once a week. Arrange. Members of the department.

Agr. Econ. 110. Theory of Agricultural Economics.—(1 unit). Arrange. Associate Professor STEWART.

Agr. Econ. 111. Agricultural Prices and Statistics.—(1 unit). Arrange. Assistant Professor BARTLETT.

Agr. Econ. 112. Agricultural Economics Research.—Only those who write acceptable reports of successful investigation will receive credit. (1 to 2 units).* Arrange. Members of the department.

Agr. Econ. 120. Farm Management Principles and Investigational Methods.—(1 unit). Twice a week. Arrange. Professor CASE.

Agr. Econ. 135. Marketing Fruits and Vegetables.—(1 to 2 units).* Arrange. Professor LLOYD.

AGRICULTURAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $8.

Courses for Undergraduates

Agr. Eng. 1. Introduction to Agricultural Engineering.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	8	WF	201 Agr. Eng.	YOUNG
	B Quiz	9	W		
[1]Seniors will receive only 2 hours credit.	J Quiz	8	Tu		
	S Quiz	9	F		
	A Lab.	8–10	M		
	J Lab.	8–10	Th		
	N Lab.	1–3	Th		

Agr. Eng. 3. Gas Engines and Tractors.—*Prerequisite:* Agr. Eng. 1. (Inspection trip requirement waived for 1934-35).

3	Lect.	11	TT	201 Agr. Eng.	SHAWL
	K Quiz	9	Tu		
	O Quiz	2	Th		
	O Lab.	2–4	Tu		
	K Lab.	9–11	S		

Agr. Eng. 4. Farm Buildings.—*Prerequisite:* Agr. Eng. 1 or consent of instructor. (3). 1 MF; 202 Agr. Eng. Laboratory time to be arranged. Assistant Professor FOSTER.

Agr. Eng. 12. Farm Home Equipment.—*Prerequisite:* Agr. Eng. 1 or junior standing. (2). Lect., 1 Tu; Lab., 1-3 Th; 204 Agr. Eng. Professor LEHMANN.

Agr. Eng. 18b. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange. Professor LEHMANN, Assistant Professor SHAWL.

Agr. Eng. 21. Farm Shop Work.—*Prerequisite:* Agr. Eng. 1. (2). 3-5 MW; 201 Agr. Eng. Mr. YOUNG.

Courses for Advanced Undergraduates and Graduates

Agr. Eng. 17. Harvesting Machinery.—*Prerequisite:* Agr. Eng. 2. (3). Lect., 11 MW; Lab., 2-5 Tu; 201 Agr. Eng. Assistant Professor SHAWL.

Agr. Eng. 51. Special Power and Field Machinery.—*Prerequisite:* Agr. Eng. 17 or 28. Consult instructor before registering. (3). Arrange. Professor LEHMANN, Assistant Professor SHAWL.

AGRONOMY

Note: Certain courses in this department require laboratory fees varying from $2 to $4.

Courses for Undergraduates

Agron. 8. Forage Crops.—*Prerequisite:* Agron. 25.

3	Lect.	11	MW	205 Agr.	PIEPER
	Quiz	11	F	205 Agr.	

Agron. 18. Investigation with Thesis.—*Prerequisite:* Senior standing; not less than 20 hours pertinent to thesis problem; and the approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange.

Soils.—Professors BAUER, DETURK, R. S. SMITH; Associate Professor SEARS.
Crops.—Professors BURLISON, WOODWORTH; Associate Professor DUNGAN.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Agron. 25. Farm Crops.—*Prerequisite:* Bot. 5.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	3	MW	205 Agr.	PIEPER, DUNGAN, and VAN DOREN
	Lab.	1–3	Tu	600 Agr.	
	Quiz	3	F	205 Agr.	

Agron. 28. Soils.—*Prerequisite:* Chem. 5; Geol. 44. (Local field trip, cost not to exceed $1.)

5	Lect.	8	MWF	205 Agr.	WIMER and CRANE
	Quiz	8	TT	205 Agr.	
	A Lab.	1–4	Th	650 Agr.	
	C Lab.	8–11	S	650 Agr.	

Courses for Advanced Undergraduates and Graduates

Agron. 10. Genesis, Morphology, Classification, and Geography of Soils.—*Prerequisite:* Agron. 28, junior standing. (3). Lect., 1 MWF; 205 Agr. Professor R. S. SMITH.

Agron. 13. Soil Productivity, its Variation, Modification, and Maintenance.—*Prerequisite:* Agron. 28, senior standing. (3). 9 MWF; 553 Agr. Professor BAUER.

Agron. 22. Plant Genetics and Breeding.—*Prerequisite:* Zool. 15, junior standing. (3). Lect., 10 MWF; 553 Agr. Professor WOODWORTH, Dr. BONNETT.

Agron. 31. Biological Methods of Soil Investigations.—(Given in 1934-35 and alternate years). *Prerequisite:* Agron. 11, senior standing. (3). 8-10 MWF; 323 Agr. Associate Professor SEARS.

Agron. 35. Farm Appraisals.—(See Agricultural Economics 42.)

Courses for Graduates

Agron. 104. Seminar.—(¼ unit). Once a week. Arrange. Graduate staff.

Agron. 114. Principles Underlying the Production of Crops.—(1 unit). Twice a week. Arrange. Professor BURLISON, Associate Professor DUNGAN.

Agron. 118. Research.—(½ to 4 units).* Arrange.
Soils.—Professors BAUER, DETURK, R. S. SMITH.
Crops.—Professors BURLISON, WOODWORTH; Associate Professor DUNGAN.

Agron. 119. Experiment Station Problems.—(See Animal Husbandry 103.) Professor MUMFORD.

ANIMAL HUSBANDRY

Courses for Undergraduates

An. Husb. 1. Introduction to Animal Husbandry.—Required of students not having had livestock judging in high school. (No credit in this course allowed to juniors and seniors.) (2). 3-5 TT; S.P. Mr. CRAWFORD, Mr. GARRIGUS.

An. Husb. 6. Livestock Management.—*Prerequisite:* An. Husb. 21. (5). 10 MTWTF; S.P. Professor EDMONDS.

An. Husb. 9b-t. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem, and approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange.
(b) **Beef Cattle.**—Professor RUSK, Associate Professor SNAPP.
(d) **Horses.**—Professor EDMONDS.
(f) **Sheep.**—Assistant Professor KAMMLADE.
(h) **Swine.**—Professor CARROLL.
(k) **Poultry.**—Professor CARD.
(m) **Animal Nutrition.**—Professor MITCHELL.
(p) **Animal Genetics.**—Associate Professor ROBERTS.
(r) **Animal Pathology.**—Professor GRAHAM.
(t) **Meats.**—Associate Professor BULL.

An. Husb. 10. Farm Meats.—(3). 1-4 TT; 128 Agr. Associate Professor BULL.

An. Husb. 21. Principles of Feeding.—*Prerequisite:* Chem. 1 or 2.

3	Lect.	2	W	553 Agr.	BULL and others
	A Quiz	2	MF	553 Agr.	
	B Quiz	11	TT	553 Agr.	

An. Husb. 35. Animal Hygiene, Sanitation, Contagious Diseases of Farm Animals.—*Prerequisite:* An. Husb. 34; Bact. 5a. (2). 3 TT; An. Path. L. Professor GRAHAM.

An. Husb. 37. Poultry Management.—*Prerequisite:* An. Husb. 21. (3 or 4).* 9 MWF; Lab. 3-5 Th; 316 New Agr. Students may register for this course either with or without the laboratory. Professor CARD, Dr. SLOAN.

An. Husb. 42. Poultry Diseases.—*Prerequisite:* An. Husb. 37. (2). 3 M, 3-5 W; An. Path. L. Lectures and demonstrations on parasitic, bacterial, filterable virus, protozoan, fungus, and nutritional diseases of domestic fowl. Professor GRAHAM.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

An. Husb. 12. Special Problems.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Arrange. Members of the department.

An. Husb. 27. Sheep Husbandry.—*Prerequisite:* An. Husb. 6. (3). 11 MWF; 111 S.P. Assistant Professor KAMMLADE.

An. Husb. 28. History of Breeds of Live Stock.—*Prerequisite:* An. Husb. 3. It is recommended that this course precede An. Husb. 22. (3). 3 MWF; 316 New Agr. Heads of divisions.

An. Husb. 31. Advanced Course in Animal Nutrition.—*Prerequisite:* Senior standing, including An. Husb. 7. (3). Arrange. Professor MITCHELL.

An. Husb. 33. Horse Production.—*Prerequisite:* An. Husb. 3 and 6. (3). 1 MWF; S.P. Professor EDMONDS.

An. Husb. 39. Poultry Production.—*Prerequisite:* An. Husb. 37. (3). 8 MWF; 316 New Agr. Professor CARD.

An. Husb. 41. Animal Genetics.—*Prerequisite:* Zool. 15. (3). 2 MWF; Gen. Bldg. Associate Professor ROBERTS.

Courses for Graduates

An. Husb. 103. Experiment Station Problems.—Once a week. (½ unit). Arrange. Professor MUMFORD.

An. Husb. 112a-f. Research.—One to three times a week. (½ to 2 units).*

(a) **Economic Factors in Meat Production.**—Professor RUSK.
(b) **Systems of Live Stock Farming.**—Professor CASE.
(d) **Animal Nutrition.**—Professor MITCHELL.
(e) **Animal Genetics.**—Associate Professor ROBERTS.
(f) **Poultry Husbandry.**—Professor CARD.

These courses may be taken during the summer by special permission.

An. Husb. 117. Animal Genetics.—Two to five times a week. (1 unit). Associate Professor ROBERTS.

An. Husb. 118. Animal Nutrition Seminar.—Two hours a week. (½ unit). Professor MITCHELL.

An. Husb. 119. Laboratory Methods in Animal Nutrition.—Two to five times a week. (½ to 1 unit).* Laboratory fee, $5. Professor MITCHELL.

An. Husb. 120. Laboratory Methods in the Diagnosis of Animal Diseases.—Two to five times a week. (½ to 1 unit).* Professor GRAHAM.

An. Husb. 121. Laboratory Methods in Animal Genetics.—Two to five times a week. (½ to 1 unit).* Arrange. Associate Professor ROBERTS.

ARCHITECTURE

Courses for Undergraduates

Arch. 12. History of Architecture.—*Prerequisite:* Arch. 11. Not open to students expecting a degree in Architecture.

Credit	Section	Hours	Days	Room	Instructor
3	A	3	MWF	120 Arch.	

Arch. 14. History of Architecture.—*Prerequisite:* Arch. 13.

2	A	11	MW	120 Arch.	

Arch. 16. History of Architecture.—*Prerequisite:* Arch. 15.

2	A	11	TT	120 Arch.	

Arch. 18. History of Architecture.—*Prerequisite:* Arch. 17.

2	A	8	WF	120 Arch.	

Arch. 32a. Architectural Design.—*Prerequisite:* Arch. 31a.

3	Lect.	2	W	120 Arch.	
	A	1–4	TT	210 Arch.	
	B	8–11	MF	210 Arch.	
	C	8–11	TT	210 Arch.	

Arch. 33. Architectural Design.—*Prerequisite:* Arch. 32a.

3	(See Arch. 34 for sections.)				

Arch. 34. Architectural Design.—*Prerequisite:* Arch. 33.

3	A	1–4	MW	210 Arch.	
		8–11	S	210 Arch.	
	B	1–4	TT	210 Arch.	
		8–11	S	210 Arch.	
	C	1–4	WF	210 Arch.	
		8–11	S	210 Arch.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Arch. 35. Architectural Design.—*Prerequisite:* Arch. 34.

Credit	Section	Hours	Days	Room	Instructor
5	(See Arch. 36 for sections.)				

Arch. 36. Architectural Design.—*Prerequisite:* Arch. 35 and registration in Arch. 66.

5	A	9–12	M	200 Arch.
		1–4	MWF	200 Arch.
	B	1–4	TTF	200 Arch.
		9–12	F	200 Arch.

Arch. 37. Architectural Design.—*Prerequisite:* Arch. 36 and senior standing in Architecture.

7	A	8–11	S	200 Arch.
		1–4	MTWTF	200 Arch.

Arch. 38. Architectural Design.—*Prerequisite:* Arch. 37 and senior standing in Architecture.

7	A	8–11	S	200 Arch.
		1–4	MTWTF	200 Arch.

Arch. 44. Technology of Materials.—*Prerequisite:* Arch. 43.

3	Lect.	11	F	302 Arch.
	A	1–4	TT	310 Arch.
	B	8–11	TT	310 Arch.
	Lect.	11	W	302 Arch.
	C	1–4	MW	310 Arch.

Arch. 46. Graphic Statics.—*Prerequisite:* Arch. 45.

3	Lect.	9	Tu	302 Arch.
	A	9–12	WF	310 Arch.
	B	1–4	MW	310 Arch.
	Lect.	11	M	302 Arch.
	C	1–4	TT	310 Arch.

Arch. 48. Steel Construction.—*Prerequisite:* Arch. 47 and registration in Arch. 58.

5	C	9	TT	301 Arch.
		1–4	MWF	300 Arch.

Arch. 55. Building Sanitation.—*Prerequisite:* Physics 8a-8b; Arch. 44.

1	A	10	TT	301 Arch.

Arch. 56. Building Sanitation.—*Prerequisite:* Senior standing in Architecture.

2	A	10	MW	302 Arch.

Arch. 58. Reinforced Concrete Design.—*Prerequisite:* Arch. 57 and registration in Arch. 48.

3	C	10	F	301 Arch.
		1–4	TT	300 Arch.

Arch. 60. Reinforced Concrete.—*Prerequisite:* Senior standing in Architecture.

2	A	11	TT	302 Arch.

Arch. 66. Theory of Architecture.—*Prerequisite:* Arch. 65 and registration in Arch. 36.

1	A	9	Th	302 Arch.

Arch. 68. Specifications.—*Prerequisite:* Senior standing in Architecture.

3	A	11	MWF	301 Arch.

Arch. 72a. Architectural Design.—*Prerequisite:* Arch. 71a. Not open to students expecting a degree in Architecture.

3	A	1–4	TT	210 Arch.
		2	W	120 Arch.

Arch. 76. Masonry Construction Details.—*Prerequisite:* Arch. 75. Not open to students expecting a degree in Architecture.

2	A	1–4	TT	310 Arch.

Courses for Graduates

Arch. 101. Architectural Construction.—Theory and design. (½ to 2 units).* Professor PALMER.

Arch. 103. Architectural Construction.—Special problems. (½ to 2 units).* Associate Professor MORGAN.

Arch. 104. Architectural Design.—(1 to 3 units).* Professor DEAM.

Arch. 105. Architectural Practice.—(¼ to ½ unit).* Professor PROVINE.

Arch. 106. Architectural History.—(½ to 2 units).* Dean NEWCOMB.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

ART

Note: Certain courses in this department require laboratory fees varying from $1.25 to $3.75.

Courses for Undergraduates

Art 1a. Design.—

Credit	Section	Hours	Days	Room	Instructor
2	A	1–3	MW	342 L.H.	Anderson, Gougler

Art 1b. Design.—*Prerequisite:* Art 1a.

2	A	8–10	TT	342 L.H.	Gougler
	B	8–10	WF	342 L.H.	Anderson, Gougler
	C	10–12	TT	342 L.H.	Anderson, Gougler
	D	10–12	WF	342 L.H.	Anderson, Gougler

Art 2a-2b. Water Color.—*Prerequisite:* Art 25b.

2	A	1–4	TT	401a Arch.	Nearpass

Art 3a-3b. Water Color.—*Prerequisite:* Art 2b.

2	A	1–4	TT	401a Arch.	Nearpass

Art 4a-4b. Interior Design.—*Prerequisite:* Art 31a, and 2a or 1b concurrently.

2	A	1–3	TT	342 L.H.	Anderson

Art 10b. Course for Teachers.—*Prerequisite:* Art 31a.

3	Lect.	9	M	342 L.H.	Anderson
	Quiz	10–12	M	342 L.H.	

Art 12. History of Fine Arts.—*Prerequisite:* Sophomore standing.

2	A	10	MW	120 Arch.	Lake

Art 14. Art Appreciation.—*Prerequisite:* Art 12 or junior standing.

3	A	4	MWF	120 Arch.	Nicholson

Art 16. History of Modern Painting.—(Primarily for students in colleges other than Fine and Applied Arts). *Prerequisite:* Junior standing.

3	A	9	MWF	120 Arch.	Nicholson

Art 18. History of Medieval Art.—(Primarily for students in colleges other than Fine and Applied Arts). *Prerequisite:* Junior standing.

3	A	1	MWF	120 Arch.	Nicholson

Art 21a-21b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture).

2	A	8–11	W	410a Arch.	Woodroofe
		2–5	F	410a Arch.	
	B	9–12	TT	10 Arch.	Kennedy
	C	9–12	MF	410a Arch.	Hogan

Art 22a-22b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture). *Prerequisite:* Art 21b.

2	A	8–11	TT	Hall of Casts	Woodroofe
	B	1–4	MF	Hall of Casts	Hogan
	C	1–4	TT	410a Arch.	Kennedy

Art 23a-23b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture). *Prerequisite:* Art 22b.

2	A	1–4	TT	Hall of Casts	Woodroofe
	B	9–12	MW	410b Arch.	Kennedy

Art 24a-24b. Freehand Drawing.—(Primarily for students in Architecture). *Prerequisite:* Art 23b.

2	A	8–11	M	10 Arch.	Bailey
		9–12	W	10 Arch.	

Art 25a. Cast and Still Life Drawing.—

4	A	9–12	MWF	Hall of Casts	Donovan
	B	1–4	MWF	410b Arch.	Nearpass

Art 25b. Cast Drawing.—*Prerequisite:* Art 25a.

2	A	9–12	MW	Hall of Casts	Donovan
	B	1–4	MW	410b Arch.	Nearpass

Art 26b. Anatomy and Sketch.—*Prerequisite:* Art 26a.

2	A	9–12	S	10 Arch.	Hogan
	B	9–12	S	410b Arch.	Kennedy

Art 27a-27b. Life Drawing.—*Prerequisite:* Art 25b and 26b.

3	A	1–4	MWF	10 Arch.	Bailey

Art 28a-28b. Portrait.—*Prerequisite:* Art 25b and 26b.

2	A	9–12	TT	410b Arch.	Hogan

Art 29a-29b. Life Drawing.—*Prerequisite:* Art 27b.

Credit	Section	Hours	Days	Room	Instructor
3	A	1–4	MWF	403a Arch.	Bradbury

Art 30a-30b. Sketch.—*Prerequisite:* Art 27b.

1	A	9–12	M	403b Arch.	Bradbury

Art 31a. Composition and Design.—*Prerequisite:* Art 25a must precede or accompany this course.

2	A	10	TT	120 Arch.	Lake

Art 31b. Composition.—*Prerequisite:* Art 31a.

2	A	10	TT	302 Arch.	Nearpass

Art 32a-32b. Composition.—*Prerequisite:* Art 31b.

2	A	9	WF	403a Arch.	Nearpass

Art 33a-33b. Composition and Illustration.—*Prerequisite:* Art 32b.

2	A	10	WF	403a Arch.	Nearpass

Art 34a-34b. Composition (Mural).—*Prerequisite:* Art 33b.

3	A	9–12	F	403a Arch.	Nearpass

Art 35a-35b. Commercial Art.—*Prerequisite:* Art 27b and 31b.

2	A	8	TT	403a Arch.	Donovan
		9–12	S	310 Arch.	

Art 36a-36b. Commercial Art.—*Prerequisite:* Art 35b.

2	A	8	TT	403a Arch.	Donovan
		9–12	S	310 Arch.	

Art 41a-41b. Still Life.—*Prerequisite:* Art 25b.

2	A	1–4	TT	403 Arch.	Donovan

Art 42a-42b. Landscape.—*Prerequisite:* Art 41b.

2	A	1–4	TT	403 Arch.	Donovan

Art 43a-43b. Landscape.—*Prerequisite:* Art 42b.

2	A	1–4	TT	403 Arch.	Donovan

Art 44a-44b. Portrait.—*Prerequisite:* Art 28b.

2	A	9–12	TT	403a Arch.	Bradbury

Art 45a-45b. Portrait.—*Prerequisite:* Art 44b.

3	A	9–12	TTS	403b Arch.	Bradbury

Art 46a-46b. Sketch.—*Prerequisite:* Art 30b.

1	A	9–12	M	403b Arch.	Bradbury

Art 47a-47b. Life Painting.—*Prerequisite:* Art 29b.

3	A	1–4	MWF	403b Arch.	Bradbury

Art 50. Modeling.—*Prerequisite:* Art 25a or equivalent.

2	A (Arch.)	8–11	TT	20 Arch.	Bailey
	B (Art)	1–4	TT	20 Arch.	Lake
	C (Art)	1–4	WF	20 Arch.	Lake

Art 51a-51b. Modeling.—*Prerequisite:* Art 50.

2	A	1–4	TT	20 Arch.	Lake

Art 52a-52b. Modeling.—*Prerequisite:* Art 51b.

2	A	1–4	TT	20 Arch.	Lake

Art 90. Original Project.—*Prerequisite:* Senior standing in art. (2). Arrange.

ASTRONOMY

Course for Undergraduates

Astron. 2. Descriptive Astronomy.—Continuation of Astron. 1. The sun, stars, nebulae; the galactic system. *Prerequisite:* Astron. 1. (3). 11 MWF, 229 N.H.; one hour Wednesday evening, Observatory. Professor Baker.

Course for Advanced Undergraduates and Graduates

Astron. 7. Celestial Mechanics.—*Prerequisite:* Math. 9. (3). 11 TTS; Observatory. Professor Baker.

Course for Graduates

Astron. 101. Seminar.—(1 unit). 1 MWF; Observatory. Professor Baker.

BACTERIOLOGY

Note: Certain courses in this department require laboratory fees varying from $4 to $5.

Major: 20 hours chosen from the courses offered by this department. Dairy Husbandry 10 (advanced dairy bacteriology) may be offered in partial satisfaction of this requirement. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: agronomy, botany, chemistry, entomology, physiology, and zoology. At least eight hours must be offered in each subject if two are chosen.

Courses for Undergraduates

Bact. 5a. Introductory Bacteriology and Sanitary Science.—*Prerequisite:* Sophomore standing or consent of instructor.

Credit	Section	Hours	Days	Room	Instructor
3	Lecture	8	TT	100 Chem.	TANNER
	A Quiz	8	S	300 Chem.	LAFFER
	B Quiz	2	Tu	213 U.H.	CLARK
	C Quiz	3	Tu	303 Chem.	WALLACE
	D Quiz	2	Th	300 Chem.	WALLACE
	E Quiz	3	Th	300 Chem.	WALLACE
	F Quiz	2	W	300 Chem.	PARK
	G Quiz	3	W	303 Chem.	WALLACE

Bact. 5b. Introductory Bacteriology, Laboratory.—*Prerequisite:* Bact. 5a or concurrent registration in it.

2	Lab. A	1–3	MW	367 Chem.	WALLACE, PARK
	Lab. B	10–12	MW	367 Chem.	CLARK, LAFFER
	Lab. C	1–3	TT	367 Chem.	WALLACE, PARK
	Lab. D	10–12	TT	367 Chem.	CLARK, LAFFER

Bact. 7b. Research and Special Problems for Undergraduates.—*Prerequisite:* 10 hours of bacteriology or consent of instructor. (3 to 5).* Arrange. Professor TANNER, Assistant Professor WALLACE.

Courses for Advanced Undergraduates and Graduates

Bact. 8. Food and Applied Bacteriology.—*Prerequisite:* Bact. 5a and 5b; junior standing; consent of instructor.

5	Lect.	8	MW	229 N.H.	TANNER
	Lab.	8–10	TTS	367 Chem.	CLARK, PARK

Bact. 10. Epidemiology.—*Prerequisite:* Bact. 5a, or 20; junior standing; consent of instructor. (2). Lect., 11 TT; 204 Chem. Assistant Professor WALLACE.

Courses for Graduates

Bact. 107. Research.—(½ to 4 units).* Arrange. Professor TANNER.

Bact. 118b. Current Literature.—(Required of all graduate students who major in general bacteriology.) *Prerequisite:* 10 hours of bacteriology; consent of instructor. (¼ unit). 9 M; 366 Chem. Professor TANNER.

BOTANY

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

Major: 20 hours of botany exclusive of Bot. 1 and 5, and inclusive of Bot. 2 or 12, 3, and at least five hours in courses listed for advanced undergraduates and graduates.

Minors: 20 hours in one or two departments chosen in consultation with the head of the department from the following list: agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least eight hours must be offered in each department, if two are chosen.

Courses for Undergraduates

Bot. 1a. Introductory Botany (Cultural Course).—The relation of the plant world to the physical and animal worlds. The progressive development of the plant world and its evolutional significance; its part in the formation of soils, the production of food, and the maintenance of life. Lectures, demonstrational quiz, one or two field trips. Designed to accompany Bot. 1b, but may be elected without it.

3[1]	Lect.	9	TT	228 N.H.	HOTTES, BUCHHOLZ, VESTAL, FULLER, and others
	Discussion sections for students taking Bot. 1a only.				
[1]Seniors will receive only 2 hours credit.	Disc. 1	8	Tu	258 N.H.	
	Disc. 2	10	Tu	258 N.H.	
	Disc. 4	1	Tu	258 N.H.	
	Discussion sections for students taking both Bot. 1a and 1b.				
	Disc. 3	11	Tu	258 N.H.	
	Disc. 5	1	Tu	349 N.H.	
	Disc. 6	8	Th	258 N.H.	
	Disc. 7	10	Th	258 N.H.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Bot. 1b. Introductory Botany (Laboratory).—Morphology, physiology, and ecology of representative groups of the plant world. *Prerequisite:* Bot. 1a or concurrent registration therein.

Credit	Section	Hours	Days	Room	Instructor
2	A Lab.	8–10	MW	258 N.H.	HOTTES, BUCHHOLZ,
	B Lab.	10–12	MW	258 N.H.	VESTAL, FULLER,
	C Lab.	1–3	MW	258 N.H.	and others

Bot. 5. Botany for Students in Agriculture.—

3[1]	Lect.	9	Th	247 N.H.	HOTTES, BUCHHOLZ,
[1]Seniors will receive	A Lab.	10–12	TT	259 N.H.	VESTAL, FULLER,
only 2 hours credit.	B Lab.	1–3	TT	259 N.H.	and assistants

Bot. 6. Introductory Systematic Botany.—Classification and identification of flowering plants, with special reference to local flora, and needs of high school teachers. *Prerequisite:* Bot. 1 or 5.

3	Lect.	10	Th	229 N.H.	FULLER
	Lab.	10–12	Tu	350 N.H.	
		Other lab. hours to be arranged.			

Bot. 8. Forest Ecology.—*Prerequisite:* Bot. 1 or 5. (3). 1-3 TT and arrange 2 additional hours; 216 N.H. Associate Professor VESTAL.

Bot. 12. Morphology of Vascular Plants.—*Prerequisite:* Bot. 1 or 5. (3). 1-3 MWF; 204 Entom. Dr. HAGUE.

Bot. 13. Plant Physiology: Growth and response.—*Prerequisite:* Bot. 1 or 5.

3	Lect.	10	W	229 N.H.	FULLER and
	Lab.	10–12	MF	153 N.H.	assistant

Courses for Advanced Undergraduates

Bot. 14. Botany for Teachers.—*Prerequisite:* 15 hours of botany. (3). 11 TT and arrange additional hour; 216 N.H. Associate Professor VESTAL.

Bot. 90b. Thesis Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

Bot. 91b. Honors Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

Courses for Advanced Undergraduates and Graduates

Bot. 34. Physiology.—*Prerequisite:* One year of botany inclusive of Bot. 3, and junior standing. (3 or 5).* 1-3 MWF; 155 N.H. Professor HOTTES and assistant.

Bot. 41. Cryptogamic Botany: Algae, Fungi and Bryophytes. (Students registering for 5 hours will choose the additional work in algae, fungi or bryophytes respectively).—*Prerequisite:* Bot. 1 and junior standing. (3 or 5).* 10-12 MWF; 304 N.H. Dr. HAGUE, Dr. ALEXOPOULOS.

Bot. 44. Spermatophytes.—*Prerequisite:* One year of botany inclusive of Bot. 2b, and junior standing. (3 or 5).* 10-12 TTS; 201 Entom. Professor BUCHHOLZ.

Bot. 77. Taxonomy of Pathogenic Fungi.—*Prerequisite:* One year of botany inclusive of Bot. 7, and junior standing. (3 or 5).* Lect., 9 Tu; lab., 8 Tu, 8-10 Th, additional hour to be arranged; 304 N.H. Dr. ALEXOPOULOS.

Bot. 88. Ecology: Plant Communities and Environment.—*Prerequisite:* One year of botany inclusive of Bot. 8, and junior standing. (3 or 5).* 10-12 MWF; 216 N.H. Field study on two or three Saturdays. Associate Professor VESTAL.

Courses for Graduates

Bot. 110. Botanical Discussion.—No credit. Required of all graduate students in botany and members of the instructional staff. 4 Tu; 258 N.H.

Bot. 112. Discussions in Plant Morphology.—(¼ unit). 4 F; 205 Entom. Professor BUCHHOLZ.

Bot. 113. Discussions in Physiology.—(¼ unit). 4 Th; 155 N.H. Professor HOTTES.

Bot. 117. Discussions in Pathology and Mycology.—(¼ unit). 4 W; 304 N.H. Dr. ALEXOPOULOS.

Bot. 118. Discussions in Ecology.—(¼ unit). 4 M; 204 N.H. Associate Professor VESTAL.

Research Courses

Bot. 120. Morphology.—(½ to 2 units).* (Botany 112 to be taken concurrently.) One hour on either W or F, from 1 to 3, the rest arrange; 201 Entom. Professor BUCHHOLZ.

Bot. 130. Physiology.—(½ to 2 units).* (Botany 113 to be taken concurrently.) One hour on M, W, or F, from 1 to 3, the rest arrange; Botany Annex. Professor HOTTES.

Bot. 170. Pathology or Mycology.—(½ to 2 units).* (Offered for master's degree only.) (Botany 117 to be taken concurrently.) One hour on either M or W, from 2 to 4; the rest arrange; 304 N.H. Dr. ALEXOPOULOS.

Bot. 180. Plant Ecology or Geography.—(½ to 2 units).* (Botany 118 to be taken concurrently.) Conf. 1 M or 10 Tu, the rest arrange; 204 N.H. Associate Professor VESTAL.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

BUSINESS ORGANIZATION AND OPERATION

(Including Accountancy and Business Law)

A. ACCOUNTANCY

Courses for Undergraduates

Accy. 1a. Principles of Accounting.—Beginner's course. (Students who present one unit of bookkeeping for entrance will not be allowed credit in Accy. 1a and should register in Accy. 1e.)

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8	MWF	223 Com.	McMahan
[1]Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above.	B	9	MWF	223 Com.	McMahan
	K	9	TTS	328 Com.	Huegy
	C	10	MWF	115 Com.	Higginbotham
	L	10	TTS	329 Com.	Moyer
	D	11	MWF	119 Com.	Higginbotham
	M	11	TTS	329 Com.	Moyer
	E	1	MWF	115 Com.	McDonald
	F	2	MWF	115 Com.	McDonald

Accy. 1b. Accounting Procedure.—A continuation of Accy. 1a. (Credit is given for Accy. 1a without Accy. 1b). *Prerequisite:* Accy. 1a or 1e.

3	A1	8	MWF	126 Com.	Moyer
	A2	8	MWF	125 Com.	Hackett
	J1	8	TTS	223 Com.	McMahan
	J2	8	TTS	312 Com.	Lukas
	B1	9	MWF	126 Com.	Moyer
	B2	9	MWF	122 Com.	Baily
	K1	9	TTS	223 Com.	McMahan
	K2	9	TTS	312 Com.	Lukas
	C1	10	MWF	122 Com.	Baily
	C2	10	MWF	125 Com.	Hackett
	L	10	TTS	125 Com.	Hackett
	D1	11	MWF	329 Com.	Moyer
	D2	11	MWF	125 Com.	Hackett
	M	11	TTS	322 Com.	McMahan
	F	2	MWF	312 Com.	Lukas
	G	3	MWF	312 Com.	Lukas

Accy. 1e. Principles of Accounting.—Similar to Accy. 1a. (Students who have one unit entrance credit in bookkeeping must take this course rather than Accy. 1a.) *Prerequisite:* One unit of entrance credit in bookkeeping.

2[1]	J	8	TT	123 Com.	Karrenbrock
[1]Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above.	K	9	TT	123 Com.	Karrenbrock

Accy. 2a. Elementary Cost Accounting.—*Prerequisite:* Accy. 1b; registration or credit in Econ. 1.

3	A	8	MWF	113 Com.	Newcomer
	B	9	MWF	113 Com.	Newcomer
	C	10	MWF	305 Com.	Frese
	D	11	MWF	305 Com.	Frese

Accy. 2b. Intermediate Accounting.—*Prerequisite:* Accy. 2a.

3	A	8	MWF	123 Com.	Karrenbrock
	J	8	TTS	305 Com.	Frese
	B	9	MWF	119 Com.	Theiss
	K	9	TTS	305 Com.	Frese
	C	10	MWF	119 Com.	Theiss
	L	10	TTS	113 Com.	Newcomer
	M	11	TTS	113 Com.	Newcomer
	F	2	MWF	123 Com.	Karrenbrock
	G	3	MWF	123 Com.	Karrenbrock

Accy. 12. Fundamentals of Accounting.—A survey course or non-commerce students only. *Prerequisite:* Junior standing.

3	11	MWF	100 Com.	Schlatter

Accy. 90b. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis as part of the requirement. (2 to 4).* Arrange. Professor Littleton and others.

Accy. 91b. Independent Study.—Seniors registered in the College of Commerce who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this Department or sixteen semester hours if divided between this Department and any other department. This course may be elected by candidates for high honors in lieu of a thesis. (3 to 5).* Arrange. Professor Littleton and others.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Accy. 3a. Advanced Accounting.—*Prerequisite:* Accy. 2a-2b; Econ. 3; an average of "C" or better in Accy. 1 and 2.

Credit	Section	Hours	Days	Room	Instructor
3		8	MWF	111 Com.	LITTLETON

Accy. 3b. Auditing.—*Prerequisite:* Accy. 3a.

3	B	9	MWF	115 Com.	FILBEY
	D	11	MWF	115 Com.	FILBEY

Accy. 4a. Cost Accounting.—*Prerequisite:* Accy. 2a.

2	L	10	TT	219 Com.	SCHLATTER

Accy. 4b. Accounting Systems.—*Prerequisite:* Accy. 2a-2b; Econ. 3. (Credit is given for either 4a or 4b separately).

2	J	8	TT	122 Com.	BAILY
	K	9	TT	122 Com.	BAILY

Accy. 5b. C.P.A. Problems.—*Prerequisite:* Accy. 5a.

3	C	10	MWF	317 Com.	SCOVILL
	D	11	MWF	317 Com.	SCOVILL

Accy. 13. Governmental Accounting.—*Prerequisite:* Accy. 3a.

2		2	TT	125 Com.	HACKETT

Accy. 20. Income Tax Procedure.—*Prerequisite:* Senior standing; registration or credit in Accy. 3b.

2	L	10	TT	317 Com.	FILBEY
	M	11	TT	317 Com.	FILBEY

Accy. 30. Budgets and Accounting Control.—*Prerequisite:* Accy. 2b.

3		2	MWF	119 Com.	THEISS

Courses for Graduates

Accy. 103. Advanced Theory.—(1 unit). 3-5 Tu; 209 Com. Professor LITTLETON.

Accy. 104. Accounting Systems.—(1 unit). 3-5 Th; 209 Com. Professor SCOVILL.

Accy. 113. Governmental Accounting.—(1 unit). Arrange. Professor MOREY.

Accy. 129. Thesis.—(1 unit). 4-6 W; 420 Com. Professor LITTLETON and members of the staff.

B. BUSINESS ORGANIZATION AND OPERATION

Courses for Undergraduates

B.O.O. 1. Industrial Organization and Management.—*Prerequisite:* Econ. 1 or 2; 45 credit hours. Junior and senior engineering students admitted with consent of instructor.

3	A	8	MWF	307 Com.	MANDEVILLE
	J	8	TTS	224 Com.	BRAINARD
	B	9	MWF	307 Com.	MANDEVILLE
	K1	9	TTS	307 Com.	MANDEVILLE
	K2	9	TTS	224 Com.	BRAINARD
	L	10	TTS	307 Com.	MANDEVILLE
	C1	10	MWF	307 Com.	ANDERSON
	D	11	MWF	307 Com.	ANDERSON
	F1	2	MWF	328 Com.	HUEGY
	F2	2	MWF	307 Com.	ANDERSON
	G	3	MWF	328 Com.	HUEGY

B.O.O. 2. Marketing Organization and Operation.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	A	8	MWF	219 Com.	JONES
	B	9	MWF	322 Com.	WHITLO
	C	10	MWF	310 Com.	CONVERSE
	D	11	MWF	310 Com.	CONVERSE
	F	2	MWF	310 Com.	CONVERSE

B.O.O. 90b. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis as part of the requirement. (2 to 4).* Arrange. Professor RUSSELL and others.

B. O.O. 91b. Independent Study.—Seniors registered in the College of Commerce who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this Department or sixteen semester hours if divided between this Department and any other department. This course may be elected by candidates for high honors in lieu of a thesis. (3 to 5).* Arrange. Professor RUSSELL and others.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

B.O.O. 3. Retail and Chain Store Organization and Operation.—*Prerequisite:* B.O.O. 2.

Credit	Section	Hours	Days	Room	Instructor
3		11	MWF	122 Com.	WHITLO

B.O.O. 4. Management in Manufacturing.—*Prerequisite:* B.O.O. 1.

3		8	MWF	100 Com.	ANDERSON

B.O.O. 7. Salesmanship.—*Prerequisite:* B.O.O. 2.

2	B	9	MW	219 Com.	JONES
	N	1	TT	310 Com.	JONES
	O	2	TT	310 Com.	JONES

B.O.O. 8. Advertising.—*Prerequisite:* B.O.O. 2.

3	A	8	MWF	310 Com.	HESLIP
	B	9	MWF	310 Com.	HESLIP
	D	11	MWF	306 Com.	RUSSELL

B.O.O. 9. Trade Associations and Commercial Organizations.—*Prerequisite:* B.O.O. 2 and senior standing.

2		11	TT	219 Com.	BRUCE

B.O.O. 17. Problems in Sales Administration.—*Prerequisite:* B.O.O. 7.

2	L	9	TT	325 Com.	HESLIP

B.O.O. 18. Advertising Campaigns.—*Prerequisite:* B.O.O. 8.

3	A	8	MWF	306 Com.	RUSSELL
	B	9	MWF	306 Com.	RUSSELL

B.O.O. 20. Credits and Collections.—*Prerequisite:* B.O.O. 2 and junior standing.

3		10	MWF	329 Com.	HUEGY

B.O.O. 22. Marketing Policies and Problems.—*Prerequisite:* B.O.O. 2.

3		8	MWF	328 Com.	CONVERSE

Courses for Graduates

B.O.O. 102. Marketing Research and Policies.—(1 unit). Arrange. Professor CONVERSE.

B.O.O. 104. Scientific Management.—(1 unit). Arrange. Professor ANDERSON.

B.O.O. 107. Sales Campaigns.—(1 unit). Arrange. Professor RUSSELL.

B.O.O. 129. Thesis.—(1 unit). Arrange. Professor RUSSELL and members of the staff.

C. BUSINESS LAW

Courses for Undergraduates

Bus. Law 1a. General Principles of Business Law.—*Prerequisite:* 60 hours of university credit, including Accy. 1b and Econ. 1.

3	A	8	MWF	119 Com.	FRANKLIN
	B	9	MWF	224 Com.	ROBERTS
	J	8	TTS	119 Com.	FRANKLIN

Bus. Law 1b. General Principles of Business Law.—*Prerequisite:* Bus. Law 1a.

3	A	8	MWF	222 Com.	DILLAVOU
	B	9	MWF	106 Com.	CURTIS
	D	11	MWF	224 Com.	ROBERTS
	F	2	MWF	223 Com.	DILLAVOU
	K	9	TTS	106 Com.	CURTIS
	L	10	TTS	106 Com.	CURTIS

Bus. Law 2. Elementary Law of Business.—This course is offered exclusively for non-commerce students. *Prerequisite:* Junior standing.

3		10	MWF	106 Com.	CURTIS

Bus. Law 3. Law for Engineering Students.—*Prerequisite:* Junior standing in the College of Engineering or courses in Architecture.

3	A	8	MWF	224 Com.	ROBERTS
	F	2	MWF	224 Com.	ROBERTS

Course for Advanced Undergraduates and Graduates

Bus. Law 10. Law of Security Relations and Banking.—*Prerequisite:* Senior standing and registration or credit in Bus. Law 1b.

3	C	10	MWF	223 Com.	DILLAVOU
	D	11	MWF	223 Com.	DILLAVOU

D. BUSINESS ENGLISH

(See Rhetoric 10, 21 and 22 under English Department.)

CERAMIC ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2 to $7.50.

Courses for Undergraduates

Cer.E. 4. Ceramic Materials.—*Prerequisite:* Cer. 1.

Credit	Section	Hours	Days	Room	Instructor
3	A	9–12	MWF	113, 114 Cer.	
	B	1–4	MWF	113, 114 Cer.	

Cer.E. 8. Glass Technology.—*Prerequisite:* Chem. 40 and Cer. 14.

2		4	TT	218 Cer.

Cer.E. 10. Cements.—*Prerequisite:* Chem. 40 and registration in Cer. 28.

2		10	MW	214 Cer.

Cer.E. 11. Drying Clay Products.—*Prerequisite:* Physics 1a-1b, 3a-3b; Cer. 1.

3		11	MWF	218 Cer.

Cer.E. 14. Glasses and Glazes.—*Prerequisite:* Cer. 5 and registration in Chem. 40.

3	A and B	11	TT	218 Cer.
	A	8–11	TT	113, 114 Cer.
	B	1–4	TT	113, 114 Cer.

Cer.E. 20. Refractory Materials.—*Prerequisite:* Chem. 40.

2		9	MW	214 Cer.

Cer.E. 24. Ceramic Engineering Design.—*Prerequisite:* Cer. 23; T.A.M. 3.

3		2–5	MWF	214 Cer.

Cer.E. 28. Pyrochemical Problems.—*Prerequisite:* Cer. 14; Chem. 40.

2		3	TT	218 Cer.

Cer.E. 98. Thesis.—(3 to 5).* Arrange.

Courses for Graduates

Cer.E. 101. Chemistry of the Compounds of Silicon.—*Prerequisite:* Elementary courses in organic and physical chemistry. (1 unit). Arrange.

Cer.E. 102. General Technology of the Clay Industries.—*Prerequisite:* The elements of mineralogy and of physical chemistry. Lectures; seminar; laboratory. (1 or 2 units).* Arrange.

Cer.E. 104. Technology of Glass.—Lectures and laboratory. (1 or 2 units).* Arrange.

Cer.E. 105. Methods of Ceramic Research.—Lectures. (1 unit). Arrange.

Cer.E. 106. Research.—Arrange.

CHEMISTRY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $18.

Students in the curricula of chemistry and chemical engineering, majors in chemistry, and all others who desire a thorough training in the fundamentals of chemistry and their applications to modern life, should select courses from the following, and usually in the sequence given: Chemistry 1 or 2, 6, 10, 24, 34a, 36b, 37b, 40, 41, 42, 43, 50a, and courses in chemical engineering, sanitary chemistry, and miscellaneous groups. Students in engineering should register for Chemistry 3 or 2, 4, 24. Students who are compelled to meet chemical requirements briefly may register for the following sequence: Chemistry 1 or 2, 5, 24, 32, or 33.

Students who find it impossible to take more than one semester's work are requested to register in Chemistry 1 or 2 in the second semester rather than in the first.

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, 6, 7, 93a, and inclusive of courses in qualitative, quantitative, and organic chemistry. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from not more than two of the following: bacteriology, botany, entomology, geology, mathematics, philosophy, physiology, physics, psychology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in Chemistry 1, 2, 3, 4, 5, 6, and 7.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Undergraduates

Chem. 7. General Chemistry.—Not open to students who have earned credit in high school chemistry. This course may be applied toward the science group requirements. After completing Chem. 7, a student is permitted to register in Chem. 2; or by securing special permission he may register in Chem. 4, 5, or 6.

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	10	TT	112 Chem.A.	Audrieth
	70 Quiz	8	MW	210 Chem.A.	
[1]Seniors will receive 3 hours credit.	Lab.	8–10	TT	1 Chem.A.	
	71 Quiz	10	MW	103, 163 Chem.	
	Lab.	1–3	TT	1 Chem.A.	
	72 Quiz	11	TT	308 Chem.A., 103 Chem.	
	Lab.	10–12	MW	1 Chem.A.	

Chem. 2. Inorganic Chemistry.—(For all students who have had one year of high school chemistry.) *Prerequisite:* One unit of entrance credit in chemistry. Note: Students whose preparation in Chemistry is inadequate are advised to register for Chem. 1 or Chem. 3, rather than Chem. 2.

3[1]	Lect.	11	W	100 Chem.	Reed
	20 Quiz	3	MW	9 Chem.A.	
[1]Students who have received credit in Chem. 7 and seniors will receive only 2 hours credit in Chem. 2. Students below the rank of senior receive 5 hours credit, provided their high school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.	Lab.	3–5	F	212 Chem.A.	
	21 Quiz	8	TT	303 Chem.	
	Lab.	8–10	S	212 Chem.A.	
	22 Quiz	9	TT	300, 301 Chem.	
	Lab.	8–10	F	1 Chem.A.	
	23 Quiz	2	TT	8 Chem.A.	
	Lab.	3–5	Tu	212 Chem.A.	
	24 Quiz	10	MW	8 Chem.A., 204 Chem.	
	Lab.	10–12	Th	1 Chem.A.	
	25 Quiz	10	TT	204, 111 Chem.	
	Lab.	10–12	M	212 Chem.A.	
	26 Quiz	11	MF	301 Chem.	
	Lab.	3–5	W	212 Chem.A.	
	27 Quiz	11	TT	8 Chem.A.	
	Lab.	10–12	M	1 Chem.A.	

Chem. 4. Chemistry of the Metallic Elements.—(Limited to students in the engineering curricula.) *Prerequisite:* Chem. 1, 2, or 3.

4[1]	A Lect.	10	MF	100 Chem.	Copley
	B Lect.	11	MF	100 Chem.	Audrieth
[1]Seniors will receive only 3 hours credit.	90 Quiz	8	MW	9 Chem.A.	
	Lab.	1–3	MF	1 Chem.A.	
	91 Quiz	9	MW	103 Chem.	
	Lab.	1–3	TT	1 Chem.A.	
	92 Quiz	10	TT	103, 163 Chem.	
	Lab.	8–10	TT	1 Chem.A.	
	93 Quiz	9	TT	9 Chem.A.	
	Lab.	1–3	TT	1 Chem.A.	
	94 Quiz	11	TT	303 Chem.	
	Lab.	8–10	MW	1 Chem.A.	
	95 Quiz	8	TT	201 Chem.	
	Lab.	10–12	TT	1 Chem.A.	
	96 Quiz	11	MW	103, 204 Chem.	
	Lab.	1–3	MF	1 Chem.A.	
	97 Quiz	8	MW	8 Chem.A., 300 Chem.	
	Lab.	3–5	MF	1 Chem.A.	

Chem. 5. Inorganic Chemistry and Qualitative Analysis.—(Limited to students in the agricultural, home economics, and pre-medical curricula.) *Prerequisite:* Chem. 1, 2, or 3.

5[1]	C Lect.	9	TT	100 Chem.	Bailar
	D Lect.	11	TT	100 Chem.	Bailar
[1]Seniors will receive only 3 hours credit.	50 Quiz	2	MW	301 Chem.	
	Lab.	3–5	TT	201 Chem.A.	
		9–11	S	201 Chem.A.	
	51 Quiz	3	TT	8, 210 Chem.A.	
	Lab.	3–5	MWF	201 Chem.A.	
	52 Quiz	2	MW	8, 9 Chem.A.	
	Lab.	3–5	MWF	201 Chem.A.	
	53 Quiz	2	MW	201, 204 Chem.	
	Lab.	10–12	MWF	201 Chem.A.	
	54 Quiz	11	TT	116 Chem.	
	Lab.	1–3	MWF	201 Chem.A.	
	55 Quiz	1	TT	201, 204, 300 Chem.	
	Lab.	1–3	MWF	201 Chem.A.	
	56 Quiz	8	TT	204, 300, 301 Chem.	
	Lab.	8–10	MWF	201 Chem.A.	
	57 Quiz	9	MW	201 Chem., 9 Chem.A.	
	Lab.	10–12	MWF	201 Chem.A.	
	58 Quiz	9	MW	8, 210 Chem.A.	
	Lab.	1–4	TT	201 Chem.A.	
[2]Sections 55h and 56h are for home economics students only.	[2]55h Quiz	1	TT	116 Chem., 8 Chem.A.	
	Lab.	1–3	MWF	212 Chem.A.	
	[2]56h Quiz	8	TT	8, 9 Chem.A., 103 Chem.	
	Lab.	8–10	MWF	201, 212 Chem.A.	

Chem. 6. Inorganic Chemistry.—(General course for second-semester students.) *Prerequisite:* Chem. 1, 2, or 3.

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	10	TT	100 Chem.	REED
[1]Seniors will receive only 3 hours credit.	60 Quiz	10	MW	210 Chem.A.	
	Lab.	1–3	MWF	101 Chem.A.	
	61 Quiz	10	MW	9 Chem.A.	
	Lab.	2–5	TT	101 Chem.A.	
	62 Quiz	1	TT	210 Chem.A., 303 Chem.	
	Lab.	1–3	MWF	101 Chem.A.	
	63 Quiz	8	TT	210 Chem.A.	
[2]Sections 64 and 65 are for students in the curricula of chemistry and chemical engineering.	Lab.	8–10	MWF	101 Chem.A.	
	[2]64 Quiz	11	TT	210, 9 Chem.A., 201 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	[2]65 Quiz	9	TT	210, 308 Chem.A.	
	Lab.	8–10	MWF	101 Chem.A.	

Chem. 10. Qualitative Analysis.—(Required of students majoring in chemistry and of those registered in the curriculum of chemistry or of chemical engineering.) *Prerequisite:* Chem. 6.

5	Lect.	8	F	112 Chem.A.	REEDY
	Quiz	8	MW	111 Chem.	
	Lab.	1–4	MWF	310 Chem.A.	

Chem. 12b. Teachers' Course.—*Prerequisite:* 13 hours of chemistry and senior standing. Open to students who expect to teach. (3). 8 TT; 116 Chem.; practice teaching to be arranged. Dr. PARR.

Chem. 22. Elementary Quantitative Analysis.—*Prerequisite:* Chem. 4 or 5 (for all students who have not followed the sequence Chem. 1, 2 or 3, 6 and 10).

5	Lect.	11	M	112 Chem.A.	ENGLIS
	A Quiz	11	WF	111 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	11	WF	300 Chem.	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S	301 Chem.A.	

Chem. 24. Quantitative Analysis.—*Prerequisite:* Chem. 10.

5	Lect.	9	W	100 Chem.	CLARK
	A Quiz	9	MF	303, 111 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	9	MF	116, 204 Chem	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S	301 Chem.A.	
	C Quiz	9	MF	308 Chem.A.	
	Lab.	8–11	TTS	301 Chem.A.	
	D Quiz	9	MF	301 Chem.	
	Lab.	1–5:30	TT	301 Chem.A.	

Chem. 32. Elementary Organic Chemistry.—(Especially for students in agriculture.) *Prerequisite:* Chem. 5 or 10.

3	Lect.	8	TT	161 Chem.	FUSON and assistants
	Quiz	1	Tu	111, 161 Chem. 163 Chem.	
	Lab.	2–5	Tu	216 Chem.	

Chem. 33. Elementary Organic Chemistry.—(For students in home economics and pre-medical courses.) *Prerequisite:* Chem. 10 or 5.

5	Lect.	8	MW	100 Chem.	SHRINER
	Quiz	8	F	100, 111 Chem. 161, 163 Chem. 204, 300 Chem. 303, 301 Chem.	
Quiz section assignments will be made by the instructor after registration is complete.					
	A Conf.	8	Tu	217 Chem.	
	Lab.	9–11	Tu	250 Chem.	
		8–11	Th	250 Chem.	
[1]Section B is limited to 40 students.	[1]B Conf.	1	Tu	217 Chem.	
	Lab.	2–4	Tu	250 Chem.	
		1–4	Th	250 Chem.	
[2]Section C is limited to 48 students.	[2]C Conf.	1	M	217 Chem.	
	Lab.	2–4	M	218 Chem.	
		1–4	W	218 Chem.	

Chem. 90b. Thesis.—Each student who desires research must receive special permission both from the instructor under whom he is to work and from the head of the division in which the research is to be taken. Such written permission should be presented, at the time of registration, to the adviser for the chemists or chemical engineers. *Prerequisite:* Chem. 24, 34a, 40, 41, 42, and 43, or the consent of the head of the department. (3 to 5).* Professor ADAMS (in charge).

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 91b. Elements of Glass-blowing.—*Prerequisite:* Two years work in chemistry. (1). Arrange. Mr. Anders.

Courses for Advanced Undergraduates and Graduates

Chem. 27. Special Methods and Instruments in Quantitative Analysis.—*Prerequisite:* Chem. 24, 34a, and 40, 41 or registration in 40 and 41.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	11	Tu	111 Chem.	Smith
	A Lab.	1–4	TT	305 Chem.	
	B Lab.	1–4	F	305 Chem.	
		8–11	S	305 Chem.	

Chem. 29b. Food Analysis.—*Prerequisite:* Chem. 24 and 33 or 34a.

5	Lect.	9	TT	201 Chem.	Englis
	Quiz	1	M	301 Chem.	
	Lab.	2–4	M	305A Chem.	
		1–4	WF	305A Chem.	

Chem. 36b. Organic Chemistry.—(Second course). *Prerequisite:* Chem. 34a. (3). 9 MWF; 217 Chem. Professor Marvel.

Chem. 37b. Organic Chemistry.—(Laboratory). (Second course). To accompany Chem. 36b. *Prerequisite:* Chem. 34a, and 36b or registration in 36b.

2	A Conf.	1	W	217 Chem.	Fuson
	A Lab.	1–4	M	250 Chem.	
		2–4	W	250 Chem.	
	B Conf.	1	Th	217 Chem.	
(Section B is limited to 48 students.)	B Lab.	1–4	Tu	218 Chem.	
		2–4	Th	218 Chem.	

Chem. 40. Elementary Physical Chemistry.—*Prerequisite:* Chem. 24; Physics 1a-1b or 7a-7b; Math. 7 or 8. (3). 10 MWF; 112 Chem.A. Professor Rodebush.

Chem. 41. Elementary Physical Chemistry.—(Laboratory). To accompany Chem. 40.

1	A Lab.	1–4	Tu	124 Chem.	Phipps and assistants
	B Lab.	1–4	Th	124 Chem.	
	C Lab.	1–4	F	124 Chem.	

Chem. 42. Elementary Physical Chemistry.—*Prerequisite:* Chem. 40. (3). 8 TTS; 112 Chem.A. Associate Professor Phipps.

Chem. 43. Elementary Physical Chemistry.—(Laboratory). *Prerequisite:* Chem. 40, 41, and registration in 42.

1	A Lab.	1–4	M	124 Chem.	Phipps and assistants
	B Lab.	1–4	Tu	124 Chem.	
	C Lab.	1–4	W	124 Chem.	
	D Lab.	1–4	Th	124 Chem.	
	E Lab.	1–4	F	124 Chem.	

Chem. 44b. Advanced Physical Chemistry.—*Prerequisite:* Chem. 40, 41. (2). 10 TT; 116 Chem. Professor Rodebush.

Chem. 49b. Chemistry of Colloids.—*Prerequisite:* Chem. 24 and 40 or consent of the instructor. (3). 10 MWF; 111 Chem. Professor Buswell and assistant.

Chem. 51b. Problems of Metabolism.—*Prerequisite:* Chem. 50a.

3	Lect.	11	M	111 Chem.	Carter and assistants
	Lab.	1–4	TT	450 Chem.	

Chem. 61b. Principles of Chemical Engineering.—*Prerequisite:* Chem. 42.

4	Lect.	9	MWF	161 Chem.	Krase
	A Lab.	1–6	M	50 Chem.	Kistler
	B Lab.	1–6	Tu	50 Chem.	Kistler
	C Lab.	1–6	W	50 Chem.	Kistler
	D Lab.	1–6	Th	50 Chem.	Kistler

Chem. 62b. Economics of Chemical Engineering.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (2). Lect., 10 MW; 161 Chem. Professor Keyes.

Chem. 63b. Fuels and Their Combustion.—*Prerequisite:* Junior standing. (3). Lect., 10 MWF; 116 Chem. Mr. Howard.

Chem. 64b. High Pressure Reactions.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (2). 10 TT; 161 Chem. Associate Professor Krase.

Chem. 65b. Chemical Engineering Calculations.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (3). Lect., 11 MWF; 163 Chem. Assistant Professor Kistler.

Chem. 74b. Metallurgy and Metallography.—*Prerequisite:* Chem. 24.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	11	TT	161 Chem.	HOWARD
	A Lab.	1–6	W	53 Chem.	
	B Lab.	1–6	Th	53 Chem.	

Chem. 92b. Chemical Literature and Reference Work.—(Required of juniors in chemistry; advised for juniors who are majoring in chemistry and for students in the curriculum of chemical engineering.) *Prerequisite:* 18 hours of chemistry; one year of French or German; junior standing.

1	A	10	Th	201 Chem.	BARTOW
[1]Section C is for students who have not had previous work in this field.	B	8	F	201 Chem.	
	[1]C	10	Tu	201 Chem.	

This section will not be given unless there are 20 registrants.

Courses for Graduates

Graduate students whose major subject is in some department other than chemistry must have had the equivalent of 15 university credits in chemistry, and the ground covered should include satisfactory work in general chemistry and in qualitative and quantitative analysis and elementary organic chemistry. Such students are advised to make selections from the following courses: Chemistry 40, 41, 42, 43, 27, 34a, 36b and 37b, 50a, 15a, and 97b. Courses of a more special nature will not as a rule be accepted for graduate work unless preceded by one of the courses above. Graduate students who are candidates for an advanced degree in chemistry must have had the equivalent of 25 university credits in chemistry, properly distributed.

Graduate students whose major subject is in some department other than chemistry and who intend to take a first minor in chemistry or any branch of chemistry toward the Ph.D. degree must include among the courses taken Chemistry 40 and 41, or must have had the equivalent.

Graduate students who are candidates for the A.M. or M.S. degree in chemistry must include in the courses taken Chemistry 40 and 41, or must have had the equivalent. Graduate students who are candidates for the Ph.D. degree in any branch of chemistry must include among their courses Chemistry 40, 41, 42, and 43, or must have had the equivalent. Those courses (with the exception of Chemistry 12b) listed under the heading "Advanced Undergraduate and Graduate Courses" may be all counted toward advanced degrees in chemistry.

Chem. 101b. Inorganic Chemistry.—The less familiar elements and their relationship in the periodic system. (½ unit). (For laboratory work see Chem. 102b.) 8 MW; 303 Chem. Dr. QUILL.

Chem. 102b. Inorganic Chemistry.—Inorganic preparations and qualitative analysis of the less familiar elements. (Laboratory work to accompany or follow Chem. 101b.) Arrange. (¼ to ¾ unit).* Dr. QUILL.

Chem. 105b. Inorganic Seminar and Special Topics.—(¼ to 1 unit).* Seminar, 11 S; 162 Chem. Special topic: The influence of atomic radii and atomic volumes on chemical properties. (Dr. QUILL). 9 TT; 161 Chem. Professor HOPKINS.

Chem. 124b. Quantitative Analysis.—A modern survey of advanced principles, calculations, experimental methods, and applications. (½ unit). Lectures, 11 MF; 116 Chem. Associate Professor REEDY.

Chem. 124d. Quantitative Analysis.—(Laboratory work, optional, to accompany Chem. 124b.) (¼ to ¾ unit).* Arrange; 260 Chem. Assistant Professor SMITH.

Chem. 125b. Quantitative Analysis.—(Seminar). Required of all students taking a major or minor in analytical chemistry. (¼ to 1 unit).* 4 Th; 162 Chem. Additional meetings arrange. Professor CLARK.

Chem. 127b. Modern Applications of X-rays to Chemical and Industrial Problems.—(½ unit). Lectures, 10 TT; 217 Chem. Professor CLARK.

Chem. 127d. Modern Applications of X-rays to Chemical and Industrial Problems.—(Laboratory work, optional, to accompany Chem. 127b.) (¼ to ½ unit).* Arrange; 308 Chem. Professor CLARK.

Chem. 133b. Organic Chemistry.—(¾ unit). 11 TT; 217 Chem. Professor ADAMS.

Chem. 134. Organic Chemistry.—Chiefly laboratory work. (½ to 1 unit).* Arrange; 219 Chem. Professor MARVEL.

Chem. 135b. Organic Chemistry.—(Seminar). (¼ unit). 11 W; 217 Chem. Professor ADAMS.

Chem. 145b. Physical Chemistry.—(Seminar). (¾ unit). 10-12 S; 176 Chem. Professor RODEBUSH

Chem. 150b. Physiological Chemistry.—(¾ unit). 9 TT; 111 Chem. Professor ROSE.

Chem. 152b. Physiological Chemistry.—(½ to 1 unit).* Chiefly laboratory work. Arrange; 467b Chem. Professor ROSE.

Chem. 155b. Physiological Chemistry.—(Seminar). Required of all students majoring in physiological chemistry. (¾ unit). 9-11 F; 456 Chem. Professor ROSE.

Chem. 160b. Chemical Engineering.—*Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 1 MW; 162 Chem. Professor KEYES.

Chem. 161b. Chemical Plant Design.—*Prerequisite:* Chem. 61a and 61b. (½ unit). 9 TT; 162 Chem. Associate Professor KRASE.

Chem. 186b. Sanitary Chemistry.—(½ to 1¼ units).* Arrange; 60b Chem. Professor BUSWELL.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 190b. Research.—Work may be taken in the following subjects:

Physical and Electrochemistry.—Professor RODEBUSH, Associate Professor PHIPPS, Dr. COPLEY.

Inorganic Chemistry.—Professor HOPKINS, Associate Professor REEDY, Dr. BAILAR, Dr. AUDRIETH, Dr. QUILL, Dr. COPLEY.

Analytical Chemistry.—Professor CLARK, Associate Professor REEDY, Assistant Professors ENGLIS, SMITH.

Food and Phyto-Chemistry.—Assistant Professor ENGLIS.

Applied X-rays.—Professor CLARK.

Organic Chemistry.—Professors ADAMS, MARVEL, FUSON; Associate Professor SHRINER, Dr. BAILAR.

Sanitary Chemistry.—Professor BUSWELL.

Physiological Chemistry.—Professor ROSE.

Chemical Engineering.—Professor KEYES, Associate Professor KRASE, Assistant Professor KISTLER.

Ceramic Chemistry.—Professor PARMELEE.

Zymochemistry.—Professor BUSWELL.

CIVIL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $2.50

Courses for Undergraduates

C.E. 1. Plane Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

Credit	Section	Hours	Days	Room	Instructor
3	E	10–12	MWF	C.E.S.B.	WALKER

C.E. 2. Topographic Surveying.—*Prerequisite:* C.E. 1.

3	E	8–10	MF	C.E.S.B.	CROSSMAN
		1–5	Tu		
	F	10–12	TT	C.E.S.B.	DELL
		8–12	W		
	G	10–12	MF	C.E.S.B.	DELL
		1–5	Th		

C.E. 3. Railway and Highway Surveying.—*Prerequisite:* C.E. 2, 15, or 18.

4	E	8	TT	205 E.H.	VAWTER
		1–4	MF	419 E.H.	
	F	2–4	MTTF	419 E.H.	PICKELS
	G	11	TT	C.E.S.B.	RAYNER
		8–11	MF		

C.E. 15. General Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

3	E	8–11	TT	C.E.S.B.	WALKER

C.E. 16. Elementary Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

2	E	1–3	TT	C.E.S.B.	RAYNER
	F	2–4	WF	C.E.S.B.	NIELSEN

C.E. 18. Surveying for Landscape Architects.—*Prerequisite:* C.E. 17.

3	E	1–3	MWF	C.E.S.B.	RAYNER

C.E. 19. Construction Surveying.—*Prerequisite:* C.E. 3, Math. 7.

3		Arrange		C.E.S.B.	RAYNER

C.E. 20a. Highway Construction.—*Prerequisite:* C.E. 2, 15, or 18, or consent of instructor.

3	E	11	MWF	112 M.T.L.	BAUER

C.E. 23. Highway Administration.—*Prerequisite:* C.E. 20a or 21, or consent of instructor.

3	E	11	MWF	102 E.H.	WILEY

[1]C.E. 28. Regional Design.—*Prerequisite:* C.E. 20, 21, and senior standing.

3	E	10	MF	102 E.H.	WILEY
		1–4	Th	214 E.H.	LENDRUM

C.E. 29. Municipal Transportation.—*Prerequisite:* Junior standing.

3	E	8	MWF	102 E.H.	WILEY, KING, TUTHILL

[1]C.E. 31. Advanced Highway Materials.—*Prerequisite:* C.E. 30a and 35.

2	E	10	W	112 M.T.L.	BAUER
		1–4	Th	112 M.T.L.	

[1]Students desiring to take both C.E. 28 and 31 may arrange other laboratory hours in C.E. 31 than those shown.

C.E. 35. Plain Concrete.—*Prerequisite:* Sophomore standing in engineering or architecture.

Credit	Section	Hours	Days	Room	Instructor
2	E	1	M	112 M.T.L.	Bauer
		1–4	W	112 M.T.L.	
	F	10	F	112 M.T.L.	Bauer
		1–4	Tu	112 M.T.L.	
	G	9	Tu	112 M.T.L.	Bauer
		9–12	Th	112 M.T.L.	

C.E. 40. Water Supply.—*Prerequisite:* T.A.M. 3 and 4.

4	E	11	MWF	208 E.H.	Doland
		1–4	Tu	309 E.H.	

C.E. 41. Sewerage.—*Prerequisite:* C.E. 40.

3	E	10	TT	208 E.H.	Babbitt
		1–4	Tu	211, 214 E.H.	
	F	11	TT	208 E.H.	
		1–4	Tu	211, 214 E.H.	

C.E. 43. Sewage Treatment.—*Prerequisite:* Registration or credit in C.E. 41 and 42.

4	E	9–11	MWF	208 E.H.	Babbitt

C.E. 51. Drainage and Flood Control.—*Prerequisite:* C.E. 50.

3	E	10	MWF	207 E.H.	Pickels

C.E. 55. Water Power.—*Prerequisite:* T.A.M. 4 and 64.

3	E	9	MWF	102 E.H.	Doland

C.E. 60. Bridge and Building Construction.—*Prerequisite:* Sophomore standing in engineering or architecture.

3	E	10	MWF	101 E.H.	Doland

C.E. 61. Structural Stresses.—*Prerequisite:* Registration or credit in T.A.M. 3.

4	E	10	MWF	400 E.H.	Vawter
		1–4	Tu	407 E.H.	

C.E. 62. Elementary Structural Design.—*Prerequisite:* Registration or credit in C.E. 61.

3	E	8–10	MWF	405, 419 E.H.	Vawter
	F	8–10	MWF	407 E.H.	Oliver
	G	1–3	MWF	407 E.H.	Dell

C.E. 63. Theory of Reinforced Concrete.—*Prerequisite:* T.A.M. 3 and registration or credit in C.E. 61.

2	E	11	TT	405 E.H.	Shedd
	F	9	TT	407 E.H.	Oliver
	G	10	TT	405 E.H.	Shedd

C.E. 64. Structural Design.—*Prerequisite:* C.E. 62 and 63.

4	E	9	TT	405 E.H.	Shedd
		1–4	MF	211 E.H.	

C.E. 65. Structural Design.—*Prerequisite:* C.E. 64.

5	E	8	TT	405 E.H.	Shedd
		1–4	MWF	211 E.H.	
	F	8	TT	400 E.H.	Stubbs
		1–4	MWF	214 E.H.	
	G	8	TT	407 E.H.	Oliver
		1–4	MWF	309 E.H.	

C.E. 66. Masonry Construction.—*Prerequisite:* C.E. 61 and 63.

3	E	8	MWF	101 E.H.	Huntington
	F	9	MWF	101 E.H.	Huntington

C.E. 68. Indeterminate Structures.—*Prerequisite:* C.E. 67.

3	E	10	MWF	205 E.H.	Cross

C.E. 87. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 86.

4	E	10	MW	408 E.H.	Stubbs
		8–10	MWF		

C.E. 90. Contracts and Specifications.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	11	TT	101 E.H.	Pickels

C.E. 91. Estimates and Costs.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	9	TT	400 E.H.	Stubbs

C.E. 98. Thesis.—*Prerequisite:* High standing and approval of head of the department. Arrange.

Courses for Graduates

C.E. 102. Sewerage.—(1 unit). 8 TT; 204 E.H. Professor Babbitt.

C.E. 104. Municipal Engineering.—(1 unit). 11 TT; 102 E.H. Professor Wiley.

C.E. 108. Bridge Design.—(1 unit). 4 TuF; 305 E.H. Professor Cross.

C.E. 110. Sewage and Waste Disposal.—(1 unit). 8 WF; 204 E.H. Professor BABBITT.

C.E. 113. Foundations.—(½ unit). 11 W; 207 E.H. Professor HUNTINGTON.

C.E. 131. Water Power.—(1 unit). 1-3 Th. Professor DOLAND.

C.E. 140. Research.—(1 to 3 units).* Arrange.

C.E. 198. Thesis.—(1 to 2 units).* Arrange.

CLASSICS

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, and 17.

Minors: 20 hours chosen from not more than two of the following: foreign language (Latin being especially recommended), English literature, history, and philosophy. At least eight hours must be taken in each subject, if two are chosen.

Latin

Major: 20 hours, excluding Latin 1a-1b, 6, 13, and 20, and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours chosen from not more than two of the following: foreign language (Greek being especially recommended), English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17 and Latin 1a-1b, 6, 9, 13, 20. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours chosen from not more than two of the following: foreign language, English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

A. GREEK

Courses for Undergraduates

Greek 1b. Elementary Greek (continuation of 1a).—(4). 11 TWTF; 120 L.H. Associate Professor PERRY.

Greek 4. Homer.—Selections from the Iliad. *Prerequisite:* Greek 3 or an equivalent. (3). 8 MWF; 124 L.H. Associate Professor PERRY.

Greek 15. Greek Athletics.—*Prerequisite:* Sophomore standing. (2). 11 TT; 202 L.H. Dr. RAPP.

Greek 17. Greek Drama in English Translation.—*Prerequisite:* Presupposes no knowledge of Greek and is open to all students except freshmen. (2). 2 TT; 120 L.H. Associate Professor PERRY.

Course for Advanced Undergraduates and Graduates

Greek 7. Greek Drama; Tragedy and Comedy.—*Prerequisite:* Greek 4 and 5. (3). Arrange; 114 L.H. Mr. JOHNSTON.

Courses for Graduates

Note: Preparation for graduate work in Greek must include at least two years of preparatory Greek, two years of college Greek, and two years of college Latin.

Greek 104. Homer.—(1 unit). Twice a week. Arrange. Professor OLDFATHER.

Greek 110b. See Latin 110b.

B. LATIN

Courses for Undergraduates

Latin 1b. Vergil.—*Prerequisite:* Three entrance units in Latin or Latin 6. (4). 2 TWTF; 114 L.H. Mr. STONE.

Latin 4. Horace and Vergil.—*Prerequisite:* Latin 12a-12b or an equivalent. (3). 10 MWF; 120 L.H. Mr. JOHNSTON.

Latin 5b. Latin Composition.—*Prerequisite:* Three entrance units in Latin or Latin 6. Required to secure the department's recommendation to teach. (1). 4 Th; 120 L.H. Mr. JOHNSTON.

Latin 9. Teachers' Course.—*Prerequisite:* 14 hours of Latin acceptable for a major. Required to secure the department's recommendation to teach. (2). 11 TT; 114 L.H. Professor CANTER.

Latin 12b. Sallust and Cicero (De Senectute).—*Prerequisite:* Four entrance units in Latin or Latin 1a-1b. (4). 9 TWTF; 120 L.H. Professor CANTER.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Latin 30b. Honors Course.—Thesis or a special course of study approved by the department. *Prerequisite:* Senior standing; 14 hours of Latin acceptable for a major. (2). Arrange. Professor CANTER.

ROMAN LIFE AND HISTORY: ROMAN ARCHAEOLOGY

Latin 13. Roman Life.—*Prerequisite:* Sophomore standing. Knowledge of Latin not required. (1). 3 Th; 204 L.H. Dr. RAPP.

Courses for Advanced Undergraduates and Graduates

Latin 10. Latin Composition.—*Prerequisite:* 12 hours of Latin acceptable for a major, including Latin 5a-5b or an equivalent. Required to secure the department's recommendation to teach. (2). 10 TT; 120 L.H. Dr. RAPP.

Latin 24. Ovid (Elegy) and Seneca (Epistles and Tragedies).—*Prerequisite:* 12 hours of Latin acceptable for a major (3). 2 MWF; 120 L.H. Professor CANTER.

Roman History.—See History 56. 1 MWF; 202 L.H. Professor OLDFATHER.

Courses for Graduates

Note: Students desiring to take graduate work in Latin should have had at least three years of college Latin in addition to the Latin prescribed to meet entrance requirements.

Latin 110b. Bibliography and Criticism.—The same as Greek 110b. (1 unit). Arrange; 114 Lib. Professor OLDFATHER.

Latin 116. Latin Satire.—(1 unit). 4-6 Tu; 120 L.H. Professor CANTER.

Latin 118. The Latin Romance.—(1 unit). 9 MW; 124 L.H. Associate Professor PERRY.

DAIRY HUSBANDRY

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

Courses for Undergraduates

D.H. 2a. Dairy Cattle.—*Prerequisite:* D.H. 24a or junior standing. (3). 9 MWF; 205 Agr. Professor YAPP, Associate Professor NEVENS.

D.H. 2b. Dairy Cattle.—*Prerequisite:* D.H. 24a or junior standing. (2). 8-10 TT; S.P. Professor YAPP.

D.H. 6b. Dairy Products Plant Operations.—*Prerequisite:* D.H. 24b and consent of instructor. (3). 7 10 two days a week and one hour to be arranged; D.Mfrs. Associate Professor TRACY, Mr. TUCKEY.

D.H. 9. Dairy Products Judging.—*Prerequisite:* D.H. 24b. (2). 4 TT; D.Mfrs. Associate Professor TRACY, Mr. TUCKEY. Inspection trip waived, 1934-35.

D.H. 11. General Dairy Bacteriology.—*Prerequisite:* Sophomore standing. (2). 11 TT; 205 Agr. Professor PRUCHA.

D.H. 12. General Dairy Bacteriology.—*Prerequisite:* D.H. 11 or registration therein. (2). 3-5 TT, or arrange; 455 Agr. Professor PRUCHA, Assistant Professor BRANNON.

D.H. 23b-k. Investigation with Thesis.—(Continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem and approval of the head of the department. (5). Arrange.

(b) **Dairy Bacteriology.**—Professor PRUCHA, Assistant Professor BRANNON.
(d) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(f) **Dairy Farming and Economic Milk Production.**—Professor FRASER.
(h) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.
(k) **Dairy Production.**—Professors GAINES, YAPP, Associate Professor NEVENS.

D.H. 24a. Elementary Dairy Production.—*Note:* Juniors and seniors allowed only 2 hours credit.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	9	M	127 New Agr.	NEVENS
	Lab.	8-10	W	S.P.	
	Quiz	9	F	127 New Agr.	KUHLMAN
				205 Agr.	

D.H. 24b. Elementary Testing and Manufacture of Dairy Products.—*Note:* Juniors and seniors allowed only 2 hours credit.

3	Lect.	3	M	D.Mfrs.	TUCKEY
	Quiz	4	M	D.Mfrs.	RAMSEY
	A Lab.	3-5	W	D.Mfrs.	
	B Lab.	3-5	F	D.Mfrs.	

Courses for Advanced Undergraduates and Graduates

D.H. 5. Composition of Dairy Products.—*Prerequisite:* Junior standing, including Chem. 32. (3). 10-12 MWF; 502 Agr. Assistant Professor OVERMAN.

D.H. 7. Creamery Buttermaking and Factory Management.—*Prerequisite:* D.H. 24b or its equivalent and junior standing. (5). Lect., 1 MTu; Lab., 1-3 Th, 1-6 F; Quiz, 2 Tu; D.Mfrs. Professor RUEHE, Mr. TUCKEY. Inspection trip waived, 1934-35.

D.H. 8. Fluid Milk Plant Operations.—*Prerequisite:* D.H. 24b or its equivalent and junior standing. (3). 8-10 MWF; D.Mfrs. Associate Professor TRACY, Mr. RAMSEY. Inspection trip waived, 1934-35.

D.H. 14. Milk Condensing.—*Prerequisite:* D.H. 24b or its equivalent and junior standing. (3). Lect., 9 TT; Lab., 1-5 W; D.Mfrs. Associate Professor TRACY, Mr. RAMSEY. Inspection trip waived, 1934-35.

D.H. 21. Systems of Dairy Farming.—*Prerequisite:* Junior standing. (3). 11 MWF; 553 Agr. Inspection trip costing about $1. Professor FRASER.

Courses for Graduates

D.H. 101. Economic Milk Production.—(½ to 2 units).* Twice a week. Arrange. Professor FRASER.

D.H. 105. Dairy Manufactures.—(½ to 2 units).* Arrange. Professor RUEHE, Associate Professor TRACY.

D.H. 106. Dairy Bacteriology.—(½ to 2 units).* Arrange. Professor PRUCHA.

D.H. 107. Dairy Chemistry.—(½ to 2 units).* Arrange. Assistant Professor OVERMAN.

D.H. 108. Physiology of Lactation.—(½ to 2 units).* Arrange. Professor GAINES.

D.H. 112a-f. Research.—(1 to 4 units).* Arrange. *Note:* Graduate students writing a thesis should so indicate when registering in Dairy Husbandry 112.

(a) **Dairy Bacteriology.**—Professor PRUCHA.
(b) **Dairy Chemistry.**—Assistant Professor OVERMAN.
(c) **Dairy Cattle Breeding.**—Professor YAPP.
(d) **Dairy Cattle Feeding.**—Associate Professor NEVENS.
(e) **Milk Production.**—Professor GAINES.
(f) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.

D.H. 113. Seminar.—(½ unit). Once a week. Both semesters. Current literature in dairy bacteriology, dairy chemistry and dairy manufactures. Members of the graduate staff.

D.H. 114. Seminar.—(½ unit). Once a week. Both semesters. Current literature in biology of milk production. Professor GAINES.

ECONOMICS

Including courses formerly in Public Utilities and Transportation
(See also Agricultural Economics and Business Organization and Operation)

Major: For students in the College of Liberal Arts and Sciences, 20 hours made up of Economics 1 and other courses in economics for which it is a prerequisite.

Minors: 20 hours in any one or two of the following subjects: geography, history, philosophy, political science, and sociology.

Note: Economics 22 and 27 are open only to freshmen, without previous requirements.
Economics 1 is the fundamental course in economics. It is a prerequisite for most of the advanced courses, and students expecting to do advanced work in economics should take it in their sophomore year.

Courses for Undergraduates

Econ. 1. Principles of Economics.—*Prerequisite:* 30 hours of university work.

Credit	Section	Hours	Days	Room	Instructor
5	Lect.	9	TT	114 Com.	THOMPSON
	A Quiz	8	MWF	101 Com.	HOOVER
	B1 Quiz	9	MWF	212 Com.	THOMPSON
	B2 Quiz	9	MWF	123 Com.	WESTON
	B3 Quiz	9	MWF	329 Com.	BEHLING
	B4 Quiz	9	MWF	101 Com.	HOOVER
	C1 Quiz	10	MWF	123 Com.	WESTON
	C2 Quiz	10	MWF	306 Com.	ALLEN
	D Quiz	11	MWF	123 Com.	WESTON

Econ. 2. Elements of Economics.—*Prerequisite:* 30 hours of university work.

3	C1 Quiz	10	MWF	328 Com.	LOUNSBURY
	C2 Quiz	10	MWF	219 Com.	BRUCE
	C3 Quiz	10	MWF	224 Com.	GAY
	D Quiz	11	MWF	219 Com.	BRUCE
	E1 Quiz	1	MWF	328 Com.	LOUNSBURY
	E2 Quiz	1	MWF	322 Com.	GAY
	F Quiz	2	MWF	322 Com.	GAY

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Econ. 3. Money, Credit, and Banking.—*Prerequisite:* Econ. 1 or 2.

Credit	Section	Hours	Days	Room	Instructor
3	[1]Lect. I	8	W	114 Com.	Lee
	A1 Quiz	8	MF	326 Com.	Fitzgerald
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II.	A2 Quiz	8	MF	122 Com.	Stalnaker
	A3 Quiz	8	MF	305 Com.	Allen
	A4 Quiz	8	MF	108 Com.	Curtis
	B1 Quiz	9	MF	328 Com.	Lounsbury
	K1 Quiz	9	TT	326 Com.	Fitzgerald
	N Quiz	1	TT	306 Com.	Allen
	O Quiz	2	TT	328 Com.	Lounsbury
	[1]Lect. II	8	Th	114 Com.	Lee
	J1 Quiz	8	TuS	306 Com.	Allen
	J2 Quiz	8	TuS	326 Com.	Fitzgerald
	K2 Quiz	9	TuS	306 Com.	Allen
	B2 Quiz	9	MF	305 Com.	Lee
	E Quiz	1	MW	122 Com.	Stalnaker
	L Quiz	10	TT	122 Com.	Stalnaker

Econ. 27. Introduction to Business.—Open to freshmen, and to others with consent of instructor.

3	[1]Lect. I	1	Tu	114 Com.	Russell
	C1 Quiz	10	WF	113 Com.	Cover
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II; and those in Lect. III in Lect. III.	E1 Quiz	1	WF	325 Com.	Folz
	E2 Quiz	1	WF	312 Com.	Morris
	E3 Quiz	1	WF	219 Com.	Cover
	E4 Quiz	1	WF	326 Com.	Steiner
	E5 Quiz	1	WF	306 Com.	Hudson
	K1 Quiz	9	TT	119 Com.	Bonnell
	O1 Quiz	2	TT	123 Com.	Weston
	P1 Quiz	3	TT	101 Com.	Hoover
	[1]Lect. II	2	M	114 Com.	Russell
	F1 Quiz	2	WF	101 Com.	Weston
	F2 Quiz	2	WF	325 Com.	Folz
	F3 Quiz	2	WF	219 Com.	Cover
	F4 Quiz	2	WF	326 Com.	Steiner
	F5 Quiz	2	WF	306 Com.	Hudson
	K2 Quiz	9	TT	222 Com.	Osborn
	N Quiz	1	TT	123 Com.	Weston
	O2 Quiz	2	TT	101 Com.	Hoover
	P2 Quiz	3	TT	219 Com.	Osborn
	[1]Lect. III	10	Tu	114 Com.	Russell
	C2 Quiz	10	WF	108 Com.	Hudson
	D Quiz	11	WF	326 Com.	Mandeville
	K3 Quiz	9	ThS	219 Com.	Cover
	L1 Quiz	10	ThS	328 Com.	Helmreich
	L2 Quiz	10	ThS	326 Com.	Steiner
	L3 Quiz	10	ThS	101 Com.	Hoover
	O3 Quiz	2	TT	219 Com.	Osborn

Econ. 92. Economics of Transportation.—*Prerequisite:* Econ. 1 and junior standing.

3	A Quiz	8	MWF	106 Com.	Locklin
	C Quiz	10	MWF	101 Com.	Fitzgerald
	D Quiz	11	MWF	101 Com.	Fitzgerald

Courses for Advanced Undergraduates

Econ. 90b. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis or take a comprehensive examination, as part of the requirement. (2 or 4).* Arrange. Dean Thompson and other members of the Department.

Econ. 91b. Independent Study.—Seniors registered in the College of Commerce who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this Department or sixteen semester hours if divided between this Department and any other department. (3 to 5).* Arrange. Dean Thompson and other members of the Department.

Courses for Advanced Undergraduates and Graduates

Econ. 4. History of Money and Banking in the United States.—*Prerequisite:* Econ. 3.

3	A	11	MWF	322 Com.	Lee

Econ. 8. Foreign Exchange and the Money Market.—*Prerequisite:* Econ. 1 and 3, and senior standing.

3	Lect.	8	W	215 Com.	Wright
	A Quiz	8	MF	322 Com.	Wright
	J Quiz	8	TT	322 Com.	Wright
	K Quiz	9	TT	322 Com.	Wright

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Econ. 10. Corporation Finance and Management.—*Prerequisite:* Econ. 1 and 3; Accy. 1a and 1b.

Credit	Section	Hours	Days	Room	Instructor
3	A Quiz	8	MWF	329 Com.	Behling
	C1 Quiz	10	MWF	222 Com.	Gray
	C2 Quiz	10	MWF	111 Com.	Van Arsdell
	D1 Quiz	11	MWF	111 Com.	Van Arsdell
	D2 Quiz	11	MWF	328 Com.	Behling
	D3 Quiz	11	MWF	222 Com.	Gray
	J Quiz	8	TTS	328 Com.	Behling
	L Quiz	10	TTS	111 Com.	Van Arsdell

Econ. 24. Economic Development of Modern Europe.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	9	F	215 Com.	Bogart
	B Quiz	9	MW	125 Com.	Bogart
	K Quiz	9	TT	125 Com.	Bogart

Econ. 30. World Markets.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	10	W	114 Com.	Litman
	C Quiz	10	MF	322 Com.	Litman
	L Quiz	10	TT	322 Com.	Litman

Econ. 36. Investments.—*Prerequisite:* Econ. 10, and senior standing.

3	Lect.	9	W	114 Com.	Brown
	B1 Quiz	9	MF	108 Com.	Brown
	B2 Quiz	9	MF	111 Com.	Van Arsdell
	K1 Quiz	9	TT	108 Com.	Brown
	K2 Quiz	9	TT	111 Com.	Van Arsdell
	L Quiz	10	TT	108 Com.	Brown

Econ. 42. Trade Unionism.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	A	11	MWF	325 Com.	Berman

Econ. 43. Personnel Administration.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	2	F	114 Com.	Helbing
	F1 Quiz	2	MW	222 Com.	Helbing
	F2 Quiz	2	MW	329 Com.	Heckman
	J Quiz	8	TT	310 Com.	Heckman
	K Quiz	9	TT	310 Com.	Heckman
	O Quiz	2	TT	222 Com.	Helbing

Econ. 44. Socialism and Economic Reform.—*Prerequisite:* Econ. 1 or 2, and senior standing.

3	A	1	MWF	215 Com.	Helbing

Econ. 51. Public Finance.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	A Quiz	8	MWF	312 Com.	Hunter
	C Quiz	10	MWF	312 Com.	Hunter

Econ. 52. Modern Problems of Taxation.—*Prerequisite:* Econ. 51.

3	A	11	MWF	312 Com.	Hunter

Econ. 56. Property Insurance.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	8	F	215 Com.	Dickinson
	A Quiz	8	MW	325 Com.	Dickinson
	J Quiz	8	TT	325 Com.	Dickinson

Econ. 61. Economic Theory.—*Prerequisite:* Econ. 1 or 2, and senior standing.

3	C Quiz	10	MWF	325 Com.	Berman

Econ. 72. Economic Statistics.—*Prerequisite:* Econ. 71 or the permission of the instructor.

3	A	10	TT	325 Com.	Curtis
	Practice	1–3	Tu	317 Com.	Curtis

Econ. 83. Public Utility Rates.—*Prerequisite:* Econ. 81.

3	A	9	MWF	222 Com.	Gray

Econ. 93. Industrial Traffic Management.—*Prerequisite:* Econ. 92.

3	A	9	TTS	100 Com.	Locklin

Econ. 96. Current Transportation Problems.—*Prerequisite:* Econ. 92.

3	A	10	TTS	100 Com.	Locklin

Courses for Graduates

Econ. 101. Economic Theory.—(1 unit). 2-4 M; 212 Com. Professor Fetter.

Econ. 102. Theory and History of Money, Credit, and Prices.—(1 unit). Arrange. Dr. Lounsbury.

Econ. 103. Distribution of Wealth.—(1 unit). 3-5 W; 209 Com. Professor Fetter.

Econ. 104b. Organization of International Trade.—(1 unit). 3 TT; 212 Com. Professor Litman.

Econ. 105. Public Finance.—(1 unit). 4-6 Tu; 212 Com. Professor Hunter.

Econ. 106. International Exchange and the Money Markets.—(1 unit). Arrange. Professor Wright.

Econ. 107. The Corporation in Economic Evolution.—(1 unit). Arrange. Assistant Professor BROWN.

Econ. 112d. Labor Problems: Labor and the Law.—(1 unit). Arrange. Associate Professor BERMAN.

Econ. 118. Seminar.—Thesis Course. *Note:* All graduate students writing theses in economics register in Econ. 118; registration for others is optional. (1 to 4 units).* 4-6 Th (alternate weeks); 420 Com.

(a) Third Year: Seminar.—Professor LITMAN.
(b) First Year: General Economics.—Assistant Professor BROWN.
(c) First Year: Public Utilities.—Assistant Professor GRAY.

Econ. 123. Industrial and Financial Organization of Society.—(1 unit). 7-8:40 p.m. W; 212 Com. Professor LEE.

Econ. 124. International Finance.—(1 unit). Arrange; 209 Com. Professor BOGART.

Econ. 143. Administration of Industrial Relations.—(1 unit). Arrange. Dr. HELBING.

Econ. 144. Statistical Theory and Analysis.—(1 unit). Arrange. Assistant Professor DICKINSON.

Econ. 180. Management of Public Utilities.—(1 unit). 4-6 W; 212 Com. Assistant Professor GRAY.

Econ. 192. Economics of Transportation.—(1 unit). Arrange. Assistant Professor LOCKLIN.

EDUCATION

A. GENERAL EDUCATION

Introductory Courses

Ed. 2. History of Education.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	C	10	MWF	303 Adm.(E)	SANFORD

Ed. 5. Comparative Education.—*Prerequisite:* Junior standing.

3	E	1	MWF	204 Adm.(E)	JOHNSTON
	F	2	MWF	204 Adm.(E)	JOHNSTON

Ed. 6. Principles of Secondary Education.—*Prerequisite:* Ed. 25.

3	J	8	TTS	206 Adm.(E)	WILLIAMS
	K	9	TTS	308 Adm.(E)	CLEMENT
	L	10	TTS	206 Adm.(E)	WEBER
	D	11	MWF	303 Adm.(E)	WILLIAMS
	E	1	MWF	304 Adm.(E)	PETERS
	F	2	MWF	303 Adm.(E)	BROWNE
	G1	3	MWF	308 Adm.(E)	PETERS
	G2	3	MWF	307 Adm.(E)	WEBER

Ed. 10. Technic of Teaching.—*Prerequisite:* Ed. 25 and Ed. 6.

Students who are preparing to teach biology, chemistry, civics, economics, English, general science, history, home economics, physics, or who expect to teach in elementary schools, and who plan to take Educational Practice, must register in the sections indicated immediately below, and must register at the same time for the Educational Practice indicated. Only students specializing in the fields indicated may enroll in these sections.

3					
(Biology—Ed. Prac. 6)..... (Chemistry—Ed. Prac. 7)... (Gen. Sci.—Ed. Prac. 13)... (Physics—Ed. Prac. 21)....	A1	8	MWF	303 U.H.S.	HARNISH
(Elem. Sch.—Ed. Prac. 25)..	A2	8	MWF	206 Adm.(E)	REAGAN
(Home Econ.—Ed. Prac. 14)	F1	2	MWF	104 U.H.S.	KING
(P.E. for Men—Ed. Prac. 1, 2, 3, 4).....	F2	2	MWF	209 New Gym.	JACKSON
(English—Ed. Prac. 11).... (Speech—Ed. Prac. 11a).... (Civics—Ed. Prac. 8).....	G1	3	MWF	205 U.H.S.	MCHARRY
(History—Ed. Prac. 15).... (Economics—Ed. Prac. 27)..	G2	3	MWF	210 U.H.S.	HABBERTON

Students preparing to teach in other fields than those listed above and those who do *not* plan to take Educational Practice will enroll in the sections listed below:

	A3	8	MWF	312 Adm.(E)	ODELL
	B	9	MWF	206 Adm.(E)	REAGAN
	C	10	MWF	312 Adm.(E)	ODELL
	D	11	MWF	307 Adm.(E)	MONROE

Ed. 25. Educational Psychology.—*Prerequisite:* Psych. 1 for all sections except Section G.

3	J	8	TTS	307 Adm.(E)	POTTHOFF
	K	9	TTS	312 Adm.(E)	POTTHOFF
	C	10	MWF	304 Adm.(E)	PETERS

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Ed. 25. Educational Psychology.—(Concluded).

Credit	Section	Hours	Days	Room	Instructor
3	L	10	TTS	312 Adm.(E)	DOLCH
	M	11	TTS	206 Adm.(E)	DOLCH
[1]Section G1 is for students who have not taken Psych. 1. Consent of instructor must be obtained.	E	1	MWF	312 Adm.(E)	DOLCH
	F	2	MWF	312 Adm.(E)	PETERS
	G2	3	MWF	312 Adm.(E)	POTTHOFF
	[1]G1	3	MWF	204 Adm.(E)	CAMERON
	H	4	MWF	312 Adm.(E)	DOLCH

Ed. 91. Special Problems of Education in Rural Communities.—(Same as Agr. Ed. 91). *Prerequisite:* Senior standing and at least 6 hours in education. (2). 11 MW; 122 Agr. Associate Professor NOLAN.

Ed. 99b. Thesis.—*Prerequisite:* Senior standing. (2). Arrange. Dean BENNER and others.

Courses for Advanced Undergraduates and Graduates

Ed. 18. Educational Measurements.—*Prerequisite:* Ed. 25. (3). 9 MWF; 312 Adm.(E). Associate Professor ODELL.

Ed. 30. History of American Education.—*Prerequisite:* Senior standing or Ed. 2 or 11. (2). 10 TT; 303 Adm.(E). Dr. SANFORD.

Ed. 41. Principles of Vocational Education.—(Same as Ind. Ed. 41.) *Prerequisite:* Senior standing. (3). 3 MWF; 304 Adm.(E). Professor MAYS.

Ed. 43. Mental Tests.—*Prerequisite:* Ed. 25.

3	Lect.	2	MW	202 Adm.(E)	POTTHOFF
	Lab.	1–3	F	202 Adm.(E)	POTTHOFF

Ed. 45. Genetic Psychology for Teachers.—*Prerequisite:* Senior standing, Psych. 1, Ed. 25, or consent of instructor. (3). 11 MWF; 204 Adm.(E). Associate Professor GRIFFITH.

Ed. 53. Problems of Industrial Education.—(Same as Ind. Ed. 53.) *Prerequisite:* Junior standing or consent of instructor. (3). 9 MWF; 304 Adm.(E). Professor MAYS.

Ed. 55. Problems of Vocational Guidance.—(Same as Ind. Ed. 55.) *Prerequisite:* Senior standing. (3). 8 MWF; 304 Adm.(E). Professor MAYS.

Courses for Graduates

For a Master's degree in Education, course 125 is required. For students who have not taken a course in history of education as undergraduates, Education 11 or Education 30 is required. Education 6 and 25, or their equivalents, are prerequisites for all courses for graduates.

Ed. 101. Philosophy of Education.—(1 unit). 10-12 S; 204 Adm.(E). Professor CAMERON.

Ed. 104. Educational Administration.—(1 unit). 4-6 W; 308 Adm.(E). Associate Professor WEBER.

Ed. 120a. Seminar in the Supervision of Secondary Education.—*Prerequisite:* Ed. 106. (1 unit). 10-12 S; 308 Adm.(E). Professor CLEMENT.

Ed. 121. Educational Measurements.—Seminar. (1 unit). 4-6 M; 307 Adm.(E). Associate Professor ODELL.

Ed. 124. Reading in Educational Research.—(1 unit). 4-6 W; 206 Adm.(E). Professor MONROE.

Ed. 129. The Junior College.—*Prerequisite:* 3 units of graduate work in education. (1 unit). 4-6 Th; 308 Adm.(E). Professor CLEMENT.

Ed. 131. Analysis and Evaluation of High School Texts.—*Prerequisite:* Ed. 127. (1 unit). 4-6 Tu; 308 Adm.(E). Professor CLEMENT.

Ed. 148. Psychology of High School Subjects.—(1 unit). 4-6 F; 204 Adm.(E). Professor CAMERON.

Ed. 150. Thesis.—(1 to 2 units).* Dean BENNER and others.

Ed. 184. Seminar in School Administration.—*Prerequisite:* 3 units of graduate work in education including Ed. 104 or 106 and consent of instructor. (1 unit). Arrange. 302 Adm.(E). Associate Professor WEBER.

Ed. 185. Seminar in Educational Psychology.—*Prerequisite:* Ed. 125 and consent of instructor. (1 unit). Arrange. 203 Adm.(E). Professor CAMERON, Associate Professor GRIFFITH.

Ed. 190. Research in Education.—*Prerequisite:* 3 units of graduate work in education and consent of the dean. (1 unit). Dean BENNER and others.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

B. RELATED COURSES IN SPECIAL SUBJECTS

The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 20 hours in Education for graduation; for the 15 hours in Education for the State High School Certificate; or for the hours of Education necessary as a qualification for teachers in the North Central Association accredited schools.

Art 10b. Course for Teachers.—(3). (See Art).

Botany 14. Course for Teachers.—(3). (See Botany).

Chemistry 12b. Course for Teachers.—(3). (See Chemistry).

English 41. Teaching of English Literature.—(2). (See English).

German 25. Teachers' Course.—(2). (See German).

History 18. Teaching of History.—(2). (See History).

Home Economics 11. Teachers' Course.—(3). (See Home Economics).

Latin 9. Teachers' Course.—(2). (See Classics).

Mathematics 35. Teachers' Course.—(3). (See Mathematics).

Music 25b. Public School Music Methods.—(2). (See Music).

C. EDUCATIONAL PRACTICE

The courses listed below are open only to seniors. *Prerequisite:* Ed. 25, 6, and 10, except that students who take Ed. Prac. 6, 7, 8, 11, 11a, 13, 14, 15, 20, 21, 25 or 27 must register at the same time for Ed. 10. For Educational Practice in Agriculture, see Associate Professor NOLAN at 116 Old Agriculture. For Educational Practice in Physical Education, see Mr. JACKSON at 202 New Gymnasium. For Educational Practice in Home Economics, see Miss ROBINSON and Miss KING at 119 Woman's Building. Arrange for all other courses in Educational Practice with Principal C. W. SANFORD, at 102 University High School.

Ed. Prac. 1. Physical Education for Men.—(2 to 4).*

Ed. Prac. 2. Physical Education for Men.—(2 to 4).*

Ed. Prac. 3. Physical Education for Men.—(2 to 4).*

Ed. Prac. 4. Physical Education for Men.—(2 to 4).*

Ed. Prac. 5. Agricultural Education.—(2 to 5).* (Same as Agr. Ed. 50).

Ed. Prac. 6. Biology.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 7. Chemistry.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 8. Civics.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 9. Drawing, Art.—(3 to 5).*

Ed. Prac. 10. Drawing, Mechanical.—(3 to 5).*

Ed. Prac. 11. English.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 11a. Speech.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 12. French.—(5).

Ed. Prac. 13. General Science.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 14. Home Economics Education.—(5). Students must be registered in Ed. 10, Section F1.

Ed. Prac. 15. History.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 16. Industrial Education.—(3 to 5).*

Ed. Prac. 17. Latin.—(5).

Ed. Prac. 19. Mathematics.—(5).

Ed. Prac. 20. Music.—(3 to 5).*

Ed. Prac. 21. Physics.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 23. Spanish.—(5).

Ed. Prac. 24. Stenography and Typewriting.—(3 to 5).*

Ed. Prac. 25. Elementary Education.—(5). Students must be registered in Ed. 10, Section A2.

Ed. Prac. 26. Bookkeeping.—(5).

Ed. Prac. 27. Economics.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 28. German.—(5).

D. AGRICULTURAL EDUCATION

Agr. Ed. 50. Teaching.—(Same as Ed. Prac. 5). *Prerequisite:* Ed. 25 and senior standing.

Credit	Section	Hours	Days	Room	Instructor
2 to 5*	A	Conference 4 Teaching to be arranged	TT	Tolono H.S.	HENDERSON
	B	Conference 4 Teaching to be arranged	TT	St. Joseph H.S.	RUCKER
	C	Apprentice teaching in state			NOLAN

Agr. Ed. 51. Teachers' Course in Agriculture.—*Prerequisite:* Ed. 25, and senior standing. (3). 4 MWF; 122 Agr. Associate Professor NOLAN.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Agr. Ed. 91. Special Problems of Education in Rural Communities.—(Same as Ed. 91). *Prerequisite:* Senior standing and at least 6 hours in Education. (2). 11 MW; 122 Agr. Associate Professor NOLAN.

Agr. Ed. 92. Adult Education in Vocational Agriculture.—*Prerequisite:* 20 hours of technical agriculture, Ed. 25, and senior standing. (Subject-matter and methods in part-time and evening classes, and other extension service in vocational agriculture.) (2). 11 TT; 122 Agr. Associate Professor NOLAN.

E. INDUSTRIAL EDUCATION

Ind. Ed. 1. Industrial Arts.—First course. (4). Lect., 9 TT; Shop, 8-10 MWF; 5 Wood Shop. Mr. BRAUCHER and assistant.

Ind. Ed. 2. Advanced Industrial Arts.—(4). Lect., 10 TT; Shop, 10-12 MWF; 5 Wood Shop. Mr. BRAUCHER and assistant.

Ind. Ed. 2a. Problems of House Construction.—(4). Lect., 2 TT; Shop, 2-4 MWF; 5 Wood Shop. Mr. BRAUCHER and assistant.

Ind. Ed. 57. Methods of Trade Teaching.—(3). 11 MWF; 310 Adm.(E). Professor MAYS.

Note: The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 25 hours in Industrial Education.

G.E.D. 1. Elements of Drawing.—(4). (See General Engineering Drawing).

G.E.D. 2. Descriptive Geometry.—(4). (See General Engineering Drawing).

G.E.D. 4. Advanced Drawing.—(4). (See General Engineering Drawing).

Journ. 9b. History and Practice of Printing and Publishing.—(2 or 3). (See Journalism).

M.E. 85. Pattern and Foundry Laboratory.—(3). (See Mechanical Engineering).

M.E. 87. Machine Laboratory.—(3). (See Mechanical Engineering).

Courses for Advanced Undergraduates and Graduates

Ind. Ed. 41. Principles of Vocational Education.—(Same as Ed. 41 and Ind. Ed. E. 41). *Prerequisite:* Senior standing. (3). 3 MWF; 304 Adm.(E). Professor MAYS.

Ind. Ed. 53. Problems of Industrial Education.—(Same as Ed. 53). *Prerequisite:* Junior standing or consent of instructor. (3). 9 MWF; 304 Adm.(E). Professor MAYS.

Ind. Ed. 55. Problems of Vocational Guidance.—(Same as Ed. 55 and Ind. Ed. E. 55). *Prerequisite:* Senior standing. (3). 8 MWF; 304 Adm.(E). Professor MAYS.

Extra-mural Courses

Extra-mural Courses in Industrial Education.—Arrange. Assistant Professor DODGE.

ELECTRICAL ENGINEERING

Note: Certain courses in this department require laboratory fees of $2.

Courses for Undergraduates

E.E. 2. Electrical Equipment.—*Prerequisite:* One year of college physics.

Credit	Section	Hours	Days	Room	Instructor
3	K	11	MWF	200 E.E. Annex	
	L	9	TTS	200 E.E. Annex	

E.E. 12. Alternating Current Apparatus.—*Prerequisite:* E.E. 11, 61 and registration in E.E. 62.

3	C1	8	MWF	305 E.H.
	C2	8	MWF	111 E.H.
	Q1	10	MWF	305 E.H.
	Q2	10	MWF	111 P.L.
	J1	11	MWF	305 E.H.
	P1	1	MWF	305 E.H.
	P2	1	MWF	109 E.H.
	C3	9	TTS	305 E.H.

E.E. 14. Commercial and Industrial Wiring and Illumination.—*Prerequisite:* Sophomore standing or equivalent.

3		8	MWF	200 E.E. Annex

E.E. 26. Alternating Currents.—*Prerequisite:* E.E. 25, Physics 44a, registration in E.E. 76.

4	N	9	MTWTF	111 E.H.
	L	11	MTWTF	111 E.H.
	M	11	MTWTF	400 E.H.
	K	1	MTWTF	111 E.H.

E.E. 36. Alternating Current Apparatus.—*Prerequisite:* E.E. 35, registration in E.E. 86.

Credit	Section	Hours	Days	Room	Instructor
4	K	8	MTWTF	109 E.H.	
	L	10	MTWTF	109 E.H.	
	M	11	MTWTF	109 P.L.	

E.E. 48. Fundamentals of Telephone Transmission.—*Prerequisite:* Senior standing in electrical engineering or consent of instructor.

3	KLM	8	MW	208 E.H.
	K	2–5	Tu	311a E.E.L.
	L	2–5	Th	311a E.E.L.
	M	2–5	F	311a E.E.L.

E.E. 52. Radio Communication Theory.—*Prerequisite:* E.E. 35 or consent of instructor.

3	K	10	TT	111 E.H.
	Lab. K	2–5	W	311 E.E.L.

E.E. 54. Vacuum Tubes and Control Devices.—*Prerequisite:* E.E. 26.

3		1	MWF	205 E.H.

E.E. 56. Economical Design of Electrical Systems.—*Prerequisite:* E.E. 35.

4	Lect. KLM	9	Th	319 E.H.
	K	9	MWF	312 E.H.
	L	10	MWF	312 E.H.
	M	1	MWF	312 E.H.

E.E. 58. Power and Communication Networks.—*Prerequisite:* Grade of A or B in E.E. 26.

3		10	MWF	104 P.L.

E.E. 62. Alternating Current Laboratory.—*Prerequisite:* E.E. 11, E.E. 61, registration in E.E. 12.

1	J1	9–12	Tu	200 E.E.L.
	J2	9–12	Tu	214 E.E.L.
	Q1	1–4	Tu	200 E.E.L.
	Q2	1–4	Tu	214 E.E.L.
	P1	9–12	Th	200 E.E.L.
	P2	9–12	Th	214 E.E.L.
	R1	1–4	Th	200 E.E.L.
	R2	1–4	Th	214 E.E.L.
	C1	1–4	F	214 E.E.L.
	C2	1–4	F	200 E.E.L.
	C3	9–12	S	214 E.E.L.

E.E. 72. Electrical Engineering Problems.—(Elective for juniors and seniors). *Prerequisite:* E.E. 25.

1 to 3*	K	8	TT	111 E.H.
	Lab. K	2–5	M	110 E.E.L.
	Others arrange			

E.E. 76. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 25, 75; registration in E.E. 26.

2	MNYZ	8	Tu	215 E.E.L.
	KLA	9	W	215 E.E.L.
	K	2–5	M	200 E.E.L.
	L	2–5	Tu	200 E.E.L.
	M	8–11	W	200 E.E.L.
	Y	2–5	W	200 E.E.L.
	N	2–5	W	214 E.E.L.
	Z	8–11	F	200 E.E.L.
	A	8–11	S	200 E.E.L.

E.E. 84. Vacuum Tube Laboratory.—*Prerequisite:* Registration in E.E. 45 and consent of instructor.

1	K	2–5	Tu	300 E.E.L.
	L	2–5	Th	300 E.E.L.

E.E. 86. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 85, registration in E.E. 36.

2	KLM	9	Tu	215 E.E.L.
	L	2–5	M	200 E.E.L.
	M	2–5	W	200 E.E.L.
	N	2–5	Th	200 E.E.L.
	Y	2–5	F	200 E.E.L.

E.E. 90. Building Lighting.—*Prerequisite:* Junior standing.

1		11	Tu	200 E.E. Annex

E.E. 96. Seminar.—*Prerequisite:* Senior standing in E.E.

1	K	9	M	305 E.H.
	L	11	Tu	305 E.H.
	M	9	W	305 E.H.
	N	11	Th	305 E.H.
	Y	1	Th	305 E.H.

E.E. 98. Thesis.—(3). Arrange.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

Note: Entrance on graduate work in electrical engineering presupposes the equivalent of the full undergraduate course in that subject. The undergraduate courses in electrical engineering are open for minor credit to students majoring in other departments who have the proper prerequisites.

E.E. 101. Advanced Courses in Alternating Currents.—(½ to 2 units).* Arrange.

(a) Graduate Seminar.—Professor PAINE.
(c) Machine Transients.—Assistant Professor KEENER.

E.E. 102. Electric Waves, Oscillations and Transients.—(½ to 1 unit).* Arrange.

(a) Theory of Electric Waves, Oscillations and Transients.—Assistant Professor REICH.
(b) Demonstration Lecture.—Assistant Professor REICH.
(c) Theory of Energy Radiation.—Assistant Professor BROWN.
(d) Principles of Television Engineering.—Assistant Professor BROWN.

E.E. 103. Electrical Design.—(½ to 1 unit).* Arrange.

(a) Power Plant Design.—Professor PAINE.
(b) Machine Design.—Professor PAINE.
(c) Illumination Practice and Design.—Assistant Professor KRAEHENBUEHL.

E.E. 104. Courses in Electronics.—(1 unit). Arrange.

(a) Theoretical Electronics.—Assistant Professor REICH.
(c) Photoelectric Cells, Gaseous Control Tubes and Inverters.—Assistant Professor REICH.

E.E. 105. Electrical Engineering Research.—(1 to 3 units).* Professors PAINE, TYKOCINER, KNIGHT, Assistant Professors BROWN, REICH, KEENER, KRAEHENBUEHL.

ENGINEERING

Courses for Undergraduates

Note: Each of the following courses may be used as an approved or non-technical elective in all engineering curricula.

Eng. 10. Engineering Economics.—Evolution and growth of industry; basic industrial principles; ownership and securities; standardization; valuation and depreciation; comparisons and selections of engineering projects. *Prerequisite:* Junior standing in engineering.

Credit	Section	Hours	Days	Room	Instructor
3	A	9	MWF	105 T.B.	KING
	B	10	MWF	105 T.B.	
	C	2	MWF	105 T.B.	

Eng. 39. Industrial Relations.—History of the development of industry; the factory system; manufacturers' organizations; labor organizations; works management; trade unions; wage systems; personnel problems; labor legislation. *Prerequisite:* Junior or senior standing.

3	PQ	11	MWF	1 Wood Shop	CASBERG

Eng. 92. Engineering Law.—Contracts, evidence, torts, equity, real property, corporations, agency, sales, negotiable instruments, water rights, patent rights, special assessments, contract letting, general conditions. *Prerequisite:* Senior standing in engineering or architecture.

3	A	9	MWF	205 E.H.	PICKELS
	B	1	MWF	102 E.H.	

ENGLISH

(Including Rhetoric, Speech, and Scandinavian Languages)

Major: 20 hours in English *excluding* Rhetoric 1, 2, 10, 12, 21, 22, English 10a, 10b, 20a, 20b, 41, 42, and *including* at least ten hours in English literature, at least three hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours in (a) Latin or Greek or French or German or Spanish; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history; or (e) in history and philosophy. No language courses may be regarded as satisfying the minor requirement if they are excluded from the majors of the language departments (excepting elementary courses in Greek, Latin, French 2a, and Spanish 2a). At least eight hours must be offered in each subject.

Major in Speech

Major: 10 hours in speech, inclusive of Speech 7 and 8 and either 4 or 6; and 10 hours of English, exclusive of English 10a, 10b, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, 22, and inclusive of one course in English literature from the advanced group.

Minors: 20 hours, in any one or two of the following subjects: psychology, philosophy, Greek, Latin, French, German, history, political science, economics, law, or sociology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in English 10 and Rhetoric 1-2.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

A. ENGLISH LANGUAGE AND LITERATURE

Courses for Undergraduates

Engl. 10a. An Introduction to Literature.—Forms of poetry, mainly narrative. *Prerequisite:* The minimum entrance requirement in English. (Credit is not given for Engl. 10a in addition to 20a and 20b).

Credit	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	142 L.H.	Secord
	A2	8	MWF	412 U.H.	Busey
[1]Seniors will receive	B	9	MWF	204a L.H.	Rinaker
only 2 hours credit.	C	10	MWF	133 L.H.	Zeitlin
	D1	11	MWF	219 L.H.	Tupper
	D2	11	MWF	213 U.H.	Templeman
	E	1	MWF	203 U.H.	Kelley
	F	2	MWF	203 U.H.	Bloom

Engl. 10b. An Introduction to Literature.—Forms of poetry, mainly lyrical. *Prerequisite:* Engl. 10a. (Credit is not given for Engl. 10b in addition to 20a and 20b).

3[1]	A1	8	MWF	204a L.H.	Kelso
	A2	8	MWF	310 U.H.	Goldman
[1]Seniors will receive	B1	9	MWF	128 L.H.	Finney
only 2 hours credit.	B2	9	MWF	219 L.H.	Tupper
	C1	10	MWF	206 L.H.	Rapp
	C2	10	MWF	232 L.H.	Rinaker
	D1	11	MWF	128 L.H.	Landis
	D2	11	MWF	235 L.H.	Weirick
	E	1	MWF	123 L.H.	Busey
	F	2	MWF	133 L.H.	Parry

Engl. 13. American Literature.—*Prerequisite:* Sophomore standing, or exemption from Rhet. 2.

2	A	9	TT	103 New Agr.	Paul
	B	1	TT	103 New Agr.	Paul

Engl. 20a. Chief English Writers of the Nineteenth Century.—Intended for students in professional and technical courses such as law, medicine, commerce, engineering, etc. *Prerequisite:* One year of college work. (Credit is not given for Engl. 20a in addition to Engl. 10a and 10b).

4	A	8	MTWT	203 U.H.	Harris
	B	9	MTWT	413 U.H.	Brawner
	C	10	MTWT	214 U.H.	Peterson
	D	11	MTWT	207 U.H.	Sandin
	E	1	MTWT	208 U.H.	French

Engl. 20b. Chief English Writers Before 1800.—*Prerequisite:* Engl. 20a. (Credit is not given for Engl. 20b in addition to Engl. 10a and 10b).

4	A1	8	MTWT	204 U.H.	Templeman
	A2	8	MTWT	302 U.H.	Glenn
	B	9	MTWT	310 U.H.	Jefferson
	C	10	MTWT	302 U.H.	Trelease
	D	11	MTWT	139 L.H.	Kelso
	E	1	MTWT	203a L.H.	Rinaker

Engl. 22. Literary Study of the Bible.—*Prerequisite:* 6 hours of English literature. (3). 11 MWF; 103 New Agr. Professor E. C. Baldwin.

Engl. 23. Introduction to Shakespeare.—*Prerequisite:* Sophomore standing, or exemption from Rhet. 2.

3	B	9	MWF	109 L.H.	Hillebrand
	E	1	MWF	109 L.H.	Finney

Engl. 41. Teaching of English Literature.—*Prerequisite:* 9 hours of English literature. (2). 2 TT; 202 L.H. Professor Paul.

Engl. 44. Contemporary Poetry.—*Prerequisite:* 6 hours of English literature, or junior standing.

3		1	MWF	103 New Agr.	Weirick

Courses for Advanced Undergraduates and Graduates

Prerequisite: Junior standing, except as otherwise specified.

Engl. 3. Poetry of Milton.—(3). 9 MWF; 304 L.H. Professor E. C. Baldwin.

Engl. 4. English Versification.—(2). 10 TT; 123 L.H. Assistant Professor Landis.

Engl. 5. Shakespeare.—(3). 11 MWF; 109 L.H. Professor T. W. Baldwin.

Engl. 9. Old English (Anglo-Saxon).—Beowulf. (3). 11 MWF; 305 L.H. Professor Jones.

Engl. 17. History of the English Language.—(Consent of instructor must be obtained). (3). 9 MWF; 305 L.H. Professor Flom.

Engl. 26. Spenser.—(3). 9 MWF; 208 U.H. Professor Jones.

Engl. 30. Tendencies in American Fiction since 1870.—(Consent of instructor must be obtained). (3). 10 MWF; 235 L.H. Dr. Tupper.

Engl. 31. English Literature from 1688-1789 (Exclusive of the Drama).—(3). 9 MWF; 318 U.H. Assistant Professor SECORD.

Engl. 36. English Drama (Exclusive of Shakespeare) from 1600 to 1700.—(3). 2 MWF; 204a L.H. Professor HILLEBRAND.

Engl. 38. Development of the Arthurian Tradition.—(3). 1 MWF; 329 L.H. Associate Professor PARRY.

Engl. 43. Browning.—(3). 10 MWF; L.H. Theatre. Professor GRAHAM.

Engl. 53. Modern American Criticism.—(3). 11 MWF; 206 L.H. Professor ZEITLIN.

Engl. 54b. Introduction to Comparative Literature.—*Prerequisite:* English 54a. Survey of the greatest French, German, and English authors.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	10	WF	303 L.H.	BERNBAUM, ARON, and CARNAHAN
	A Disc.	10	M	105 L.H.	LANDIS
	B Disc.	10	M	203a L.H.	BUSEY
	C Disc.	10	M	340 L.H.	PARRY

Engl. 55b. Survey of English Literature.—*Prerequisite:* Senior standing. (3). 9 MWF; 311 L.H. Associate Professor PARRY.

Engl. 60b. Thesis and Honors.—(Credit to be arranged). Professor JONES, Dr. TUPPER, and others.

Courses for Graduates

Engl. 101. Research in Special Topics.—(1 to 2 units).* Professors GRAHAM, BERNBAUM, FLOM, PAUL, ZEITLIN, T. W. BALDWIN, E. C. BALDWIN, JONES, HILLEBRAND, JEFFERSON; Associate Professor PARRY; Assistant Professors RINAKER, SECORD, FINNEY.

Engl. 114. The Development of the Essay.—(1 unit). 11 TT; 309 Lib. Professor ZEITLIN.

Engl. 129. English Literature from the Norman Conquest to 1400.—(1 unit). 10 TT; 104 L.H. Professor JONES.

Engl. 135. Problems in American Literature.—Poe and Whitman. (1 unit). 8 TT; 113 L.H. Professor PAUL.

Engl. 138. The Romantic Movement.—(1 unit). 2 TT; 303a L.H. Professor BERNBAUM.

Engl. 140. Investigations in Modern English Literature.—(1 to 3 units).* Three hours once a week. Arrange; 220 L.H. Professor BERNBAUM.

Engl. 141. Literature of the Seventeenth Century.—(1 unit). 3 TT; 302 L.H. Professor E. C. BALDWIN.

Engl. 143. Seminar in the History and Theory of Prose Fiction.—(1 unit). Two hours a week. Arrange; 220 L.H. Professor BERNBAUM.

Engl. 145. Studies in Eighteenth Century Literature.—(1 unit). 2 MW; 113 L.H. Professor GRAHAM.

Engl. 147. Shakespeare and Elizabethan Drama.—(1 unit). 10 MW; 303a L.H. Professor T. W. BALDWIN.

Engl. 148. Seminar in Elizabethan Drama.—(1 unit). Arrange; 135 L.H. Professor T. W. BALDWIN.

Engl. 153. Seminar in Restoration Drama.—(1 unit). Arrange; 129 L.H. Professor HILLEBRAND.

B. RHETORIC

Courses for Undergraduates

Rhet. 1. Rhetoric and Composition.—*Prerequisite:* The minimum entrance requirements in English.

3[1]	A1	8	MWF	213 U.H.	JOHNSON
[1]Seniors will receive only 2 hours credit.	[2]A2	8	MWF	207 U.H.	WASHBURN
	B1	9	MWF	411 U.H.	JOHNSON
	[2]B2	9	MWF	407 U.H.	GRISWOLD
[2]Sections A2, B2, C2, D2, E2, F2 are for students who are repeating Rhet. 1.	C1	10	MWF	212 U.H.	MOOD
	[2]C2	10	MWF	207 U.H.	NOBLE
	D1	11	MWF	412 U.H.	HUGHES
	[2]D2	11	MWF	407 U.H.	PETERSON
	E1	1	MWF	312 U.H.	ROBERTS
	[2]E2	1	MWF	224 L.H.	MARTIN
	F1	2	MWF	203 L.H.	HAMILTON
	[2]F2	2	MWF	207 U.H.	OWEN
	G1	3	MWF	204 U.H.	WHEELER

Rhet. 2. Rhetoric and Composition.—*Prerequisite:* Rhet. 1.

3[1]	A1	8	MWF	406 U.H.	MOOD
[1]Seniors will receive only 2 hours credit.	A2	8	MWF	321 L.H.	GRISWOLD
	A3	8	MWF	413 U.H.	———

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Rhet. 2. Rhetoric and Composition.—(Concluded)

[1]Seniors will receive only 2 hours credit. [2]Sections A8, A9, B8, B9, C7, C8, D8, D9, E7, E8, F7, G7, H3, K2, and L2 are for students who received a grade of "D" in Rhet. 1.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A4	8	MWF	407 U.H.	Hurley
	A5	8	MWF	203a L.H.	Blair
	A6	8	MWF	212 U.H.	Allen
	A7	8	MWF	315 U.H.	Peterson
	[2]A8	8	MWF	311 U.H.	Sandin
	[2]A9	8	MWF	411 U.H.	Stutzman
	B1	9	MWF	207 U.H.	Glenn
	B2	9	MWF	311 U.H.	———
	B3	9	MWF	203 U.H.	Noble
	B4	9	MWF	212 U.H.	French
	B5	9	MWF	302 U.H.	Trelease
	B6	9	MWF	412 U.H.	Kelley
	B7	9	MWF	204 U.H.	Lang
	[2]B8	9	MWF	406 U.H.	Hurley
	[2]B9	9	MWF	404 U.H.	Templeman
	C1	10	MWF	204 U.H.	Sandin
	C2	10	MWF	128 L.H.	Davidson
	C3	10	MWF	211 U.H.	———
	C4	10	MWF	311 U.H.	Kelley
	C5	10	MWF	310 U.H.	Jefferson
	C6	10	MWF	413 U.H.	Brawner
	[2]C7	10	MWF	411 U.H.	Harris
	[2]C8	10	MWF	407 U.H.	Allen
	D1	11	MWF	311 U.H.	Harris
	D2	11	MWF	203 U.H.	Secord
	D3	11	MWF	413 U.H.	Goldman
	D4	11	MWF	406 U.H.	Brawner
	D5	11	MWF	211 L.H.	Rapp
	D6	11	MWF	411 U.H.	———
	D7	11	MWF	148 L.H.	Stutzman
	[2]D8	11	MWF	204 U.H.	Davidson
	[2]D9	11	MWF	318 U.H.	Mood
	E1	1	MWF	213 U.H.	Owen
	E2	1	MWF	204 U.H.	———
	E3	1	MWF	219 L.H.	Hamilton
	E4	1	MWF	214 U.H.	Bloom
	E5	1	MWF	407 U.H.	———
	E6	1	MWF	302 U.H.	Osenburg
	[2]E7	1	MWF	310 U.H.	Gress
	[2]E8	1	MWF	311 U.H.	Dolk
	F1	2	MWF	204 U.H.	Roberts
	F2	2	MWF	128 L.H.	Trimble
	F3	2	MWF	406 U.H.	Dolk
	F4	2	MWF	412 U.H.	———
	F5	2	MWF	404 U.H.	———
	F6	2	MWF	123 L.H.	Martin
	[2]F7	2	MWF	411 U.H.	Wheeler
	G1	3	MWF	406 U.H.	Sweney
	G2	3	MWF	311 U.H.	———
	G3	3	MWF	105 L.H.	Riebel
	G4	3	MWF	212 U.H.	Haskell
	G5	3	MWF	240 L.H.	Roberts
	G6	3	MWF	411 U.H.	———
	[2]G7	3	MWF	312 U.H.	Osenburg
	H1	4	MWF	203 U.H.	Bloom
	H2	4	MWF	204 U.H.	Wheeler
	[2]H3	4	MWF	406 U.H.	Riebel
	K1	8	TTS	208 U.H.	Gettmann
	[2]K2	8	TTS	315 U.H.	Orlovich
	L1	9	TTS	315 U.H.	Orlovich
	[2]L2	9	TTS	311 U.H.	Gettmann
	M	10	TTS	413 U.H.	Fisher
	N	11	TTS	407 U.H.	Gettmann

Rhet. 3. Exposition.—*Prerequisite:* Rhet. 1 and 2.

3	B	9	MWF	104 L.H.	Busey
	C	10	MWF	406 U.H.	Goldman
	G	3	MWF	104 L.H.	Landis

Rhet. 4. Narration and Description.—Elements of narrative writing. (Not a course in short-story writing). *Prerequisite:* Rhet. 1 and 2.

3	B	9	MWF	312 U.H.	Rapp
	C	10	MWF	203 L.H.	Kelso
	D	11	MWF	310 U.H.	Trelease
	F	2	MWF	203a L.H.	Finney

Rhet. 7. Advanced Narrative Composition.—*Prerequisite:* Junior standing. (3). 3 MWF; 204a L.H. Assistant Professor Weirick.

Rhet. 10. Business Letter Writing.—*Prerequisite:* Rhet. 1 and 2.

Credit	Section	Hours	Days	Room	Instructor
2	A1 (LAS, Agr., Ed.)	8	MW	128 L.H.	
	B1 (Com.)	9	MW	312 Com.	Coleman
	B2 (LAS, Agr., Ed.)	9	TT	128 L.H.	Lang
	B3 (Com.)	9	MW	326 Com.	Anderson
	C1 (Com.)	10	MW	326 Com.	Anderson
	C2 (LAS, Agr., Ed.)	10	TT	128 L.H.	Lang
	C3 (Com.)	10	TT	312 Com.	Coleman
	C4 (Com.)	10	TT	305 Com.	Saunders
	D1 (Eng.)	11	MW	101 E.H.	Coleman
	D2 (LAS, Agr., Ed.)	11	TT	128 L.H.	Anderson
	E1 (Com.)	1	MW	305 Com.	Saunders
	E2 (Com.)	1	TT	322 Com.	Lang
	F1 (Com.)	2	MW	305 Com.	Saunders
	F2 (Eng.)	2	TT	101 E.H.	Coleman

Rhet. 17. Advanced Composition.—Criticism, theory, and practice. (3). *Prerequisite:* Junior standing. 3 MWF; 302 L.H. Dr. Tupper.

Rhet. 21. Advanced Business Writing.—Sales letter campaigns and advertising copy. *Prerequisite:* Grade of "A" or "B" in Rhet. 10. (2). 11 TT; 305 Com. Associate Professor Saunders.

Rhet. 22. Special Types of Business Writing.—Business magazine articles and business reports. *Prerequisite:* Rhet. 10. (2). 10 TT; 310 Com. Assistant Professor C. R. Anderson.

C. SPEECH

Courses for Undergraduates

Speech 1. Principles of Effective Speaking.—*Prerequisite:* Rhet. 1 and 2.

3	A1	8	MWF	202 Entom.	Swanson
	A2	8	MWF	136 L.H.	Seidenburg
	B1	9	MWF	202 Entom.	Henderson
	B2	9	MWF	136 L.H.	Seidenburg
	C1	10	MWF	136 L.H.	Nelson
	C2	10	MWF	202 Entom.	Judson
	D1	11	MWF	136 L.H.	Nelson
	D2	11	MWF	202 Entom.	Hadley
	E1	1	MWF	136 L.H.	Huston
	F	2	MWF	142 L.H.	Henderson
	G	3	MWF	136 L.H.	Henderson

Speech 2. Business and Professional Speaking.—*Prerequisite:* Speech 1.

2	J	8	TT	142 L.H.	Huston
	K	9	TT	142 L.H.	Seidenburg
	L	10	TT	142 L.H.	Judson
	M	11	TT	142 L.H.	Judson

Sp ech 3. Elements of Debating.—*Prerequisite:* Speech 1.

3	B	9	MWF	142 L.H.	Huston
	E	1	MWF	142 L.H.	Seidenburg

Speech 10. Oral Interpretation of Literature.—*Prerequisite:* Speech 1.

2	K	9	TT	136 L.H.	Hadley
	L	10	TT	136 L.H.	Hadley
	N	1	TT	136 L.H.	Henderson
	O	2	TT	136 L.H.	Nelson

Courses for Advanced Undergraduates

Speech 4. Advanced Debating.—*Prerequisite:* Speech 3 and junior standing. (3). 10 MWF; 142 L.H. Mr Huston.

Speech 7. Masters of Public Address.—*Prerequisite:* Speech 2 or 3 and junior standing. (3). 11 MWF; 142 L.H. Assistant Professor Judson.

Speech 8. Dramatization.—*Prerequisite:* Speech 10 and junior standing. (3). 1 MWF; L.H. Theatre. Mr. Swanson.

Speech 11. Play Production.—*Prerequisite:* Speech 8 and junior standing. (3). Laboratory fee, $5. 2 MWF; L.H. Theatre. Mr. Swanson.

Speech 14. Methods of Speech Correction.—*Prerequisite:* 10 hours of speech or permission of instructor; junior standing. (2). 11 TT; 136 L.H. Miss Nelson.

D. SCANDINAVIAN LANGUAGES AND LITERATURE

Courses for Undergraduates

Scand. 6. Ibsen.—Lectures. Study of three of the social dramas; parallel reading of three of the early and three of the later dramas; Ibsen's technique. Archer's translation is used. *Prerequisite:* Junior standing. (2). 9 TT; 202 L.H. Professor Flom.

Scand. 22b. Elementary Swedish.—Grammar; conversation; reading of *Mina pojkar*. *Prerequisite:* Scand. 22a or an equivalent knowledge of Swedish. (3). 1 MWF; 201 L.H. Mr. JOHNSON.

Courses for Graduates

Scand. 101. Old Norse (Old Icelandic).—(1 unit). Arrange; 209 L.H. Professor FLOM.

Scand. 130. The Runic Inscriptions: Old Scandinavian, Anglo-Saxon, Gothic and German.—(1 unit). Arrange; 209 L.H. Professor FLOM.

Scand. 150. Research.—Thesis. Conferences. (1 to 2 units).* Arrange; 209 L.H. Professor FLOM.

ENTOMOLOGY

Note: Certain courses in this department require laboratory fees varying from $1.50 to $5.

Major: 20 hours exclusive of Entomology 1, 2, 31. At least five hours must be offered from the advanced group.

Minors: 20 hours in not more than two of the following, with not less than eight hours in either department, if two subjects are chosen: zoology, botany, chemistry, physiology, horticulture, and agronomy.

Entomology 1 is open to freshmen, without prerequisite. It is prerequisite to all other courses in the department except 2, 31, and 32, and may be followed by any of the other courses for undergraduates or by 6, 10, 20, or 21 in the senior year. Agricultural students and others desiring strictly practical work may take 1, 8, and 20 in sequence. Students majoring in entomology should take as many of the courses offered as possible, including some work in classification, morphology, and control, and should consult the head of the department. Seniors receive reduced credit in Entomology 1.

Courses for Undergraduates

Entom. 1. Destructive and Useful Insects.—Two discussion periods and four hours laboratory a week.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8–10	MWF	309 Entom.	HAYES, KEARNS, HEISS
[1]Seniors will receive only 2 hours credit.	B	10–12	MWF	309 Entom.	METCALF, BALDUF, MILUM
	C	1–3	MWF	309 Entom.	METCALF, MILUM, BURKS

Entom. 2. Insects: Their Ways and Their Relations to Man.—A non-technical, cultural course of illustrated lectures with exhibits. *Prerequisite:* Sophomore standing. (Not open to students who have taken Entom. 1.)

2	A	11	TT	202 Entom.	BALDUF
	B	2	TT	202 Entom.	

Entom. 7b. Insect Morphology.—Internal morphology and physiology. *Prerequisite:* Entom. 7a and sophomore standing. (3). 10-12 MWF; 312 Entom. Associate Professor HAYES.

Entom. 8b. Insect Pests of Field Crops.—*Prerequisite:* Entom. 1 and sophomore standing. (3 or 5).* 8-11 TT; 312 Entom. Associate Professor HAYES.

Entom. 31. Essentials of Beekeeping.—*Prerequisite:* Sophomore standing. (1 or 2).* Lect., 4 Tu; for 2 hours credit include lab., 3-5 Th; 104 Exp. Zool. Lab. Assistant Professor MILUM.

Entom. 32. Advanced Beekeeping.—*Prerequisite:* Entom. 31 or consent of instructor and sophomore standing. (2). 10-12 Tu, 11 Th; 104 Exp. Zool. Lab. Assistant Professor MILUM.

Courses for Advanced Undergraduates and Graduates

Entom. 6. Special Problems.—*Prerequisite:* Any of the following: Entom. 3, 7, 8, 10, 20, 21, 22, or 31; senior standing. (2 to 5).* Saturday morning; additional hours to be arranged. Members of the department.

Entom. 21. Insect Bionomics.—*Prerequisite:* Entom. 1 and senior standing. (3). Arrange; 312 Entom. Professor METCALF.

Courses for Graduates

Note: The prerequisite for graduate work in entomology is two years of undergraduate biology, including zoology and entomology.

Entom. 100. Research.—(½ to 4 units).* Arrange.

(a) **Morphology and Embryology of Insects.**—Associate Professor HAYES.
(b) **Economic Entomology.**—Professor METCALF.
(c) **Systematic Entomology.**—Professor METCALF, Assistant Professor BALDUF.
(d) **Biology and Ecology of Insects.**—Professor METCALF.

Entom. 107b. Internal Insect Anatomy.—(1 unit). 10-12 MWF; 312 Entom. Associate Professor HAYES.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

GENERAL ENGINEERING DRAWING

Note: All courses in this department require laboratory fees of $1.50.

Courses for Undergraduates

G.E.D. 1. Elements of Drawing.—*Prerequisite:* Plane geometry.

Credit	Section	Hours	Days	Room	Instructor
4	A	8–11	MF	316 T.B.	Department staff
		8–10	W	316 T.B.	
	B	1–4	MF	316 T.B.	
		1–3	W	316 T.B.	

G.E.D. 2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry.

4	A	8–11	MF	To be assigned at registration time.	Department staff
		8–10	W		
	B	1–4	MF		
		1–3	W		
	C	8–11	TT		
		8–10	S		
	D	1–4	TT		
		10–12	S		

G.E.D. 4. Advanced Drawing.—*Prerequisite:* At least three years of drawing in high school, or the equivalent in commercial practice, to be determined by the department at registration time.

4	C	8–11	TT	302 T.B.	
		8–10	S	302 T.B.	

G.E.D. 6. Elements of Drawing.—*Prerequisite:* Plane geometry. (For students in chemical engineering). (3). Sec. D, 1-4 TT; 316 T.B. Mr. Jorgensen.

G.E.D. 8. Architectural Projections.—Continuation of G.E.D. 7. *Prerequisite:* G.E.D. 7. (Student completing G.E.D. 7 and 8 may substitute them for G.E.D. 2.)

2	A	8–11	MF	103 T.B.	Porter and Lendrum
	B	2–5	MF	103 T.B.	
	D	2–5	TT	103 T.B.	

G.E.D. 10. Pictorial Drawing.—*Prerequisite:* G.E.D. 2. (Required of students in the City Planning Option in Civil Engineering; and "approved elective" in all other curricula of the College of Engineering).

4 or 3[1]	C	8–11	TT	316 T.B.	Lendrum
		8–10	S		

[1]For "approved elective" group who will omit 8-10 S hours in registering.

GEOLOGY AND GEOGRAPHY

Note: Certain courses in this department require a laboratory fee varying from $1 to $2.50.

A. GEOLOGY

Major: 20 hours in geology, exclusive of Geol. 1, 43, and 44, and inclusive of at least five hours of courses not open to freshmen or sophomores.

Minors: 20 hours of courses in one or two of the following departments: astronomy, botany, chemistry, economics, geography, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology. At least eight hours must be offered in each subject, if two are chosen.

Note: Certain geology courses are offered only in alternate years: 4, 15, 16, 17, 24, 38, 95, 96, 122, 125, 142, 143, 151, 160, 161, 163.

Students desiring training which leads to executive positions with companies engaged in the development of various mineral industries should select appropriate courses in geology after consulting the head of the Department, and also: Accountancy 1a, 1b; Economics 2, 3, and 35; B.O.O. 11; and Business Law 1a, 1b. A minimum of one year's work after graduation should be included in the student's program if possible.

Courses for Undergraduates

Geol. 1. General Geology.—Cultural course. Lectures; one or two field trips.

3[1]	A	8	MWF	228 N.H.	Shepard
[1]Seniors receive only 2 hours credit; students who have credit for Geog. 1 receive only 1 hour credit for Geol. 1.	B	10	MWF	247 N.H.	Quirke
	C	11	MWF	247 N.H.	DeWolf

Geol. 1a. General Geology Laboratory.—*Prerequisite:* Geol. 1 or concurrent registration in it. (Not open to students who received credit for Geol. 1 prior to September, 1932.)

2	Lab. 1	8–10	TT	251 N.H.	Wanless
	Lab. 2	10–12	TT	251 N.H.	DeWolf
	Lab. 3	1–3	TT	251 N.H.	Shepard
	Lab. 4	3–5	TT	251 N.H.	Utterback
	Lab. 5	10–12	MF	251 N.H.	Shepard
	Lab. 6	1–3	MF	251 N.H.	Utterback

Geol. 2a. Historical Geology.—*Prerequisite:* Geol. 1.

Credit	Section	Hours	Days	Room	Instructor
4[1]	Lect. A	9	TWTF	241 N.H.	SUTTON
[1]Seniors receive only 3 hours credit.	Lect. B	11	TWTF	241 N.H.	SUTTON

Geol. 4. Field Work.—Field observations during the week following the Easter recess, and discussion and quiz one hour weekly. Credit will be given only upon the completion of a satisfactory written report. *Prerequisite:* Geol. 1 taken since Sept., 1932, or Geol. 2a taken earlier. Estimated traveling expense about $25. (2). 2 Tu; 150 N.H. Assistant Professor WANLESS.

Geol. 43. Engineering Geology.—*Prerequisite:* Sophomore standing in the College of Engineering.

3	Lect.	1	TT	247 N.H.	HOWARD
		8	S	247 N.H.	
	Lab. 1	2–4	Tu	147 N.H.	
	Lab. 2	9–11	S	147 N.H.	

Geol. 44. Agricultural Geology.—*Prerequisite:* Sophomore standing in the College of Agriculture.

3	Lect. and Quiz	1	MWF	247 N.H.	WANLESS
	Lab.	10–12	F	147 N.H.	WANLESS

Courses for Advanced Undergraduates and Graduates

Geol. 16. Stratigraphy.—*Prerequisite:* Geol. 9. (3). 8 MWF; 236 N.H. Lab. hours to be arranged. Assistant Professor SUTTON.

Geol. 49. Microscopic Mineralogy.—*Prerequisite:* Geol. 20 or 47.

5	Lect.	1	TT	254 N.H.	QUIRKE and assistants
	Lab. 1	8–10	MWF	254 N.H.	
	Lab. 2	8–10	TTS	254 N.H.	

Geol. 60b. Introduction to Research.—Limited to seniors majoring in geology. (2). Members of the department.

Geol. 61b. Applied Petroleum Geology.—*Prerequisite:* Geol. 43 and 2a, or consent of head of department. Primarily for students in the College of Engineering. (3). Arrange. Associate Professor HOWARD.

Courses for Graduates

Geol. 102. Igneous Petrography.—(1 unit). Twice a week. Arrange; 253 N.H. Professor QUIRKE.

Geol. 134. Advanced Studies in Geology.—(½ to 2 units).* Arrange. Members of the department.

Geol. 135. Research.—(½ to 4 units).* Once a week. Arrange. Members of the department.

Geol. 142. Stratigraphic Paleontology: Paleozoic.—(1 unit). Arrange; 236 N.H. Assistant Professor SUTTON.

Geol. 160. Principles of Petroleum Geology.—(1 unit). Three times a week. Arrange. Associate Professor HOWARD.

B. GEOGRAPHY

Major: 20 hours of courses in geography, exclusive of Geography 1, and including at least five hours of courses not open to freshmen.

Minors: 20 hours selected from not more than two of the following named departments: botany, economics, education, geology, history, and zoology. At least eight hours must be offered in each subject, if two are chosen.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, or 10 or 11, or 12 or 8 or 53.

Note: Certain geography courses are offered only in alternate years: 6, 9, 10, 14a.

Courses for Undergraduates

Geog. 1. Elements of Geography.—Lectures and discussions.

5[1]	A1	8	MTWTF	247 N.H.	PAGE
[1]Seniors receive only 4 hours credit; students who have credit for Geol. 1 receive only 3 credits for Geog. 1.	A2	8	MTWTF	422 N.H.	BURGY
	B	9	MTWTF	422 N.H.	RANDALL
	C	10	MTWTF	422 N.H.	RANDALL
	D	11	MTWTF	422 N.H.	POGGI
	E	1	MTWTF	422 N.H.	RANDALL
	F	2	MTWTF	422 N.H.	COZZENS

Geog. 2. Economic Geography.—*Prerequisite:* Geog. 1. Lectures and discussion.

5[1]	A	8	MTWTF	435 N.H.	BLANCHARD
[1]Seniors will receive only 4 hours credit.	B	9	MTWTF	435 N.H.	POGGI
	C	10	MTWTF	435 N.H.	BURGY
	D	11	MTWTF	435 N.H.	PAGE
	E	1	MTWTF	435 N.H.	BLANCHARD

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Geog. 5. Geography of South America.—Lectures and discussions. *Prerequisite:* Geog. 2. (3). 1 MWF; 434 N.H. Dr. BURGY.

Courses for Advanced Undergraduates and Graduates

Geog. 11. Geography of Asia.—*Prerequisite:* One regional course. (3). 2 MWF; 434 N.H. Dr. POGGI.

Geog. 14a. Climates of the Continents.—*Prerequisite:* Geog. 14. (3). 9 MWF; 434 N.H. Assistant Professor PAGE.

Geog. 53b. Advanced Commercial Geography.—*Prerequisite:* One regional course and senior standing. (3). 10 MWF; 434 N.H. Professor BLANCHARD.

Geog. 60b. Introduction to Research.—Limited to seniors majoring in Geography. (2). Arrange. Members of the staff.

Courses for Graduates

Geog. 134. Advanced Studies in Geography.—(½ to 2 units).* Arrange. Members of the department.

Geog. 135. Research.—(½ to 4 units).* Arrange. Members of the department.

GERMAN

Major: 20 hours in German, excluding courses 1 and 2, and including six hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list, with not less than eight hours in each subject: education, English (excluding Rhetoric 1 and 2), French (excluding 1a), Greek, history, Italian, Latin, philosophy, Spanish (excluding 1a).

Note: Seniors receive reduced credit in German 1 and 2.

Elementary and Intermediate Courses

German 1. Elementary Course.—

Credit	Section	Hours	Days	Room	Instructor
4[1]	A1	8	MTWT	224 L.H.	KRAUSS
	A2	8	MTWT	205 L.H.	FEHLAU
[1]Seniors will receive	B	9	MTWT	302 L.H.	BALD
only 3 hours credit.	C	10	MTWT	205 L.H.	JEHLE
	D	11	MTWT	233 L.H.	STUBING
	E	1	MTWT	205 L.H.	ARNDT
	F	4	MTWT	205 L.H.	SCHIMPF

German 2. Elementary Course (continued).—*Prerequisite:* German 1, German S1, or one year of high school German.

4[1]	A1	8	MTWT	206 L.H.	BALD
	A2	8	MTWT	233 L.H.	STUBING
[1]Seniors will receive	A3	8	MTWT	114 L.H.	VON WESTEN
only 3 hours credit.	B1	9	MTWT	205 L.H.	BROOKS
	B2	9	MTWT	227 L.H.	JEHLE
	C	10	MTWT	233 L.H.	SCHERER
	D1	11	MTWT	311 L.H.	SCHERER
	D2	11	MTWT	300 L.H.	DUNNINGTON
	E1	1	MTWT	300 L.H.	VON WESTEN
	E2	1	MTWT	206 L.H.	PLANITZ
	F	2	MTWT	206 L.H.	ARNDT
	G1	3	MTWT	311 L.H.	SCHIMPF
	G2	3	MTWT	206 L.H.	PLANITZ
	H	4	MTWT	311 L.H.	FEHLAU

German 4. Intermediate Course.—*Prerequisite:* German 2, S2, or two years of high school German or equivalent.

4	A	8	MTWT	219 L.H.	MEMMING
	B	9	MTWT	211 U.H.	KRAUSS
	C	3	MTWT	211 L.H.	KOLLER

German 5. Intermediate Course (continued).—Literary reading. *Prerequisite:* German 4, S4, or three years of high school German or equivalent.

4	A	8	MTWT	232 L.H.	GEISSENDOERFER
	B	9	MTWT	232 L.H.	GEISSENDOERFER
	C	11	MTWT	238 L.H.	KOLLER
	D	2	MTWT	205 L.H.	JEHLE
	E	3	MTWT	205 L.H.	KRAUSS

German 6. Scientific Reading.—(Students may not take both 5 and 6 for more than a total of 4 hours credit without permission of department.) *Prerequisite:* German 4, S4, or three years of high school German or equivalent.

4	A	11	MTWT	240 L.H.	WILLIAMS
	B	4	MTWT	206 L.H.	BALD

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates

German 7. Modern Fiction.—*Prerequisite:* German 5 or equivalent. (3). 2 MWF; 240 L.H. Assistant Professor KOLLER.

German 10. Introductory Goethe Course.—*Prerequisite:* German 5 or equivalent. (3). 11 MWF; 205 L.H. Professor ARON.

German 16b. Conversation and Writing.—*Prerequisite:* German 16a or equivalent. (2). 2 TT; 240 L.H. Assistant Professor KOLLER.

German 24b. Nineteenth Century Drama.—*Prerequisite:* German 24a or equivalent. (2). 3 TT; 240 L.H. Assistant Professor GEISSENDOERFER.

German 25. Teachers' Course.—*Prerequisite:* Three years of college German or equivalent. (2). 3 MW; 203a L.H. Dr. JEHLE.

German 28b. Lyrics and Ballads.—*Prerequisite:* German 28a or equivalent. (2). 9 TT; 240 L.H. Associate Professor WILLIAMS.

German 29b. Advanced Conversation and Writing.—*Prerequisite:* German 29a or equivalent. (2). 2 TT; 204a L.H. Assistant Professor GEISSENDOERFER.

German 30b. Senior Thesis and Honors Course.—*Prerequisite:* Senior standing; three years of college German or equivalent. (2). Arrange. Professor ARON and others.

Courses for Advanced Undergraduates and Graduates

German 19b. Goethe's Faust II.—*Prerequisite:* German 19a or equivalent. (2). 11 TT; 425 Lib. Professor BROOKS.

German 26b. German Literature in the Nineteenth Century.—*Prerequisite:* German 26a or equivalent. (3). 9 MWF; 233 L.H. Professor ARON.

German 32. History of German Civilization.—*Prerequisite:* Three years of college German or equivalent. (3). 11 MWF; 204a L.H. Professor BROOKS.

German 54. Introduction to Comparative Literature.—See English 54.

Courses for Graduates

German 101. Seminar in the German Novel.—(1 unit). Twice a week. Arrange. Professor ARON.

German 102. Thesis.—(½ to 2 units).* Arrange. Professors ARON, BROOKS; Associate Professor WILLIAMS; Assistant Professor GEISSENDOERFER.

German 105. Old High German.—(1 unit). Twice a week. Arrange. Associate Professor WILLIAMS.

German 117. German Literature of the Seventeenth and Eighteenth Centuries.—(1 unit). Twice a week. Arrange. Professor ARON.

German 121. Walther von der Vogelweide.—(1 unit). Twice a week. Arrange. Associate Professor WILLIAMS.

HISTORY

Major: 20 hours, including (a) ten hours in courses having junior standing as a prerequisite, and (b) any other courses offered by the department (except courses taken in the freshman year).

Minors: 20 hours selected from one or two of the following subjects: economics, political science, geography, philosophy, law, sociology, and English and American literature (except such courses as are taken in the freshman year). Courses in one modern language (except such as are primarily designed for freshmen) will be accepted as one of two minor subjects.

Note: Seniors receive reduced credit in History 1 and 2.

Courses for Undergraduates

Hist. 1b. Continental European History.—

Credit	Section	Hours	Days	Room	Instructor
4[1]	[2]Lect. 1	10	TT	Morrow Hall	JONES
	A Disc.	1	TT	329 L.H.	KING
	B Disc.	9	WF	334 L.H.	SHAY
	C Disc.	10	WF	335 L.H.	JONES
	D Disc.	10	WF	211 L.H.	SHAY
	E Disc.	10	WF	308 L.H.	KING
	F Disc.	10	WF	203 U.H.	
	G Disc.	1	WF	305 L.H.	
	H Disc.	1	WF	335 L.H.	
	[2]Lect. 2	2	MW	228 N.H.	RONALDS
	I Disc.	10	TT	329 L.H.	RONALDS
	J Disc.	11	TT	321 L.H.	RONALDS
	K Disc.	1	TT	305 L.H.	RONALDS
	L Disc.	2	TT	335 L.H.	DAVIS
	M Disc.	2	TT	321 L.H.	SHAY
	N Disc.	2	TT	340 L.H.	
	O Disc.	3	TT	308 L.H.	

[1]Seniors will receive only 3 hours credit.

[2]Students in Lect. 1 must elect a discussion in the A-H group. Students in Lect. 2 must elect a discussion in the I-O group.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hist. 2b. English History.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect. 1	11	M	L.H. Theatre	DIETZ
	Lect. 2	2	M	Morrow Hall	DIETZ
[1]Seniors will receive only 2 hours credit.	A Disc.	10	WF	321 L.H.	BONE
	B Disc.	11	WF	321 L.H.	DIETZ
	C Disc.	11	WF	329 L.H.	SHAY
	D Disc.	11	WF	224 L.H.	BONE
	E Disc.	11	WF	335 L.H.	WERNER
	F Disc.	1	WF	303a L.H.	ERICKSON
	G Disc.	2	WF	340 L.H.	ERICKSON
	H Disc.	2	WF	311 L.H.	DIETZ
	I Disc.	2	WF	329 L.H.	SHAY
	J Disc.	2	TT	203 L.H.	
	K Disc.	3	TT	305 L.H.	SHAY
	L Disc.	1	WF	204a L.H.	BONE

Hist. 3b. History of the United States, 1828-1935.—*Prerequisite:* One year of college work.

3	[1]Lect. 1	8	MF	218 U.H.	WERNER
	A Disc.	8	Tu	305 L.H.	WERNER
[1]Students in Lect. 1 must elect a discussion in the A-G group. Students in Lect. 2 must elect a discussion in the H-L group.	B Disc.	8	W	305 L.H.	WERNER
	C Disc.	8	W	311 L.H.	
	D Disc.	8	W	303a L.H.	DAVIS
	E Disc.	8	Th	305 L.H.	WERNER
	F Disc.	8	Th	303a L.H.	
	G Disc.	11	Tu	334 L.H.	WERNER
	[1]Lect. 2	2	MF	218 U.H.	DUNBAR
	H Disc.	2	Tu	300 L.H.	DUNBAR
	I Disc.	2	Tu	235 L.H.	KING
	J Disc.	2	W	321 L.H.	DUNBAR
	K Disc.	2	W	304 L.H.	KING
	L Disc.	2	Th	311 L.H.	DUNBAR

Hist. 5b. The Ancient World: Rome.—*Prerequisite:* Sophomore standing. (3). 2 MWF; 303 L.H. Mr. BONE.

Hist. 18. Teaching of History.—*Prerequisite:* One year of college history and senior standing. (2). 3 TT; 303 L.H. Assistant Professor WERNER.

Hist. 23b. Puritan Revolution in England and America, 1642-1713.—*Prerequisite:* One year of college history and junior standing. (2). 11 TT; 410 U.H. Professor PEASE.

Hist. 30b. The Mohammedan World: The Ottoman Empire and the Near East.—*Prerequisite:* One year of college history. (3). 10 MWF, 302 L.H. Professor LYBYER.

Hist. 33b. History of Russia Since 1881; Revolution; the Soviet Union.—*Prerequisite:* Junior standing and one year of college history. (3). 8 MWF; 105 L.H. Associate Professor RODKEY.

Hist. 34b. Development of Modern Europe, 1789-1848.—*Prerequisite:* Junior standing and one year of college history. (3). 11 MWF; 203 L.H. Dr. ERICKSON.

Hist. 42. Medieval Civilization, Religious and Intellectual.—*Prerequisite:* One year of college history. (3). 2 TT; 329 L.H. Professor LARSON.

Hist. 43. The British People in the Victorian Age, 1830-1901.—*Prerequisite:* One year of college history. (2). 1 TT; 204 L.H. Dr. ERICKSON.

Hist. 45b. History of England in the Eighteenth and Early Nineteenth Centuries (1760-1830).—*Prerequisite:* Junior standing and one year of college history. (2). 2 TT; 303 L.H. Assistant Professor RONALDS.

Hist. 90b. Thesis.—*Prerequisite:* Senior standing. (2). Arrange. Associate Professor RODKEY.

Hist. 91b. Honors Course: Pro-seminar in Recent History.—*Prerequisite:* Senior standing. (2). Arrange. Professor LYBYER.

Courses for Advanced Undergraduates and Graduates

(Open to juniors and seniors)

Hist. 16b. Foundations of American Society: Transition to National Life and Organization, 1763-1789.—*Prerequisite:* History 3a. (3). 10 MWF; 311 L.H. Assistant Professor DUNBAR.

Hist. 20b. The South since 1850.—*Prerequisite:* One year of college history. (2). 8 TT; 335 L.H. Professor RANDALL.

Hist. 22b. History of the West, 1774-1830.—*Prerequisite:* One year of college history. (2). 10 TT; 410 U.H. Professor PEASE.

Hist. 27. History of Latin America from the Wars of Independence to the Present Time.—*Prerequisite:* One year of college history. (3). 2 MWF; 305 L.H. Professor ROBERTSON.

Hist. 29. America and Europe: Selected Topics, 1776-1870.—*Prerequisite:* One year of college history. (3). 8 MWF; 308 L.H. Professor ROBERTSON.

Hist. 32b. Recent European History, 1914-1935.—*Prerequisite:* One year of college history, economics, or political science. (3). 8 MWF; L.H. Theatre. Professor LYBYER.

Hist. 36b. Imperial and Republican Germany; the National Socialist State, 1862-1935.—*Prerequisite:* One year of college history. (3). 9 MWF; 308 L.H. Associate Professor RODKEY.

Hist. 38b. Development of the French Monarchy in Early Modern Times, 1453-1648.—*Prerequisite:* History 1a. (3). 9 MWF; 329 L.H. Professor JONES.

Hist. 44b. Constitutional History of England.—*Prerequisite:* One year of college history or political science. (3). 3 MWF; 303 L.H. Professor LARSON.

Hist. 46b. Social and Economic History of England, 1833-1935.—*Prerequisite:* One year of college history or economics. (3). 9 MWF; 335 L.H. Professor DIETZ.

Hist. 56. History of the Roman Republic.—*Prerequisite:* One year of college history. (3). 1 MWF; 202 L.H. Professor OLDFATHER.

Hist. 60. The United States in the World War.—*Prerequisite:* One year of college history. (3). 11 MWF; 304 L.H. Professor RANDALL.

Hist. 62b. Political and Constitutional Development of the United States (since 1809).—*Prerequisite:* One year of college history or political science. (3). 10 MWF; 329 L.H. Professor RANDALL.

Courses for Graduates

Hist. 101b. Seminar in American History: Investigation of Selected Topics.—(1 unit). 4-6 Tu. Professor RANDALL.

Hist. 102b. Seminar in English History.—(1 unit). 4-6 Th. Professor DIETZ.

Hist. 104b. Seminar in Modern History: Recent Problems.—(1 unit). 4-6 W. Professor LYBYER.

Hist. 105. Research in Special Topics (Thesis Course).—(1 to 2 units).* Professors LARSON, LYBYER, ROBERTSON, JONES, RANDALL, DIETZ; Associate Professor RODKEY; Assistant Professors DUNBAR, RONALDS, WERNER.

Hist. 106b. Seminar in the History of the Later Middle Ages.—(1 unit). Arrange. Professor LARSON.

Hist. 122a. The Westward Movement, 1749-1755.—(1 unit). Two hours. 4-6 Tu. Professor PEASE.

Hist. 127. Inter-American Relations: Relations of the Latin-American Nations with each other and with the United States.—(1 unit). Arrange. Professor ROBERTSON.

Hist. 133b. Studies in the History of Europe in the Nineteenth Century (1848-1878).—(1 unit). 9-11 S. Associate Professor RODKEY.

Hist. 138b. Studies in the History of France during the Religious Civil Wars (1547-1598).—(1 unit). Arrange. Professor JONES.

HOME ECONOMICS

Note: Certain courses in this department require laboratory fees varying from $1 to $16.

College of Agriculture

For Curriculum in General Home Economics, see "Directions for Registration," page 50.
For Curriculum in Nutrition and Dietetics, see "Directions for Registration," page 52.

College of Education

For Curriculum in Home Economics Education, see "Directions for Registration," page 55.
For Curriculum in Home Economics Education—Smith-Hughes, see "Directions for Registration," page 55.

College of Liberal Arts and Sciences

Major A.—General Home Economics: 20 hours from courses offered by the department, excluding Home Economics 7 and 58, and including Home Economics 2, 5, 10, 29, 59, and two or more of the following: Home Economics 14, 20, 28, 31, 33, 35, 41, 43a, 43b, 48, 55, 57a, 57b.

Major B.—Nutrition: 20 hours excluding Home Economics 58, and including Home Economics 5, 39a, 39b, 41, 59, and two or more of the following: Home Economics 20, 33, 35, 45, 47.

Minor A.—20 hours chosen from one or two of the following subjects: chemistry, bacteriology. At least eight hours must be offered in each subject, if two are chosen.

Minor B.—20 hours chosen from one or two of the following subjects: economics, sociology. At least eight hours must be offered in each subject, if two are chosen.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

For All Colleges

Transfer Students.—To satisfy the requirements for graduation, students transferring home economics credits from other institutions must take five hours in residence from the following: Home Economics 20, 28, 31, 33, 35, 39a, 39b, 41, 43a, 43b, 47, 48, 50, 51, 55, 57a, 57b.

Electives.—In addition to the required subjects in each college, it is expected that students will choose electives in accord with their special interests, as follows:

1. Textiles, clothing, and costume design: Home Economics 19, 30, 31, 42, 43a, 43b, 50, 51.
2. Institution management and hospital dietetics: Home Economics 20, 33, 35, 46, 47, 48, 55.
3. Household management: Home Economics 14, 28, 57a, 57b, and additional courses in economics.
4. House planning and furnishing: Art 11, 12; Architecture 11, 12; Home Economics 3, 43a, 43b, and additional courses in art and history.
5. Nutrition: Chemistry 24, 50a; Zoology 1; Home Economics 20, 33, 35, 39a, 39b, 41, 45.
6. Teaching of home economics: Home Economics 11, 13, 45; Education 6, 10, 25.

Courses for Undergraduates NOT Majoring in Home Economics

Courses 7, 38, 56a, 60, 61, and 70 are open to both men and women and, with the exception of Course 7, are NOT open to students majoring in Home Economics.

Home Econ. 7. Textiles.—See sections listed under Home Econ. 7 in the following group of courses.

Home Econ. 38. Elementary Nutrition.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
2	F Lect. (for women)	2	MW	117 W.B.	Barto
	K Lect. (for men)	9	TT	231 W.B.	

Home Econ. 56a. The Child and His Development.—*Prerequisite:* Senior standing or consent of instructor.

2	Lect.	10	MW	210 W.B.	Walls

Home Econ. 60. Food Problems of Student Groups.—(A course for commissaries). Selection, buying, and managerial problems in the preparation and serving of food for student groups. *Prerequisite:* Sophomore standing and consent of instructor.

1	Lect.	2	Tu	117 W.B.	Smith, Barto

Home Econ. 61. Introduction to Foods.—Standards of selection, preparation and service of foods; grades, cost; consumers' problems.

3	Lect.	10	Tu	117 W.B.	Munger
	Quiz	10	Th	117 W.B.	Munger
	Lab.	3–5	M	235 W.B.	Munger

Home Econ. 70. Clothing Selection.—Economic, artistic, psychologic, and hygienic problems in the selection of clothing. Includes no garment construction.

3	Lect.	9	Tu	117 W.B.	Whitlock, Eades
	Lab.	10–12	TT	203 W.B.	

Courses for Undergraduates Majoring in Home Economics

Home Econ. 2. Home Architecture.—*Prerequisite:* Art 1a or the equivalent. *Prerequisite or concurrent:* Art 1b.

3	Lect.	1	MW	117 W.B.	Foster, Weaver
	Quiz	1	F	117 W.B.	Weaver
	C Conf.	10	F	309 W.B.	Weaver
	D Conf.	11	F	309 W.B.	Weaver
	F Conf.	2	F	309 W.B.	Weaver
	G Conf.	3	F	309 W.B.	Weaver
	M Conf.	11	S	309 W.B.	Weaver

Home Econ. 3. Home Decoration.—*Prerequisite:* Art 1a, 1b, or the equivalent.

3	Lect.	10	S	117 W.B.	Weaver
	L Lab.	10–12	TT	309 W.B.	
	N Lab.	1–3	TT	309 W.B.	
	P Lab.	3–5	TT	309 W.B.	

Home Econ. 5. Dietetics.—*Prerequisite:* Chem. 33; Home Econ. 58; Physiol. 1, 1a. *Prerequisite or concurrent:* Home Econ. 59.

4	Lect.	9	M	117 W.B.	Barto
	B1 Quiz	9	W	117 W.B.	Barto
	B2 Quiz	9	F	117 W.B.	Barto
	C Lab.	10–12	MW	229 W.B.	Barto
	N Lab.	1–3	TT	229 W.B.	Munger

Home Econ. 7. Textiles.—

3[1]	Lect.	11	M	210 W.B.	Jacobsen
	C Quiz	10	F	117 W.B.	Jacobsen
	D1 Quiz	11	W	117 W.B.	Jacobsen
	D2 Quiz	11	F	117 W.B.	Jacobsen
	L1 Lab.	10–12	Tu	304 W.B.	Jacobsen
	L2 Lab.	10–12	Th	304 W.B.	Jacobsen
	N Lab.	1–3	Tu	304 W.B.	Jacobsen

[1]Seniors will receive only 2 hours credit.

Home Econ. 9. Home Economics Extension.—*Prerequisite:* Senior standing in home economics and consent of instructor.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	3–5	M	117 W.B.	Burns
		3	W	117 W.B.	

Home Econ. 10. Organization and Management of the Home.—*Prerequisite:* Econ. 1 or 2; Home Econ. 7. *Prerequisite or concurrent:* Home Econ. 59.

3	A Quiz	8	MWF	121 W.B.	Nickell
	E Quiz	1	MWF	121 W.B.	

Home Econ. 11. The Teaching of Home Economics.—*Prerequisite:* Home Econ. 29, 59. *Prerequisite or concurrent:* Educ. 10; Home Econ. 5, 10, 19. One inspection trip (approximate cost $3). Required of all who wish to be recommended to teach home economics.

3	Lect. and Disc.	2	TT	121 W.B.	Robinson

Home Econ. 13. Home Economics in Education.—Not offered in the second semester of 1934-35. Substitute Education 41, Principles of Vocational Education.

Home Econ. 14. Home Management House.—Conferences and laboratory work in the home management apartment and laundry. Students reside in home management apartment four weeks during the semester. Required of all students who expect to meet the Smith-Hughes requirements. *Prerequisite:* Home Econ. 5, 10 and consent of the instructor.

3	Conf.	4	Th	117 W.B.	Nickell
	Lab.	Arrange			

Home Econ. 19. Costume Design.—*Prerequisite:* Art 1a, 1b, or the equivalent.

3	Lect.	1	F	210 W.B.	Eades
	C Lab.	10–12	MW	309 W.B.	
	E Lab.	1–3	MW	309 W.B.	

Home Econ. 29. Clothing.—*Prerequisite:* Art 1a or 1b; Home Econ. 7.

4	Lect.	9	F	210 W.B.	Whitlock
	B Quiz	9	W	121 W.B.	Beam
	L Quiz	10	Th	121 W.B.	Beam
	C Lab.	10–12	MW	327 W.B.	Beam
	E Lab.	1–3	MW	327 W.B.	Beam
	N Lab.	1–3	TT	327 W.B.	Beam

Home Econ. 30. Clothing.—*Prerequisite:* Art 1a, 1b; Home Econ. 29. *Prerequisite or concurrent:* Home Econ. 19.

3	Lect.	2	F	117 W.B.	Whitlock
	E Lab.	1–3	MW	203 W.B.	
	N Lab.	1–3	TT	203 W.B.	

Home Econ. 40. Home Care of the Sick.—*Prerequisite:* Junior standing in home economics.

1	Lect.	2	M	210 W.B.	Brooks

Home Econ. 46. Quantity Cookery.—*Prerequisite:* Home Econ. 59.

3	Quiz	4	W	117 W.B.	Smith, Prudent
	Lab.	8–11	Two mornings a week to be arranged. Students are advised not to have eleven o'clock classes, as they are required to serve at noon at least two days a week.		

Home Econ. 47. Institution Management.—*Prerequisite:* Econ. 1 or 2 and senior standing. *Prerequisite or concurrent:* Home Econ. 46.

3	Lect. and Disc.	2	MWF	121 W.B.	Smith

Home Econ. 58. Foods.—*Prerequisite:* Chemistry 1, 5.

5	Lect.	9	MW	210 W.B.	Woodruff
	B Quiz	9	F	121 W.B.	Woodruff, Pickens
	C Lab.	10–12	MWF	235 W.B.	Pickens
	E Lab.	1–3	MWF	235 W.B.	Munger
	N Lab.	1–3	TT	235 W.B.	Pickens
		10–12	S		

Home Econ. 59. Food Economics.—*Prerequisite:* Home Econ. 58.

2	Lect.	11	Th	210 W.B.	Woodruff
	P1 Lab.	3–5	Tu	229 W.B.	Munger
	G Lab.	3–5	W	229 W.B.	Pickens
	P2 Lab.	3–5	Th	229 W.B.	Munger

Courses for Advanced Undergraduates and Graduates

Home Econ. 28. Organization and Management of the Home.—*Prerequisite:* Home Econ. 10.

2	Disc.	1	TT	117 W.B.	Nickell

Home Econ. 31. Clothing.—*Prerequisite:* Home Econ. 30.

3	Quiz	11	F	203-5 W.B.	Whitlock
	Lab.	10–12	MW	203-5 W.B.	

Home Econ. 33. Diet in Disease.—*Prerequisite:* Home Econ. 5.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	3	F	121 W.B.	Barto
	Quiz	3	W	121 W.B.	
	Lab.	3–5	M	229 W.B.	

Home Econ. 39b. Readings in Foods and Nutrition.—*Prerequisite:* Home Econ. 5 and senior standing. *Prerequisite or concurrent:* One of the following: Chem. 50a, Home Econ. 20, 33, 35, 41, 55.

1	Seminar	4-5:30	Th	203 W.B.	Woodruff, Outhouse, and Barto

Home Econ. 41. Problems in Nutrition.—*Prerequisite:* Chem. 50a; Physiol. 1, 1a; senior standing.

3 to 5*	Lab. and Conf.	9–12	MWFS	215 W.B.	Outhouse, Meyer

Home Econ. 43b. Problems in Textiles and Clothing.—*Prerequisite:* Econ. 1 or 2; Home Econ. 30 or 51. Individual problems may involve prerequisites of chemistry and physics.

3	Quiz	3	Tu	327 W.B.	Jacobsen, Whitlock, Eades
	Lab.	Arrange			

Home Econ. 45. Organization and Teaching of Nutrition Classes.—Curriculum construction and practice in the teaching of elementary nutrition. *Prerequisite:* Home Econ. 5; senior standing; consent of instructor.

2	Disc.	4	W	121 W.B.	Barto, King
	A Lab.	1:30	Th	Leal School	
	B Lab.	2:30	Th	Leal School	

Home Econ. 48. Institution Dietaries and Administration.—*Prerequisite:* Home Econ. 5, 47. Three and one-half day field trip to Chicago (approximate cost $25).

4	Lect.	9	TT	121 W.B.	Smith
	Lab.	8–12	S	207 W.B.	

Home Econ. 50. Costume Design.—*Prerequisite:* Home Economics 30, 42.

3	Lab.	2–5	MW	309 W.B.	Eades

Home Econ. 51. Textiles.—*Prerequisite:* Chem. 5; Econ. 1 or 2; Home Econ. 7; junior standing.

3	Lect.	1	F	304 W.B.	Jacobsen
	Lab.	1–3	MW	304 W.B.	

Home Econ. 56. The Child and His Development.—*Prerequisite:* Home Econ. 10; Psych. 1.

2	Lect.	1	MW	210 W.B.	Walls

Home Econ. 57b. Problems in Home Management.—*Prerequisite:* Home Econ. 10 and consent of instructor.

3	Arrange			313 W.B.	Nickell

Courses for Graduates

Home Econ. 101. Home Economics.—(1 unit). Professor Wardall.

Home Econ. 102. Research in Nutrition.—(½ to 3 units).* Assistant Professor Outhouse.

Home Econ. 103. Seminar in Nutrition.—(½ unit). Once a week. Assistant Professor Outhouse.

Home Econ. 104. Research in Foods.—(½ to 3 units).* Associate Professor Woodruff.

Home Econ. 105. Seminar in Foods.—(½ unit). Associate Professor Woodruff.

HORTICULTURE

Note: Certain courses in this department require laboratory fees varying from $0.75 to $2.50.

Courses for Undergraduates

Hort. 1. Introductory Horticulture.—(No credit allowed to juniors and seniors.)

3	L Disc.	10	TT	127 New Agr.	
	Lab.	10–12	S	H.F. Lab.	
	J Disc.	8	TT	127 New Agr.	
	Lab.	8–10	S	H.F. Lab.	
	A Disc.	8	WF	118 New Agr.	Colby, Marsh, Weaver
	Lab.	8–10	M	H.F. Lab.	
	I Disc.	4	MW	127 New Agr.	
	Lab.	3–5	F	H.F. Lab.	

Hort. 2. Small Fruit Culture.—*Prerequisite:* Hort. 1. (2). 1-3 TT; 106 H.F.L. Professor Colby.

Hort. 3. Commercial Vegetable Gardening.—*Prerequisite:* Hort. 1 or junior standing. (3). 1-3 MWF; 203 V.G. Professor Lloyd, Mr. Weaver.

Hort. 4. Plant Houses.—(3). 3 MWF; F.G. Professor Dorner.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hort. 7. Spraying.—*Prerequisite:* Hort. 1; Chem. 1. (3). Lect. and quiz, 3-5 W; 118 New Agr. Lab., 3-5 MF; 106 H.F.L. Professor RUTH.

Hort. 8b. Orcharding.—*Prerequisite:* Hort. 1. (3). 1-3 MW; 1 F; 106 H.F.L. (Inspection trip requirement waived for 1934-35.) Mr. MCMUNN.

Hort. 9. General Vegetable Gardening.—(Formerly Hort. 1b). *Prerequisite:* Hort. 1. (Seniors allowed only 2 hours credit.) (3). Disc., 10 MF; Lab., 10-12 W; 203 V.G. Professor LLOYD, Mr. WEAVER.

Hort. 15a. Greenhouse Management.—*Prerequisite:* Hort. 5, Bot. 5. (3). 10-12 MWF; F.G. Professor DORNER, Associate Professor HALL.

Hort. 15c. Commercial Floricultural Crops.—*Prerequisite:* Hort. 15b. (3). 8-10 TTS; F.G. Associate Professor HALL.

Hort. 22b-h. Investigation with Thesis.—*Prerequisite:* Senior standing; not less than 20 hours pertinent to the thesis problem, and the approval of the head of the department. Continuous throughout the year. Credit is not given for either semester separately. (5). Arrange.

(b) **Pomology.**—*Prerequisite:* Hort. 22a. Professors DORSEY, RUTH, COLBY, ANDERSON.
(d) **Olericulture.**—*Prerequisite:* Hort. 22c. Professor LLOYD.
(f) **Floriculture.**—*Prerequisite:* Hort. 22e. Professor DORNER, Associate Professor WEINARD.
(h) **Plant Breeding.**—*Prerequisite:* Hort. 22g. Professor DORSEY.

Hort. 30. Tender Bedding Plants.—*Prerequisite:* Hort. 15a. (3). 8-10 MWF; F.G. Associate Professor HALL.

Hort. 31. Garden Flowers.—*Prerequisite:* Bot. 5. (3). Lect., 1 MWF; Lab., arrange; F.G. Professor DORNER.

Hort. 32b. Floral Decoration.—*Prerequisite:* Hort. 32a. (3). 3-5 TT, 10-12 S; F.G. Professor DORNER.

Courses for Advanced Undergraduates and Graduates

Hort. 44. Current Pomological Literature.—*Prerequisite:* Junior standing. (1). 11 Th; 118 New Agr. Professor RUTH.

Hort. 45. Plant Nutrition.—*Prerequisite:* Bot. 3; Agron. 9 or 28; Hort. 3 or 15a; senior standing. (3). 2 MWF; F.G. Associate Professor WEINARD.

Hort. 51. Fruit Diseases.—*Prerequisite:* Senior standing; Botany 7a. (3). Lect., 3 Tu; Seminar, H.F.L. Lab., 10-12 TT; 114 H.F.L. Professor ANDERSON.

Courses for Graduates

Hort. 103. Olericulture.—(1 to 2 units).* Arrange. Professor LLOYD.

Hort. 105. Marketing Fruits and Vegetables.—See Agricultural Economics 135.

Hort. 108. Pomology.—(1 to 4 units).* Arrange.

(a) **Pomological Problems.**—Professor BLAIR.
(b) **Pomology and Fruit Breeding.**—Professor DORSEY.
(c) **Pomological Physiology.**—Professor RUTH, Assistant Professor KELLEY.
(d) **Small Fruits.**—Professor COLBY.
(e) **Pomological Pathology.**—Professor ANDERSON.

Hort. 115. Floriculture.—(1 to 2 units).* Arrange.

(a) **Floricultural Problems.**—Professor DORNER.
(b) **Floricultural Physiology and Pathology.**—Associate Professor WEINARD.

Hort. 120. Pomology Seminar.—(¼ unit). Arrange. Professors DORSEY, RUTH, ANDERSON.

Hort. 140. Advanced Small Fruit Culture.—(1 unit). Arrange. Professor COLBY.

HYGIENE

Courses for Undergraduates

Hygiene 2. Essentials of Hygiene and Sanitation.—Required of all undergraduate women during their first year of residence. Names beginning with the letters from Mc through Z should register the second semester.

Credit	Section	Hours	Days	Room	Instructor
2	A1	8	TT	106 L.H.	LYNCH
	A2	8	WF	106 L.H.	LYNCH
	B1	9	TT	106 L.H.	ETHEREDGE
	B2	9	MW	106 L.H.	ETHEREDGE
	C1	10	TT	106 L.H.	ETHEREDGE
	C2	10	WF	106 L.H.	MILLBROOK
	G1	3	TT	106 L.H.	MILLBROOK

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hygiene 5. Elementary Hygiene and Sanitation.—Required of all undergraduate men during their first year of residence. Students who did not complete the course during the first semester should register in the second semester.

Credit	Section	Hours	Days	Room	Instructor
2	A1	8	MW	128 New Agr.	Beard
	A2	8	TT	128 New Agr.	Judah
	A3	8	WF	127 New Agr.	Judah
	B1	9	TT	128 New Agr.	Beard
	B2 (Pre-Med)	9	WF	128 New Agr.	Beard
	B3	9	MW	313 New Agr.	Ross
	B4 (Pre-Med)	9	TT	127 New Agr.	Lewis
	B5	9	WF	214 New Agr.	Lewis
	B6	9	TT	214 New Agr.	Ross
	C1 (Pre-Med)	10	TT	128 New Agr.	Cain
	C2	10	WF	128 New Agr.	Cain
	C3 (Eng)	10	MF	319 E.H.	Blackstone
	C4 (Eng)	10	TT	319 E.H.	Blackstone
	D1	11	MW	128 New Agr.	Gebhart
	F1 (Eng)	2	TT	319 E.H.	Judah
	F2	2	WF	127 New Agr.	Ross
	F3	2	MW	128 New Agr.	Lewis
	G1	3	TT	128 New Agr.	Blackstone
	G2	3	TT	127 New Agr.	Gebhart
	G3	3	MW	128 New Agr.	Cain

Hygiene 10. Advanced Hygiene.—Especially suited to the needs of teachers, coaches, and social workers. *Prerequisite:* Hygiene 2 or 5.

2	Lect.	3	M	103 New Agr.	Gebhart
	G1 Quiz	3	W	127 New Agr.	
	G2 Quiz	3	F	127 New Agr.	

JOURNALISM

Note: Certain courses in this department require laboratory fees varying from $1 to $2.

Credit in journalism will be given for Rhetoric 6; English 45; Political Science 22, 27, 28; Law 2, 5; History 21.

Courses for Undergraduates

Journ. 2a. Supervised Publication Work.—Staff work and faculty conferences. Six hours of regular staff duty and one 15-minute faculty conference each week. (1).

Section A. *Technograph* staff (editorial and business department workers). Allow time for conference on Thursdays. *Prerequisite:* Sophomore standing in the College of Engineering. 101 U.H. Director Murphy.

Section B. *Illini* staff (reporting staff only). Allow time for conference on Fridays. *Prerequisite:* Sophomore standing and Journ. 1a. 104 U.H. Associate Professor Barlow.

Journ. 3. The Newspaper and the News.—A non-laboratory, critical course for beginners and students regarding journalism as a social problem. Not open to students with credit in Journ. 5, or to students registered in Journ. 5. *Prerequisite:* Freshman standing.

2	D	11	MW	212 U.H.	Barlow

Journ. 4. Newspaper Reference Service.—Use of morgue and reference materials. *Prerequisite:* Freshman standing.

2	M	10	TT	203 U.H.	Dickinson
	N	11	TT	203 U.H.	Dickinson

Journ. 5. Reporting.—*Prerequisite:* Sophomore standing.

3	Lect.	11	Tu	113 U.H.	Leiter
	Lab.	8–10	MW	118 U.H.	

Journ. 6. Reporting.—*Prerequisite:* Sophomore standing and Journ. 5. (Students register for lecture and one laboratory section.)

3	Lect.	11	Th	113 U.H.	Leiter
	Lab. C	10–12	MW	118 U.H.	
	Lab. E	1–3	MW	122 U.H.	
	Lab. L	9–11	TT	118 U.H.	

Journ. 8. Sports Writing.—(For students in Physical Education). *Prerequisite:* Sophomore standing and Journ. 7.

3	E	1	MWF	211 U.H.	Schooley

Journ. 9a. History and Practice of Printing and Publishing.—*Prerequisite:* Sophomore standing.

2	Lect.	11	M	214 U.H.	Allen
	Lab. O	1–3	Tu	126 U.H.	
	Lab. G	3–5	M	126 U.H.	

Journ. 9b. History and Practice of Printing and Publishing.—*Prerequisite:* Sophomore standing and Journ. 9a.

Credit	Section	Hours	Days	Room	Instructor
2 or 3*†	Lect.	11	Tu	318 U.H.	ALLEN
†For 3 hours credit students must register for two lab. periods.	Lab. K	8–10	Tu	126 U.H.	
	Lab. E	1–3	M	126 U.H.	

Courses for Advanced Undergraduates

Journ. 14. Copyreading.—*Prerequisite:* Junior standing and Journ. 13.

3	Lect.	3	M	318 U.H.	BARLOW
	Lab. O	1–3	TT	118 U.H.	
[1]Lab. G is for *Illini* news editors.	Lab. E	1–3	WF	118 U.H.	
	[1]Lab. G	3–5	WF	118 U.H.	

Journ. 18. Ethics of Journalism.—*Prerequisite:* Junior standing and Journ. 17.

3	D	11	MWF	300 Math.	MURPHY

Journ. 22. Newspaper Administration.—*Prerequisite:* Junior standing and Journ. 21 or consent of the instructor.

3	Lect.-Disc.	10	MW	126 U.H.	ALLEN
	Lab.	Two hours to be arranged			

Journ. 26. Newspaper Advertising Copy.—*Prerequisite:* Journ. 25. Not open to students registered in Journ. 5.

3	C	10	MWF	318 U.H.	DICKINSON

Journ. 34. Newspaper Advertising Layout.—*Prerequisite:* Journ. 33.

3	Lect.-Disc.	8–10	M	126 U.H.	ALLEN
	Lab.	8–10	W	126 U.H.	

Journ. 36. Contemporary Affairs.—*Prerequisite:* Journ. 35 or consent of instructor.

2	P	2	TT	113 U.H.	LEITER

Journ. 40. Special Problems.—(For seniors not writing theses in journalism). *Prerequisite:* Junior standing.

2	G	3	W	113 U.H.	DICKINSON and members of the staff

Journ. 41. Business Problems of the Newspaper.—The departmentalized daily. *Prerequisite:* Junior standing.

3	E	1	MWF	113 U.H.	DICKINSON

Journ. 50. Critical Writing and Reviewing.—*Prerequisite:* Junior standing and 6 hours of journalism.

2	C	10	MW	113 U.H.	MURPHY

Journ. 60b. Thesis Course.—Open to seniors with consent of the Director.

2	To be arranged			101 U.H.	MURPHY

LANDSCAPE ARCHITECTURE

Note: Certain courses in this department require laboratory fees varying from $0.50 to $2.00

Courses for Undergraduates

L.A. 32. Landscape Design.—*Prerequisite:* L.A. 31. (3). Lab., 9-12 MWF; 200 New Agr. Professor WHITE.

L.A. 34. Intermediate Landscape Design.—*Prerequisite:* L.A. 33. (3). 9-12 TTS; 200 New Agr. Professor WHITE.

L.A. 36N. Advanced Landscape Design.—*Prerequisite:* L.A. 35. (5). 1-4 MWF; 203 New Agr. Professor LOHMANN, Professor WHITE.

L.A. 38. Civic Design.—*Prerequisite:* Senior standing in the City Planning Option. (4). 1 and 3-5 MWF; 203 New Agr. Professor LOHMANN.

L.A. 44. Landscape Construction.—*Prerequisite:* L.A. 43. (3). Lect., 9 MF; 211 New Agr. Lab., 10-12 MF and 9-12 W; 200 New Agr. Professor SCHAFFER.

L.A. 46. Office Practice in Landscape Architecture.—*Prerequisite:* L.A. 35. (1). 9 Tu; 211 New Agr. Professor SCHAFFER.

L.A. 52. Trees and Shrubs.—*Prerequisite:* L.A. 51. Open only to students in Landscape Architecture and Floriculture. (3). Lect., 3 W; 214 New Agr. Lab., 3-5 MF; 211 New Agr. Assistant Professor ROBINSON.

L.A. 54. Planting Design.—*Prerequisite:* L.A. 53. (3). Lect., 1 Tu; 211 New Agr. Lab., 2-5 Tu and 1-5 Th; 203 New Agr. Assistant Professor ROBINSON.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

L.A. 62. Rural Improvement.—*Prerequisite:* 30 hours of university work. (2). 11 TT; 103 New Agr. (Credit not allowed for both L.A. 62 and 64). Assistant Professor PETERSON.

L.A. 64. Appreciation of Landscape Architecture.—For students not specializing in landscape architecture. *Prerequisite:* 30 hours of university work. (3). Lect., 11 MWF; 214 New Agr. (Credit not allowed for both L.A. 64 and 62). Assistant Professor PETERSON and others.

L.A. 72. City Planning.—*Prerequisite:* 60 hours of university work. (2). 11 MF; 316 New Agr. Professors BARTHOLOMEW and LOHMANN.

L.A. 74. Regional Planning.—*Prerequisite:* 30 hours of university work. (3). 8 MWF; 214 New Agr. Professor LOHMANN.

LAW

Note: Students other than those registered in the College of Law are required to pay fees at the rate of $1 per semester hour for courses in law.

First Year Courses

Law 1b. Contracts.—Costigan: *Cases on Contracts* (2d ed.).

Credit	Section	Hours	Days	Room	Instructor
3	A	2	MTW	106 Law	GOBLE
	B	3	MTW	106 Law	GOBLE

Law 2b. Torts.—Bohlen: *Cases on Torts* (3d ed.).

2	A	2	ThF	106 Law	WEISIGER
	B	3	ThF	106 Law	WEISIGER

Law 10. Real Property I. Titles.—Aigler: *Cases on Property.* Bigelow: *Introduction to the Law of Real Property.*

4	A	8	TWTF	103 Law	SUMMERS
	B	9	TWTF	103 Law	SUMMERS

Law 11. Agency.—Mechem: *Cases on Agency* (2d ed.).

3	A	9	MTW	106 Law	GREEN
	B	10	MTW	106 Law	GREEN

Law 12. Equity Jurisdiction I.—Cook: *Cases on Equity* (2d one-volume ed.).

3	A	10	MThF	103 Law	HOLT
	B	11	MThF	103 Law	HOLT

Second and Third Year Courses

Law 6b. International Law.—Law of war and neutrality.

3	A	10	MWF	202 L.H.	GARNER

Law 8. Evidence.—Hinton: *Cases on Evidence* (2d ed.).

3	A	11	MWF	106 Law	HARNO

Law 15. Bills and Notes.—Britton: *Cases on Bills and Notes* (2d ed.).

3	A	2	MTW	303 Law	BRITTON
	B	3	MTW	303 Law	BRITTON

Law 16b. Trusts.—Scott: *Cases on Trusts* (2d ed.).

2	A	2	ThF	303 Law	SCHNEBLY
	B	3	ThF	303 Law	SCHNEBLY

Law 20. Procedure II.—Selected cases on common law, equity and code pleading.

4	A	10	MTWT	300 Law	MCCASKILL

Law 21b. Credit Transactions II.—Mortgages, pedges, and conditional sales. Sturges: *Cases on Credit Transactions.*

3	A	10	MTW	303 Law	HOFFMAN

Law 22b Constitutional Law. The State and the Nation.—Rottschaefer: *Cases on Constitutional Law.*

2	A	11	TT	106 Law	GREEN

Law 25. Bankruptcy.—Britton: *Cases on Bankruptcy.*

2	A	11	MW	303 Law	BRITTON

Law 27. Real Property III.—Future interests and restraints upon alienation. Powell: *Cases on Future Interests,* and selected cases.

4	A	8	TWTF	303 Law	SCHNEBLY

Law 31b. Conflict of Laws.—Lorenzen: *Cases on Conflict of Laws* (3d ed.).

2	A	4	ThF	303 Law	HOLT

Law 32. Equity Jurisdiction III.—Cook: *Cases on Equity* (2d ed.), Vol. III.

3	A	9	WTF	303 Law	GOBLE

Law 33. Administrative Law.—Freund: *Cases on Administrative Law* (2d ed.).

Credit	Section	Hours	Days	Room	Instructor
2	A	1	ThF	303 Law	HOFFMAN

Law 36. Procedure IV.—Practice court.

3	A	1:30–3	MW	300 Law	McCASKILL

Law 39b. Thesis Course.—This course is open to students who are candidates for the J.D. degree during the academic year next preceding their graduation.

1			To be arranged		Members of the staff

Law 45. Use of Law Books.—Weisiger: *Manual for the Use of Law Books.*

1	A	10	F	303 Law	WEISIGER

Law 50. Industrial Relations II.—Labor law.

2	A	1–3	Tu	306 Law	WEISIGER

Law 52. Law of Oil and Gas.—Selected cases.

2	A	11	TT	303 Law	SUMMERS

Law 55. Legal Problems II.—Comments on recent decisions. *Prerequisite:* One year of law work and at least an average grade of B (4.) in all law courses.

1			To be arranged		HOLT

Law 57. Legal Problems IV.—Comments on recent decisions. *Prerequisite:* Legal Problems I or II, two years of law work, and at least an average grade of B (4.) in law courses.

1			To be arranged		HOLT

Law 62. Corporation Organization and Finance.—The types of corporate securities and the rights of the holders; reorganization of corporations and the rights of various types of creditors and security holders upon reorganization. *Prerequisite:* Law 19 or its equivalent.

2	A	9	MTu	303 Law	JOHNSON

Law 64. Taxation.—Magill and Maguire: *Cases on Taxation.*

2	A	4	MTu	303 Law	HOFFMAN

LIBRARY SCIENCE

Courses for Freshmen and Sophomores

Lib. Sci. 12. General Reference.—

2	A	9	TT	118 Lib.	BLACK
	B	10	TT	118 Lib.	SIGNOR
	C	11	TT	118 Lib.	STEWART
	D	2	TT	118 Lib.	HOUCHENS
	E	9	WF	118 Lib.	KROGH

Courses for First-Year Library School Students

Lib. Sci. 2b. Reference.—

3	A	9	MWF	227 Lib.	SINGLETON
	B	10	MWF	314 Lib.	SINGLETON

Lib. Sci. 21. Printing and Binding.—(2). 11 TT; 314 Lib. Miss SINGLETON, Miss HOUCHENS.

Lib. Sci. 33b. Library Administration and Extension.—Continuation of Lib. Sci. 34.

3	A	10	MWF	227 Lib.	
	B	9	MWF	314 Lib.	

Lib. Sci. 37. Cataloging.—Continuation of Lib. Sci. 31a.

2 or 3	A	1–4	MWF	314-306 Lib.	BOND
	B	2–5	MW	227-306 Lib.	KRIEG

Lib. Sci. 38. Selection of Books.—Continuation of Lib. Sci. 3a.

3	A	9	TTS	314 Lib.	BOYD
	B	10	TTS	314 Lib.	BOYD

Lib. Sci. 47. Subject Bibliography.—*Prerequisite:* Lib. Sci. 2a and consent of instructor. (2). 3 TT; 227 Lib. Miss PHELPS.

Courses for Advanced Library School Students and Graduate Students

Lib. Sci. 24b. Book Selection for Special Groups.—*Prerequisite:* Lib. Sci. 24a. (2 semester hours or ½ unit). 10 TT; 328 Lib. Miss HOSTETTER.

Lib. Sci. 42. State, Municipal, and Foreign Documents.—*Prerequisite:* Lib. Sci. 13a. (3 semester hours or ½ unit). 10 MWF; 328 Lib. Miss PHELPS.

Lib. Sci. 46. High School Library Administration.—*Prerequisite:* Fifteen hours of library science and consent of instructor. (3 semester hours or ½ unit). 11 MWF; 314 Lib. Miss HOSTETTER.

Lib. Sci. 49. Children's Literature.—(2 semester hours or ½ unit). 2 TT; 314 Lib. Miss HOSTETTER.

Courses for Graduates

Lib. Sci. 101. Thesis.—(1 to 2 units).* Professor WINDSOR and others.

Lib. Sci. 102 Seminar.—(1 unit). 3-5 Tu; 314 Lib. Professor WINDSOR.

Lib. Sci. 103b. Advanced Reference.—(½ unit). 11 TT; 328 Lib. Miss PHELPS.

Lib. Sci. 104b. Advanced Cataloging and Classification.—(½ unit). 8-10 Th; 328 Lib. Assistant Professor BOND

MATHEMATICS

Major: 20 hours exclusive of Math. 2, 3, 4, 5, 6, 6a, 8a, 8b, and all courses taken during the freshman year, and inclusive of Mathematics 7 and 9, and two semesters of Math. 70, 71, 72.

Note: For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: first semester, Math. 2 (or 3) and 4 (or 5); second semester, Math. 6. Sophomore year: first semester, Math. 7; second semester, Math. 9 and 19. In certain courses Math. 6 may be replaced by Math. 6a, and Math. 7 and 9 by Math. 8a and 8b.

Minors: 20 hours exclusive of courses taken during the freshman year selected from one or two of the following subjects: astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), philosophy, theoretical and applied mechanics, surveying. If two subjects are chosen, at least eight hours must be offered in each.

Note: Seniors receive reduced credit in Mathematics 2, 3, 4, 5, 6, or 6a.

Mathematics 32, 35, 36, and 40 are suggested as desirable courses for students preparing to teach high school mathematics.

Courses for Undergraduates

Math. 2. College Algebra.—*Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit.

Credit	Section	Hours	Days	Room	Instructor
3[1]	R	8	MWF	154 Math.	MODESITT
	S	9	MWF	155 Math.	MOORE
[1]Seniors will receive	T	10	MWF	102 Entom.	BOWER
only 2 hours credit.	[2]D	11	MWF	110 L.H.	SCHILLING
	U	11	TTS	158 Math.	LEVY
[2]Sections D and H are	W1	1	MWF	202 U.H.	COOLEY
for freshman engineers.	W2	1	MWF	102 Entom.	LANG
	X	2	MWF	102 Entom.	CELL
	Y1	3	MWF	110 L.H.	STEIMLEY
	Y2	3	MWF	155 Math.	
	[2]H	4	MWF	158 Math.	WILSON

Math. 3. Algebra.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit.

5[1]	R1	8	MTWTF	103 Entom.	CRAMER
	R2	8	MTWTF	155 Math.	GENTRY
[1]Students having 1½	S	9	MTWTF	154 Math.	MODESITT
entrance units in alge-	T	10	MTWTF	110 L.H.	SCHILLING
bra will receive only 3	U1	11	MTWTF	202 U.H.	HUFF
hours credit for this	U2	11	MTWTF	208 U.H.	CRAMER
course. Seniors will	W	1	MTWTF	155 Math.	BROWN
receive only 4 hours	X1	2	MTWTF	159 Math.	BURDETTE
credit.	X2	2	MTWTF	202 U.H.	CHANLER
	Y1	3	MTWTF	154 Math.	BROWN
	Y2	3	MTWTF	206 U.H.	

Math. 4. Plane Trigonometry.—*Prerequisite:* Entrance algebra, 1½ units, or registration in Math. 3; plane geometry, 1 unit.

2[1]	R1	8	TT	154 Math.	EMCH
	R2	8	TT	159 Math.	BRAHANA
[1]Seniors will receive	[2]B	9	TT	155 Math.	HAZLETT
only 1 hour credit.	S	9	TT	156 Math.	LYTLE
	T	10	TT	155 Math.	KETCHUM
[2]Sections B and E are	U1	11	TT	110 L.H.	SCHILLING
for freshman engineers.	U2	11	TT	156 Math.	MODESITT
	[2]E	1	TT	159 Math.	HUFF
	W	1	TT	206 U.H.	CHANLER
	X	2	TT	158 Math.	GENTRY
	Y1	3	TT	155 Math.	BOURGIN
	Y2	3	TT	202 U.H.	RUMSEY

Math. 6. Analytic Geometry.—*Prerequisite:* Math. 2 (or 3) and Math. 4.

5[1]	T	10	MTWTF	202 U.H.	MOORE
[1]Seniors will receive	X	2	MTWTF	206 U.H.	RUMSEY
only 4 hours credit.	Y	3	MTWTF	159 Math.	BURDETTE

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Math. 6a. Analytic Geometry.—(For chemists, architects, and engineers). *Prerequisite:* Math. 2 (or 3) and Math. 4.

Credit	Section	Hours	Days	Room	Instructor
4[1]	[2]A	8	MTWT	156 Math.	Collins
[1]Seniors will receive	R	8	MTWT	202 U.H.	Lang
only 3 hours credit.	[2]B1	9	MTWT	110 L.H.	Miles
	[2]B2	9	MTWT	103 Entom.	Cooley
[2]Sections A, B1, B2, D,	S	9	MTWT	202 U.H.	Peters
E, F, and G are for	T	10	MTWT	159 Math.	Armstrong
freshman engineers.	[2]D	11	MTWT	103 Entom.	Dolan
	[3]U	11	MTWT	206 U.H.	Pepper
[3]Sections U and W are	[2]E	1	MTWT	156 Math.	Dennis
for architects and	[3]W	1	MTWT	158 Math.	Hoersch
architectural	[2]F	2	MTWT	154 Math.	Wilson
engineers.	[2]G	3	MTWT	102 Entom.	Cell

Math. 7. Calculus.—First course for students of mathematics and engineering. *Prerequisite:* Math. 6 (or 6a).

5	A	8	MTWTF	158 Math.	Peters
	B	9	MTWTF	158 Math.	Brahana
	C	10	MTWTF	158 Math.	Hazlett
	D	11	MTWTF	159 Math.	Armstrong
	E	1	MTWTF	154 Math.	Wilson
	F	2	MTWTF	155 Math.	Bourgin

Math. 9. Calculus.—Second course for students of mathematics and engineering. *Prerequisite:* Math. 7.

3	A1	8	MWF	206 U.H.	Bower
	A2	8	MWF	110 L.H.	Miles
	A3	8	MWF	312 U.H.	Moore
	B1	9	MWF	159 Math.	Bower
	B2	9	MWF	102 Entom.	Bristow
	C1	10	MWF	155 Math.	Trjitzinsky
	C2	10	MWF	206 U.H.	Pepper
	C3	10	TTS	154 Math.	Levy
	E	1	MWF	206 U.H.	Chanler

Math. 8b. Calculus.—For students of chemistry and chemical engineering, and insurance. *Prerequisite:* Math. 8a.

3	A1	8	MWF	159 Math.	Armstrong
	A2	8	MWF	102 Entom.	Bristow
	C1	10	MWF	154 Math.	Emch
	C2	10	MWF	208 U.H.	Ketchum
	D1	11	MWF	102 Entom.	Bower
	D2	11	MWF	158 Math.	Miles

Math. 9a. Calculus.—Special topics. *Prerequisite:* Math. 7 and 9 (or 8a-8b).

2	C	10	TT	156 Math.	Miles
	D1	11	TT	154 Math.	Crathorne
	D2	11	TT	155 Math.	Ketchum
	F	2	MF	110 L.H.	Steimley

Math. 19. Solid Analytic Geometry.—*Prerequisite:* Math. 7 or 8a.

3		2	MWF	158 Math.	Hoersch

Math. 23. Mathematics of Finance.—*Prerequisite:* Math. 2, junior standing.

3	A	8	TTS	206 U.H.	Bristow
	B	9	TTS	206 U.H.	Bristow
	C	10	MWF	103 Entom.	Cooley
	D	11	MWF	156 Math.	Peters
	E	1	MWF	159 Math.	Huff
	F	2	MWF	156 Math.	Dennis
	G	3	MWF	158 Math.	Hoersch

Math. 90. Undergraduate Thesis.—*Prerequisite:* 24 hours of college mathematics. (2). Arrange.

Courses for Advanced Undergraduates and Graduates

Math. 17. Differential Equations and Advanced Calculus.—*Prerequisite:* Math. 16.

3	A	8	MWF	208 U.H.	Bailey
	E	1	MWF	110 L.H.	Steimley

Math. 21. Theory of Probability.—*Prerequisite:* Math. 7 and 9 (or 8a-8b).

3		11	MWF	154 Math.	Crathorne

Math. 32. History of Mathematics.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9.

3		9	MWF	156 Math.	Lytle

Math. 35. Teachers' Course:—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9.

3		10	MWF	156 Math.	Lytle

Math. 53b. Integral and Operational Equations in Mathematical Physics.—*Prerequisite:* Math. 9a.

3		1	MWF	254 Math.	Bourgin

Math. 70b. Introduction to Higher Algebra.—*Prerequisite:* Math. 7 and 9.

Credit	Section	Hours	Days	Room	Instructor
3		10	TTS	254 Math.	COBLE

Math. 71b. Introduction to Higher Analysis.—*Prerequisite:* Math. 7 and 9.

3		11	MWF	155 Math.	KETCHUM

Math. 72b. Introduction to Higher Geometry.—*Prerequisite:* Math. 7 and 9.

3		9	TTS	159 Math.	LEVY

Courses for Graduates

Math. 100. Seminar and Thesis.—(1 to 2 units).* Arrange.

Math. 111. Difference Equations and Asymptotic Expansions.—(1 unit). 9 MWF; 254 Math. Assistant Professor TRJITZINSKY.

Math. 112. Linear Difference Equations.—(1 unit). 11 MWF; 254 Math. Professor CARMICHAEL.

Math. 129. Theory of Statistics.—(1 unit). 10 MWF; 254 Math. Associate Professor CRATHORNE.

Math. 131. Algebraic Geometry.—(1 unit). 8 MWF; 366 Math. Professor EMCH.

Math. 143. Linear Algebras.—(1 unit). 9 MWF; 366 Math. Associate Professor HAZLETT.

Math. 170. Algebra.—(1 unit). 10 MWF; 366 Math. Assistant Professor BRAHANA.

Math. 171. Analysis.—(1 unit). 9 MWF; 206 U.H. Dr. PEPPER.

Math. 172. Geometry.—(1 unit). 9 TTS; 254 Math. Professor COBLE.

MECHANICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.50 to $4.50.

Courses for Undergraduates

M.E. 2. Steam Engineering.—*Prerequisite:* Math. 9, Physics 1 and 3.

3	Z1	8	MWF	216 M.E.L.
	Z2	11	MWF	217 M.E.L.

M.E. 6. Steam Engineering.—*Prerequisite:* Registration in M.E. 16.

4	PW	1	MTTF	208 M.E.L.
	Q	8	TWTS	208 M.E.L.

M.E. 10. Thermodynamics.—*Prerequisite:* Math. 9, Physics 1 and 3.

3	JKNVY	8	MWF	202 T.B.
	LMA	9	TTS	202 T.B.

M.E. 15. Heat Engineering.—*Prerequisite:* M.E. 16.

3	PQ	11	MWF	202 T.B.

M.E. 16. Thermodynamics.—*Prerequisite:* M.E. 13.

2	PW	2	Th	202 T.B.
		2–4	Tu	202 T.B.
	Q	10	Tu	202 T.B.
		10–12	Th	202 T.B.

M.E. 17. Refrigeration Engineering.—*Prerequisite:* M.E. 16.

3	PQ	11	MW	208 M.E.L.
		8–10	S	112 T.B.

M.E. 28. Heating, Ventilation, and Air Conditioning.—*Prerequisite:* M.E. 16 and 65.

4	P	8	TT	M.E.L.
		9–11	Tu	112, 114 T.B.
		10–12	S	112, 114 T.B.
	Q	8	TT	M.E.L.
		9–11	Th	112, 114 T.B.
		10–12	S	112, 114 T.B.

M.E. 34. Aeronautical Engineering.—*Prerequisite:* M.E. 33.

3	PQ	11	MWF	216 M.E.L.

M.E. 40. Mechanical Engineering Design.—*Prerequisite:* M.E. 31 and T.A.M. 3 and 63.

3	PW	8–11	MWF	216, 201 T.B.
	QA	1–4	MWF	216, 201 T.B.

M.E. 52. Power Plant Design.—*Prerequisite:* M.E. 65.

3	P	8–11	MWF	112, 114 T.B.
	Q	1–4	MWF	112, 114 T.B.

M.E. 62. Mechanical Engineering Laboratory.—*Prerequisite:* Junior standing.

3	OX	1	WF	216 M.E.L.
		1–4	M	M.E.L.

M.E. 64. Mechanical Engineering Laboratory.—*Prerequisite:* Registration in M.E. 6 and 16.

Credit	Section	Hours	Days	Room	Instructor
3	PW	8–12	S	M.E.L.	
		1–5	W	M.E.L.	
	Q	8–12	MF	M.E.L.	
	J	8–12	TT	M.E.L.	

M.E. 85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing.

3	PKJO	8–11	TT	Pattern Lab.
	QL	8–11	MF	Pattern Lab.
	MR	1–4	TT	Pattern Lab.
	NSVW	1–4	MF	Pattern Lab.

M.E. 87. Machine Laboratory.—*Prerequisite:* M.E. 85 or junior standing.

3	LQ	8–11	MF	Machine Lab.
	NRS	1–4	MF	Machine Lab.

M.E. 88. Machine Laboratory.—*Prerequisite:* M.E. 87.

3	PW	8–11	TT	Machine Lab.
	Q	1–4	TT	Machine Lab.

M.E. 89. Heat Treatment of Metals.—*Prerequisite:* Senior standing in Mechanical or Railway Mechanical Engineering.

3	PA	2–4	MWF	Forge Lab.
	Q	8–10	MWF	Forge Lab.

M.E. 98. Thesis.—*Prerequisite:* Senior standing. (3). Arrange.

Courses for Graduates

Note: Entrance on graduate work in Mechanical Engineering presupposes the full undergraduate course in that subject.

M.E. 107. Thermodynamics.—Application of thermodynamics to the solution of physical and engineering problems. (1 unit). Twice a week. Arrange. Associate Professor GOFF.

M.E. 108. The Flow of Fluids and Heat Transfer.—The application of dimensional analysis and other rational formulas. Special problems. (1 unit). Twice a week. Arrange. Professor MACINTIRE.

M.E. 109. Mechanical Engineering Design.—(a) Machine design; (b) power plant design; (c) dynamics of machinery. (1 unit). Twice a week. Arrange. Professors LEUTWILER, HAM.

M.E. 110. Advanced Heating, Ventilating, and Air Conditioning.—Applications of various systems, notable developments, and results of research. Individual problems. (1 unit). Twice a week. Arrange. Professor SEVERNS.

M.E. 112. Laboratory Investigations.—Special problems in: (a) combustion; (b) steam; (c) gas and oil engineering; (d) heating, ventilation, and air conditioning; (e) refrigeration; (f) flow of fluids; (g) heat transfer; (h) mechanical transmission of power. (1½ units). Three times a week. Arrange. Professors POLSON, KRATZ, HAM, MACINTIRE; Associate Professor GOFF.

METALLURGICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2.50 to $7.50.

Met. 2. Principles of Metallurgy.—*Prerequisite:* Chem. 4; Physics 1a-3a. (2). 11 TT; 207 T.B. Assistant Professor MITCHELL.

Met. 5. Ferrous Metallurgy.—*Prerequisite:* Met. 2 and 4. (3). 8 MWF; 207 T.B. Assistant Professor MITCHELL.

Met. 6. Metallurgical Calculations.—*Prerequisite:* Registration in Met. 5. (2). 10 TT; 207 T.B. Assistant Professor MITCHELL.

MILITARY BANDS

Note: The following courses are open only to those who have passed the examination for admittance to one of the bands. All new students who play band instruments and who desire to try for places in the bands should make application at the Band Office, in the Band Building, at the earliest possible time. Those who are accepted for membership will be given a slip indicating the band to which they have been assigned, together with their rehearsal days and hours. Assignments are made according to proficiency. Service in the bands takes the place of the required military courses.

Mil. Bands 2. Freshman Band.—(1). Twice a week, by assignment. Director HARDING, Assistant Director HINDSLEY, Mr. OVERGARD.

Mil. Bands 4. Sophomore Band.—(1). Twice a week, by assignment. Director HARDING, Assistant Director HINDSLEY, Mr. OVERGARD.

Mil. Bands 6. Junior Band.—Twice a week, by assignment. Director HARDING, Assistant Director HINDSLEY.

Mil. Bands 8. Senior Band.—Twice a week, by assignment. Director HARDING, Assistant Director HINDSLEY.

MILITARY SCIENCE

All military courses consist of two parts designated by the same number: a practical course lettered with "a" and a theoretical course lettered with "b". Students who have had training in a senior R. O. T. C. unit are permitted to register for work one year advanced for each year they have had in the senior unit. All students who register for advanced courses are required to sign a contract with the Government to take five hours of military per week during two years in the University and to attend one summer camp of six weeks.

Uniform is required for all practical instruction and is optional for class room instruction.

INFANTRY

First-Year Basic Courses

Mil. Sci. 2a. Practical Instruction.—

Credit	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	W	Arm.	TABACHNIK
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 2b. Class Room Instruction.—

½	1	10	M	150 Arm.	TABACHNIK
	2	11	M	150 Arm.	
	3	1	Tu	150 Arm.	
	4	2	Tu	150 Arm.	
	5	10	Th	150 Arm.	
	6	9	F	150 Arm.	
	7	10	F	150 Arm.	

Second-Year Basic Courses

Mil. Sci. 4a. Practical Instruction.—

½	1st Bn.	3–5	W	Arm.	LUMMIS
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 4b. Class Room Instruction.—

½	51	10	M	148 Arm.	LUMMIS
	52	11	M	148 Arm.	
	53	10	Tu	148 Arm.	
	54	11	Tu	148 Arm.	
	55	3	Th	148 Arm.	
	56	9	S	148 Arm.	

First-Year Advanced Courses

Mil. Sci. 6a. Practical Instruction.—

½	Group I	10–12	W	Arm.	MILAN
		4	F	Arm.	
	Group II	1–3	Th	Arm.	
		4	F	Arm.	

Mil. Sci. 6b. Class Room Instruction.—

1	81	1–3	Tu	148 Arm.	MILAN
	82	10–12	F	148 Arm.	

Second-Year Advanced Courses

Mil. Sci. 8a. Practical Instruction.—

½	Co.'s A-M	(See 2a and 4a for hours.)			STEVENS
		4	F	Arm.	

Mil. Sci. 8b. Class Room Instruction.—

1	91	9	TT	150 Arm.	STEVENS
	92	2	WF	150 Arm.	

FIELD ARTILLERY

First-Year Basic Courses

Mil. Sci. 12a. Practical Instruction.—

½	1st Bn.	3–5	M	Arm.	WEILAND
	2nd Bn.	10–12	Tu	Arm.	MARR
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 12b. Class Room Instruction.—

Credit	Section	Hours	Days	Room	Instructor
½	100	9	M	155 Arm.	Weiland
	101	10	M	155 Arm.	Marr
	102	11	M	155 Arm.	
	103	2	M	155 Arm.	
	104	8	Tu	155 Arm.	
	105	9	Tu	155 Arm.	
	106	3	Tu	155 Arm.	
	107	8	W	155 Arm.	
	108	9	W	155 Arm.	
	109	10	W	155 Arm.	
	110	11	W	155 Arm.	
	111	3	W	155 Arm.	
	112	9	Th	155 Arm.	
	113	10	Th	155 Arm.	
	114	11	Th	155 Arm.	
	115	10	F	155 Arm.	
	116	11	F	155 Arm.	

Second-Year Basic Courses

Mil. Sci. 14a. Practical Instruction.—

½	1st Bn.	3–5	M	Arm.	Dalferes
	2nd Bn.	10–12	Tu	Arm.	Quigley
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 14b. Class Room Instruction.—

½	130	9	M	154 Arm.	Dalferes
	131	10	M	154 Arm.	Quigley
	132	11	M	154 Arm.	
	133	8	Tu	154 Arm.	
	134	9	Tu	154 Arm.	
	135	8	W	154 Arm.	
	136	9	W	154 Arm.	
	137	10	W	154 Arm.	
	138	11	W	154 Arm.	
	139	9	Th	154 Arm.	
	140	10	Th	154 Arm.	
	141	11	Th	154 Arm.	
	142	10	F	154 Arm.	
	143	11	F	154 Arm.	

First-Year Advanced Courses

Mil. Sci. 16a. Practical Instruction.—

½	1st Bn.	3–5	M	Arm.	Busch
	2nd Bn.	10–12	Tu	Arm.	Clay
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 16b. Class Room Instruction.—

1	160	9	M	152 Arm.	Busch
		9	W	152 Arm.	
		4	F	154 Arm.	
	161	10	M	152 Arm.	
		10	W	152 Arm.	
		4	F	154 Arm.	
	162	9	Tu	152 Arm.	
		9	Th	152 Arm.	
		4	F	154 Arm.	
	163	10	Tu	152 Arm.	
		10	Th	152 Arm.	
		4	F	154 Arm.	

Second-Year Advanced Courses

Mil. Sci. 18a. Practical Instruction.—

½	1st Bn.	3–5	M	Arm.	Burnell
	2nd Bn.	10–12	Tu	Arm.	
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 18b. Class Room Instruction.—

Credit	Section	Hours	Days	Room	Instructor
1	190	10	M	153 Arm.	BURNELL
		10	W	153 Arm.	
		4	F	153 Arm.	
	191	10	Tu	153 Arm.	
		10	Th	153 Arm.	
		4	F	153 Arm.	
	192	11	Tu	153 Arm.	
		11	Th	153 Arm.	
		4	F	153 Arm.	

CAVALRY

First-Year Basic Courses

Mil. Sci. 22a. Practical Instruction.—

½	1A	10–12	M	Arm.	BRYAN
	1B	8–10	W	Arm.	GRENER
	1C	8–10	Th	Arm.	MERRILL
[1]Section 1E for new freshmen only.	1D	10–12	F	Arm.	BRYAN
	[1]1E	8–10	S	Arm.	BRYAN

Mil. Sci. 22b. Class Room Instruction.—

½	201	3	M	146 Arm.	GRENER
	202	4	M	146 Arm.	
	203	8	Tu	146 Arm.	
	204	9	Tu	146 Arm.	
	205	10	W	146 Arm.	
	206	11	W	146 Arm.	
	207	10	Th	146 Arm.	
	208	11	Th	146 Arm.	
	209	1	F	146 Arm.	
	210	2	F	146 Arm.	

Second-Year Basic Courses

Mil. Sci. 24a. Practical Instruction.—

½	2A	8–10	Tu	Arm.	BRYAN
	2B	10–12	W	Arm.	
	2C	10–12	Th	Arm.	

Mil. Sci. 24b. Class Room Instruction.—

½	221	8	M	147 Arm.	MERRILL
	222	9	M	147 Arm.	
	223	10	Tu	147 Arm.	
	224	11	Tu	147 Arm.	
	225	1	W	147 Arm.	
	226	2	W	147 Arm.	
	227	4	Th	147 Arm.	
	228	3	F	147 Arm.	

First-Year Advanced Courses

Mil. Sci. 26a. Practical Instruction.—

½	3A	8–10	F	Arm.	STRAWN
	3B	8–10	S	Arm.	

Mil. Sci. 26b. Class Room Instruction.—

1	241	1–3	M	146 Arm.	STRAWN
		4	F	146 Arm.	
	242	1–3	Tu	146 Arm.	
		4	F	146 Arm.	
	243	3–5	Th	146 Arm.	
		4	F	146 Arm.	

Second-Year Advanced Courses

Mil. Sci. 28a. Practical Instruction.—

½	1A-1E incl. 2A-2C incl.	(See 22a and 24a for hours.)		Arm.	CONARD

Mil. Sci. 28b. Class Room Instruction.—

1	251	3–5	M	147 Arm.	CONARD
		4	F	147 Arm.	
	252	3–5	Tu	147 Arm.	
		4	F	147 Arm.	
	253	1–3	Th	147 Arm.	
		4	F	147 Arm.	

ENGINEERS

First-Year Basic Courses

Mil. Sci. 32a. Practical Instruction.—

Credit	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	W	Arm.	McDonough
	2nd Bn.	3–5	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 32b. Class Room Instruction.—

½	301	8	Tu	144 Arm.	McDonough
	302	9	Tu	144 Arm.	
	303	10	Tu	144 Arm.	
	304	11	Tu	144 Arm.	
	305	1	Tu	144 Arm.	
	306	2	Tu	144 Arm.	
	307	3	Tu	144 Arm.	

Second-Year Basic Courses

Mil. Sci. 34a. Practical Instruction.—

½	1st Bn.	3–5	W	Arm.	Matthews
	2nd Bn.	3–5	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 34b. Class Room Instruction.—

½	321	9	W	145 Arm.	Matthews
	322	10	W	145 Arm.	
	323	11	W	145 Arm.	
	324	1	W	145 Arm.	
	325	2	W	145 Arm.	

First-Year Advanced Courses

Mil. Sci. 36a. Practical Instruction.—

½ 1st-3rd Bn. incl. (See 32a for hours.) Arm. Matthews

Mil. Sci. 36b. Class Room Instruction.—

1	341	2–4	F	145 Arm.	Matthews
		4	F	145 Arm.	
	342	10–12	S	145 Arm.	
		4	F	145 Arm.	

Second-Year Advanced Courses

Mil. Sci. 38a. Practical Instruction.—

½ 1st-3rd Bn. incl. (See 32a for hours.) Arm. McDonough

Mil. Sci. 38b. Class Room Instruction.—

1	351	1–3	Th	144 Arm.	McDonough
		4	F	144 Arm.	
	352	10–12	S	144 Arm.	
		4	F	144 Arm.	

SIGNAL CORPS

First-Year Basic Courses

Mil. Sci. 42a. Practical Instruction.—

½	A	3–5	Tu	Arm.	James
	B	3–5	W	Arm.	Stice
	C	2–4	F	Arm.	

Mil. Sci. 42b. Class Room Instruction.—

½	400	10	M	222 Arm.	Stice
	401	10	Tu	222 Arm.	
	402	1	W	222 Arm.	
	403	1	Th	222 Arm.	
	404	10	F	222 Arm.	

Second-Year Basic Courses

Mil. Sci. 44a. Practical Instruction.—

½ A-C incl. (See 42a for hours.) James, Stice

Mil. Sci. 44b. Class Room Instruction.—

½	410	9	Tu	222 Arm.	James
	411	11	Tu	222 Arm.	
	412	9	F	222 Arm.	
	413	11	F	222 Arm.	

First-Year Advanced Courses

Mil. Sci. 46a. Practical Instruction.—

Credit	Section	Hours	Days	Room	Instructor
½	A-C incl.	(See 42a for hours.)			James Stice

Mil. Sci. 46b. Class Room Instruction.—

1	420	3–5	M	222 Arm.	James
		4	F	222 Arm.	

Second-Year Advanced Courses

Mil. Sci. 48a. Practical Instruction.—

½	A-C incl.	(See 42a for hours.)			James Stice

Mil. Sci. 48b. Class Room Instruction.—

1	431	3–5	M	143 Arm.	Stice
		4	F	143 Arm.	
	432	9–11	W	143 Arm.	
		4	F	143 Arm.	

COAST ARTILLERY (ANTI-AIRCRAFT)

First-Year Basic Courses

Mil. Sci. 52a. Practical Instruction.—

½	A	3–5	Tu	Arm.	Wortman
	B	1–3	Th	Arm.	
	C	8–10	S	Arm.	

Mil. Sci. 52b. Class Room Instruction.—

½	501	9	M	151 Arm.	Wortman
	502	1	M	151 Arm.	
	503	10	Tu	151 Arm.	
	504	2	Tu	151 Arm.	
	505	11	Th	151 Arm.	
	506	4	Th	151 Arm.	
	507	11	F	151 Arm.	
	508	1	F	151 Arm.	

Second-Year Basic Courses

Mil. Sci. 54a. Practical Instruction.—

½	D	3–5	Tu	Arm.	Chapman
	E	1–3	Th	Arm.	Cary
	F	8–10	S	Arm.	

Mil. Sci. 54b. Class Room Instruction.—

½	521	2	M	151 Arm.	Wortman
	522	9	Tu	151 Arm.	Cary
	523	10	W	151 Arm.	
	524	3	Th	151 Arm.	
	525	10	F	151 Arm.	
	526	2	F	151 Arm.	
	527	10	S	151 Arm.	

First-Year Advanced Courses

Mil. Sci. 56a. Practical Instruction.—

½	Batteries A-F	(See 52a and 54a for hours.)			Cary
	and	4	F	151 Arm.	

Mil. Sci. 56b. Class Room Instruction.—

1	531	1–3	M	152 Arm.	Cary
	532	4	TT	152 Arm.	
	533	10–12	S	152 Arm.	

Second-Year Advanced Courses

Mil. Sci. 58a. Practical Instruction.—

½	Group I	1–3	Tu	152 Arm.	Chapman
		4	F	152 Arm.	
	Group II	2–4	F	152 Arm.	
		4	F	152 Arm.	

Mil. Sci. 58b. Class Room Instruction.—

1	541	3–5	M	152 Arm.	Chapman
	542	11	TT	152 Arm.	

MINING ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $4.50.

Courses for Undergraduates

Mining 2. Mining Principles.—(For students in courses other than mining). *Prerequisite:* Chemistry, sophomore standing. (3). 9 MWF; 206 T.B. Assistant Professor MITCHELL.

Mining 4. Mining Methods.—*Prerequisite:* Mining 1 and registration in Geology 43. (3). 8 TTS; 206 T.B. Mr. NICHOLSON.

Mining 10. Electrical Engineering of Mines.—*Prerequisite:* Physics 1b-3b. (3). 9 TT, 2-5 W; 206 T.B. and Min. Lab. Mr. NICHOLSON.

Mining 14. Mining Costs.—*Prerequisite:* Mining 8. (3). 10 MWF; 206 T.B. Mr. NICHOLSON.

Mining 15. Mine Ventilation.—*Prerequisite:* Mining 4. (2). 10 TT; 206 T.B. Professor CALLEN.

Mining 17. Mineral Economics.—*Prerequisite:* Mining 4 and 9. (3). 11 MWF; 206 T.B. Professor CALLEN.

Mining 21. Examination, Valuation, and Reports.—*Prerequisite:* Mining 4, Geology 20 and 43 or equivalent. (3). 11 TTS; 206 T.B. Mr. NICHOLSON.

Mining 42. Mining and Metallurgical Design.—*Prerequisite:* Mining 41. (2). 1-4 TT; 207 T.B. Assistant Professor MITCHELL.

Mining 62. Mine Surveying.—*Prerequisite:* Mining 61. (3). 4 M, 2-5 TT; 207 T.B. Mr. NICHOLSON.

Mining 90. Mining and Metallurgical Reports.—*Prerequisite:* Senior standing in Mining Engineering. (1). 10 S; 206 T.B. Professor CALLEN.

Courses for Graduates

Mining 101. Advanced Mining Practice.—(1 unit). Arrange. Professor CALLEN.

Mining 102. Advanced Preparation of Coal and Ores.—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 104.† Mining Reports.—(1 unit). Arrange. Professor CALLEN.

Mining 105.† Welfare Work and Education among Mine Employees.—(1 unit). Arrange. Professor CALLEN.

Mining 106.† Advanced Coal, Ore, and Metallurgical Plant Design.—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 107.† Advanced Non-Ferrous Metallurgical Projects.—(1 unit). Arrange. Assistant Professor MITCHELL.

MUSIC

Courses for Undergraduates

Music 2. History of Music.—*Prerequisite:* One year of university work. (2). 11 MWF; Lecture Room, S.M.H. Professor SCHWARTZ.

Music 4. Theory of Music (Harmony).—*Prerequisite:* Music 3.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	106 S.M.H.	KESSLER
	B	1	MWF	103 S.M.H.	MILES

Music 6b. Theory of Music (Free Counterpoint).—*Prerequisite:* Music 6a. (2). 3 TT; 103 S.M.H. Associate Professor MILES.

Music 8. Strict Counterpoint.—*Prerequisite:* Music 7.

3	A	10	MWF	103 S.M.H.	KESSLER
	B	2	TT	103 S.M.H.	KESSLER
		9	F	106 S.M.H.	
	C	11	MWF	103 S.M.H.	KESSLER
	D	3	M	103 S.M.H.	
		1	TT	103 S.M.H.	

Music 10. Analysis, Musical Form.—*Prerequisite:* Music 9.

2	A	9	MTh	103 S.M.H.	SCHWARTZ
	B	9	TT	103 S.M.H.	SCHWARTZ

Music 11b. Composition.—*Prerequisite:* Music 11a. (2). Arrange. Associate Professor MILES.

Music 12b. Advanced Composition.—*Prerequisite:* Music 12a. (4). Arrange. Associate Professor MILES.

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†Of courses 104 and 105, only one will be given, according to election of students; the same applies to courses 106 and 107.

Music 14. Music Appreciation.—*Prerequisite:* Music 13 or consent of the instructor.

Credit	Section	Hours	Days	Room	Instructor
2	A	10	TT	Lecture Room, 3rd floor, S.M.H.	Stiven
	B (P.S.M.)	3	TT	106 S.M.H.	Kitchell

Music 16. Instrumentation.—*Prerequisite:* Music 15. (1 or 2).* 2 TT; Band Building. Professor Harding.

Music 18. Advanced Orchestration.—*Prerequisite:* Music 17. (4). Arrange. Professor Harding.

Music 20a. Double Counterpoint, Canon, and Fugue.—*Prerequisite:* Music 19a. (3). 3 MWF; 106 S.M.H. Assistant Professor Kessler.

Music 22. Ear Training and Sight Singing.—*Prerequisite:* Music 21.

1	A	9	MW	106 S.M.H.	Percival
	B	11	MTh	106 S.M.H.	Percival
	C	8	TT	106 S.M.H.	Percival

Music 24. Ear Training and Sight Singing.—*Prerequisite:* Music 23.

1	A	9	TT	106 S.M.H.	Percival
	B	10	MW	106 S.M.H.	Percival
	C	10	TT	106 S.M.H.	Percival

Music 25b. Public School Music Methods (Instrumental Methods).—*Prerequisite:* Junior standing in School of Music or consent of instructor. (2). 1 MWF; 106 S.M.H. Mr. Holmes.

Music 25c. Baton Technique.—*Prerequisite:* Sophomore standing in School of Music or consent of instructor. (1). 1 Th; 106 S.M.H. Mr. Holmes.

Music 26b. Public School Music Methods (Junior High School Vocal).—*Prerequisite:* Senior standing in School of Music or consent of instructor. (3). 2 MWTF; 103 S.M.H. Miss Kitchell.

Music 27. Thesis.—(1). Arrange.

Music 30b. Ensemble.—*Prerequisite:* Music 30a or consent of instructor.

½ to 1*	A (Piano)	3	MTh	209 S.M.H.	Watt
	B (Vocal group ensemble)	4	MW	210 S.M.H.	Hamp
	C (Chorus)	7	Th	Recital Hall	Stiven and Demming
		Arrange other hour			
	D (Opera)	3	TT	215 S.M.H.	Sutherlin
	E (Woman's Glee Club)	10	TT	Auditorium	Demming
	F (Orchestra)	4	TW	Orchestra Room	Stiven
	G (Men's Glee Club)	11 or 1	TT	Auditorium	Hamp

Music 31b. Ensemble.—*Prerequisite:* Music 31a. (½ to 1). Sections same as in Music 30b.

Music 33. Advanced History of Music.—*Prerequisite:* Music 32.

2	A	9	WF	103 S.M.H.	Schwartz
	B	10	TT	103 S.M.H.	Schwartz

Music 35. Recital Course in Applied Music.—(Required of seniors in Instrumental major). *Prerequisite:* At least two satisfactory appearances in public students' recitals. (4). Arrange.

Music 36. Recital Course in Applied Music.—(Required of seniors in Voice major). *Prerequisite:* At least two satisfactory appearances in public students' recitals. (3). Arrange.

Music 37. Recital Course in Composition.—(Required of seniors in Theory major). (4). Arrange.

Music 38b. Conducting and Organization.—*Prerequisite:* Music 38a. (2). 1-3 MWF; Band Building. Professor Harding.

Music 68b. String Instruments.—*Prerequisite:* Junior standing in School of Music or consent of the instructor. (2). 8 MTWTF; Orchestra Room. Mr. Wich.

Music 98b. Wind Instruments.—*Prerequisite:* Junior standing in School of Music or consent of the instructor. (2). 9 MTWTF; Band Building. Mr. Hindsley.

Applied Music Courses

Note: Students other than those registered in the curricula in Music are required to pay fees of $25 for each course in Applied Music.

Students in music curricula will receive 4 to 5 hours credit for their major subject in Applied Music. They will ordinarily receive 2½ hours credit for their minor subject. Students from other colleges will ordinarily receive 2 hours credit if in accordance with the regulations of their college.

Courses in Applied Music which require one half-hour lesson per week of recitation and one hour daily of preparation receive 2 hours credit.

Courses in Applied Music which require two 20-minute lessons per week of recitation and one hour daily of preparation receive 2½ hours credit.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses in Applied Music which require two half-hour lessons per week of recitation and two hours daily of preparation receive 4 hours credit.

Courses in Applied Music which require two half-hour lessons per week of recitation and three hours daily of preparation receive 5 hours credit.

Music 42a, b to 47a, b. Piano.—(2 to 5).* Arrange. Professor VAN DEN BERG, Assistant Professors WATT, SCHOONMAKER, Mrs. SULLIVAN, Miss USRY, Mr. HILL.

Music 52a-d to 57a-d. Voice.—(1 to 4).* Arrange. Mr. HAMP, Miss SUTHERLIN, Mr. FOOTE, Miss BOWEN. (Parts **a** and **b** in each course indicate individual instruction in Voice (2 to 3), and parts **c** and **d** indicate classes in Singing Diction (1), required of Voice major students.)

Music 62a, b to 67a, b. Violin.—(2 to 5).* Arrange. Mr. COHEN, Mr. WICH.

Music 72a, b to 77a, b. Violoncello.—(2 to 5).* Arrange. Mrs. SULLIVAN.

Music 82a, b to 87a, b. Organ.—(2 to 5).* Arrange. Associate Professor MILES, Mr. DEMMING.

Music 92a-d to 97a-d. Band and Orchestral Instruments.—(2 to 4).* Thirty-two hours in these courses are required for major work. Parts **a** and **b** in each course are concerned with professional instruments, and parts **c** and **d** with supplementary instruments. Professor HARDING, Mr. HINDSLEY, Mr. HOLL.

PHILOSOPHY

Major: 20 hours from any courses offered by the department, including Phil. 1, 3, 4, 7. Six hours in psychology may be counted towards a major in philosophy.

Minors: 20 hours in (a) psychology (at least six additional hours if psychology is counted toward a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) astronomy, botany, chemistry, mathematics, physics, zoology, geology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Phil. 1. Introduction to Philosophy.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	117 L.H.	NICHOLSON
	B	9	MWF	117 L.H.	NICHOLSON
	C	10	MWF	117 L.H.	MORROW
	D	11	MWF	117 L.H.	NICHOLSON
	E	9	MWF	123 L.H.	

Phil. 2. Logic.—*Prerequisite:* One year of university work.

3	A	8	MWF	123 L.H.	KUBITZ
	B	9	MWF	113 L.H.	DELARGY
	C	10	MWF	123 L.H.	KUBITZ
	D	10	MWF	113 L.H.	
	E	11	MWF	123 L.H.	KUBITZ
	F	11	MWF	113 L.H.	
	G	1	MWF	117 L.H.	DELARGY

Phil. 20. Honors Course.—*Prerequisite:* Senior standing.

2 Arrange

Courses for Advanced Undergraduates and Graduates

Phil. 4. History of Modern Philosophy.—*Prerequisite:* Three hours in philosophy and junior standing, or senior standing.

4	Lect.	10	TT	L.H. Theatre	GOTSHALK
	A Disc.	11	Th	117 L.H.	GOTSHALK
	B Disc.	11	Th	113 L.H.	KUBITZ
	C Disc.	1	Th	117 L.H.	
	D Disc.	2	Th	117 L.H.	DELARGY
	E Disc.	3	Th	117 L.H.	NICHOLSON
	F Disc. (For graduates)		Arrange		GOTSHALK

Phil. 9. Political and Social Ethics.—*Prerequisite:* Junior standing.

3	A	9	MWF	114 L.H.	MORROW

Phil. 11b. Philosophy of Religion (Historical).—*Prerequisite:* Three hours in philosophy.

3	A	10	MWF	104 L.H.	TAWNEY

Phil. 16. Metaphysics.—*Prerequisite:* Three hours in philosophy.

3	A	10	MWF	306 L.H.	GOTSHALK

Phil. 22. American Philosophy (Royce, James, Santayana, Dewey).—*Prerequisite:* Three hours in philosophy.

3	A	2	MWF	117 L.H.	DELARGY

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

Phil. 110. Locke, Berkeley, Hume.—(1 unit). Arrange. Professor MORROW.

Phil. 112. German Idealism (Kant).—(1 unit). Arrange. Assistant Professor GOTSHALK.

Phil. 118. Mediaeval Philosophy.—(1 unit). Arrange. Professor TAWNEY.

Phil. 120. Seminar in Modern Philosophy.—(1 unit). Arrange. Dean MCCLURE.

Phil. 122. Foundations of the Natural Sciences.—(1 unit). Arrange. Associate Professor GRIFFITH.

PHYSICAL EDUCATION FOR MEN

Note: Each student registering for a course or courses in physical education is assessed a locker fee of $1.00 for the semester.

Freshmen and Sophomores: Men entering the University as freshmen are required to obtain credit for four semesters of work in physical education; those entering as sophomores, two semesters. They may obtain this credit by courses listed below or by proficiency examinations which are offered at times specified by the department.

Major: For Curriculum in Physical Education for Men, see "Directions for Registration."

For information, late registration, changing sections, call at Room 201, Men's Old Gymnasium.

Courses for Undergraduates

P.E. 20-21-22-23. Individual Corrective Activities.—These courses are open only to students who fail to pass the health examinations. Students enrolling for the first time should register for P.E. 20. Students enrolling for the second, third, or fourth time should register for P.E. 21, 22, and 23, respectively.

	Credit	Section	Hours	Days	Room	Instructor
	1	C	10	MWF	New Gym.	BROWN
		D	11	MWF	New Gym.	BROWN
		F	2	MWF	New Gym.	MCCRISTAL
		G	3	MWF	New Gym.	MCCRISTAL
		H	4	MWF	New Gym.	MCCRISTAL
		K	9	MWF	Old Gym.	MCCRISTAL
		L	10	MWF	Old Gym.	DERR
		M	11	MWF	Old Gym.	DERR
		P	3	MWF	Old Gym.	DERR
		Q	4	MWF	Old Gym.	DERR
P.E. 24. Beginning Swimming.—						
	½	B	9	MW	Old Pool	CRAIG
		C	10	MW	Old Pool	CRAIG
		E	1	MW	Old Pool	CRAIG
		F	2	MW	Old Pool	CRAIG
		N	1	TT	Old Pool	TREECE
		O	2	TT	Old Pool	TREECE
		P	3	TT	Old Pool	TREECE
P.E. 25. Individual Tumbling Stunts.—						
	½	F	2	MW	Old Gym.	TREECE
		G	3	MW	Old Gym.	TREECE
		L	10	TT	Old Gym.	MCCRISTAL
		M	11	TT	Old Gym.	MCCRISTAL
P.E. 26. Double Tumbling Stunts.—						
	½	D	11	MW	Old Gym.	MCCRISTAL
		O	2	TT	Old Gym.	
P.E. 27. Apparatus Stunts.—						
	½	C	10	MW	Old Gym.	MCCRISTAL
		P	3	TT	Old Gym.	
P.E. 28. Boxing.—						
	½	F	2	MW	Old Gym.	KENNEY
		L	10	TT	Old Gym.	LAW
		M	11	TT	Old Gym.	LAW
		O	2	TT	Old Gym.	LAW
P.E. 29. Wrestling.—						
	½	C	10	MW	Old Gym.	LAW
		G	3	MW	Old Gym.	LAW
		L	10	TT	Old Gym.	KENNEY
		M	11	TT	Old Gym.	KENNEY
		N	1	TT	Old Gym.	KENNEY
		O	2	TT	Old Gym.	KENNEY
		P	3	TT	Old Gym.	LAW

P.E. 30. Fencing.—

Credit	Section	Hours	Days	Room	Instructor
½	G	3	MW	Old Gym.	Craig
	H	4	MW	Old Gym.	
	P	3	TT	Old Gym.	
	Q	4	TT	Old Gym.	

P.E. 31. Soccer.—

½	C	10	MW	New Gym.	Kenney
	D	11	MW	New Gym.	Kenney
	H	4	MW	New Gym.	Straw
	L	10	TT	New Gym.	Straw
	M	11	TT	New Gym.	Straw
	Q	4	TT	New Gym.	Straw

P.E. 34. Playground Ball and Skating.—(Not open to students who have taken P.E. 46). Laboratory fee $2.25.

½	B	9	MW	Old Gym.	Paterson
	C	10	MW	Old Gym.	Paterson
	D	11	MW	Old Gym.	Paterson
	K	9	TT	Old Gym.	Paterson
	L	10	TT	Old Gym.	Paterson
	M	11	TT	Old Gym.	Paterson

P.E. 35. Tap Dancing.—

½	E	1	MW	New Gym.	Brown
	K	9	TT	New Gym.	Brown
	L	10	TT	New Gym.	Treece
	M	11	TT	New Gym.	Treece

P.E. 36. Clog Dancing.—

½	N	1	TT	New Gym.	Derr
	O	2	TT	New Gym.	

P.E. 37. Individual Athletics.—

½	B	9	MW	Old Gym.	Derr
	K	9	TT	Old Gym.	
	L	10	TT	Old Gym.	
	M	11	TT	Old Gym.	

P.E. 38. Circus Stunts.—

½	H	4	MW	Old Gym.	Jackson
	Q	4	TT	Old Gym.	

P.E. 39. Advanced Circus Stunts.—

½	H	4	MW	Old Gym.	Jackson
	Q	4	TT	Old Gym.	

P.E. 40. Games, Contests, and Relays.—

½	D	11	MW	Old Gym.	Law
	K	9	TT	Old Gym.	Law
	N	1	TT	Old Gym.	Law

P.E. 41. Advanced Swimming.—(Open only to students who can swim 100 yards).

½	C	10	MW	New Pool	Treece
	F	2	MW	New Pool	Paterson
	G	3	MW	New Pool	Paterson
	K	9	TT	New Pool	Craig
	L	10	TT	New Pool	Craig
	N	1	TT	New Pool	Craig

P.E. 42. Life Saving and Diving.—(Open only to students who can swim 200 yards using two different strokes).

½	O	2	TT	New Pool	Paterson
	P	3	TT	New Pool	

P.E. 43. Special Activity.—Open only to students assigned by the Health Officer.

½		Arrange			Derr

P.E. 44. Handball.—

½	B	9	MW	New Gym.	Treece
	D	11	MW	New Gym.	Treece
	N	1	TT	New Gym.	Jordan
	O	2	TT	New Gym.	Jordan

P.E. 45. Squash Rackets.—

½	E	1	MW	New Gym.	Treece
	K	9	TT	New Gym.	

Elective Courses for Juniors and Seniors

(Open only to students who have completed the requirements in P.E.)

	Credit	Section	Hours	Days	Room	Instructor
P.E. 32. Golf.—						
	½	L	10	TT	New Gym.	Brown
		M	11	TT	New Gym.	
P.E. 33. Tennis.—						
	½	O	2	TT	New Gym.	Huff
		P	3	TT	New Gym.	

PROFESSIONAL COURSES

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

First Year

P.E. 1. Beginning Basketball.—(First half of semester).						
	2	E	1–3	MTWTF	New Gym.	Wilson
P.E. 2. Tumbling and Calisthenics.—(First half of semester).						
	2	A	8–10	MTWTF	Old Gym.	Price
P.E. 4. Beginning Football.—(Second half of semester).						
	2	E	1–3	MTWTF	Armory Field	Wilson
P.E. 10. Beginning Apparatus Stunts.—(Second half of semester).						
	2	A	8–10	MTWTF	Old Gym.	Price

Second Year

P.E. 5. Advanced Football.—(Second half of semester).						
	2	A	8–10	MTWTF	Armory Field	Department staff
P.E. 6. Boxing and Wrestling.—(First half of semester).						
	2	A	8–10	MTWTF	Wrestling Room	Kenney and assistants
P.E. 11. Swimming.—						
	2	A	8	MTWTF	Pool, New Gym.	Manley
		D	11	MTWTF	Pool, New Gym.	
P.E. 12. Track and Field.—						
	2	B	9	MTWTF	Illinois Field and Armory	Seaton
		C	10	MTWTF	Illinois Field and Armory	

Third Year

P.E. 15. Recreational Sports.—(First half of semester).						
	2	C	10–12	MTWTF	New Gym.	Staley
P.E. 16. Advanced Apparatus Stunts.—						
	2	H	1	MTWTF	Old Gym.	Price
P.E. 19. Advanced Basketball.—(Second half of semester).						
	2	C	10–12	MTWTF	New Gym.	Ruby

Fourth Year

P.E. 3b. Theory of Sports.—						
	2	L	10–12	TT	207 New Gym.	Department staff
P.E. 7. Training and First Aid.—						
	2	K	9	TT	119-22 New Gym.	Bullock
P.E. 17. The Program in Extracurricular Sports.—						
	3	C	9	MWF	207 New Gym.	Brown
P.E. 18. The Curriculum in Physical Education.—						
	5	E	1	MTWTF	209 New Gym.	Staley

PHYSICAL EDUCATION FOR WOMEN

Note: Each student registering for a course or courses in physical education is assessed a locker fee of $1 for the semester.

Freshmen and Sophomores: Of the four required semesters in physical education, the department requires: one semester of gymnastics (P.E. 72) or rhythms (P.E. 51); one semester of swimming (P.E. 75, 76, 54); one semester of individual sports (P.E. 60) or seasonal sports (P.E. 73) or team games (P.E. 58); and one semester of an elective.

Proficiency examinations in any courses offered to freshmen and sophomores may be taken at times specified by the department. These will be given each semester.

Major: For Curriculum in Physical Education for Women, see "Directions for Registration."

Courses for Undergraduates

P.E. 51. Elementary Rhythms.—

Credit	Section	Hours	Days	Room	Instructor
1	B	9	MWF	South Room, W.Gym.	CUTHBERT
	D	11	MWF	South Room, W.Gym.	
	S†	9	TT	North Room, W.Gym.	

P.E. 54. Advanced Swimming and Diving.—*Prerequisite:* P.E. 76 or equivalent.

1	M	11	TT	Pool, W.B.	SMITH

P.E. 56. Individual Gymnastics.—

1	B	9	MWF	Corr. Room, W.Gym.	SCHNAUBER
	C	10	MWF	Corr. Room, W.Gym.	
	D	11	MWF	Corr. Room, W.Gym.	
	F	2	MTT	Corr. Room, W.Gym.	

P.E. 57. Modified Sports and Dancing.—Recommendation from Health Service is necessary for registration in this course.

1	L†	10	TT	North Room, W.Gym.	HUELSTER

P.E. 58. Team Games.—

1					
Indoor Group Games and Baseball....	S†	9	TT	South Room, W.Gym.	ROBERTSON
Volleyball and Speedball	U†	11	TT	North Room, W.Gym.	VAN VLEET

P.E. 60. Individual Sports.—(Handball, quoitennis, badminton).

1	B†	11	TT	South Room, W.Gym.	HUELSTER
	X†	3	TT	South Room, W.Gym.	

P.E. 66. Elective Athletic Activities.—(Participation in W.A.A. sports; registration on recommendation of department).

1		Two 45-minute periods to be arranged.			

P.E. 70b. Gymnastics, Rhythms, Baseball.—For freshmen planning to major in physical education.

2	F	2	MTWTF	South Room, W.Gym.	VAN VLEET, CUTHBERT, ROBERTSON

P.E. 71b. Gymnastics, Tap Dancing, Tennis.—For sophomores majoring in physical education.

2	F	2	MTWTF	North Room, W.Gym.	VAN VLEET, HUELSTER, ROBERTSON

P.E. 72. Gymnastics.—

1	B	9	MWF	North Room, W.Gym.	VAN VLEET
	C	10	MWF	North Room, W.Gym.	

P.E. 73. Seasonal Sports.—

1					
Skating and Tennis.....	C	10	MWF	Skating Rink	ROBERTSON
Indoor Baseball and Golf (elementary).....	G†	3	MW	North Room, W.Gym.	LAWSON
Volleyball and Golf (advanced).....	H†	4	MW	North Room, W.Gym.	LAWSON
Skating and Tennis.....	B	9	MWF	Skating Rink	ROBERTSON

P.E. 75. Elementary and Sub-Intermediate Swimming.—

1	B	9	MWF	Pool, W.B.	SMITH
	D	11	MWF	Pool, W.B.	
	F	2	MWF	Pool, W.B.	

P.E. 76. Intermediate Swimming.—

1	C	10	MWF	Pool, W.B.	SMITH
	G	3	MWF	Pool, W.B.	

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†This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

P.E. 77. Elementary Clog and Tap Dancing.—

Credit	Section	Hours	Days	Room	Instructor
1	D	11	MWF	North Room, W.Gym.	HUELSTER
	F	2	MWF	Gym., W.B.	HUELSTER
	S†	11	TT	Gym., W.B.	VAN VLEET

P.E. 78. Intermediate Clog and Tap Dancing.—

1	D	11	MWF	Gym., W.B.	VAN VLEET

P.E. 79. Elementary Folk Dancing.—

1	C	10	MWF	South Room, W.Gym.	FREER
	T	3	MWF	South Room, W.Gym.	ROBERTSON
	X†	3	TT	North Room, W.Gym.	CUTHBERT

THEORY COURSES

P.E. 82. Methods of Teaching Swimming.—For sophomores in the School of Physical Education. (1). 3 TT; Pool, W.B. Miss SMITH.

P.E. 90b. Organization and Administration.—*Prerequisite:* Senior standing in the School of Physical Education. (2). 11 TT; 128 W.Gym. Professor FREER.

P.E. 95b. Methods.—*Prerequisite:* P.E. 95a and junior standing in the School of Physical Education or consent of instructor. (4). 1 MTWTF; 129 W.Gym. Assistant Professor ROBERTSON, Miss VAN VLEET.

P.E. 97b. Educational Practice.—*Prerequisite:* P.E. 95a, 96a, and senior standing in the School of Physical Education. (3). 1 MWF; 128 W.Gym. Assistant Professor LAWSON.

P.E. 98. Theory of Individual and Remedial Gymnastics.—*Prerequisite:* P.E. 96. (3). 8 MWF; 129 W.Gym. Miss SCHNAUBER.

P.E. 99. Methods of Teaching Health.—*Prerequisite:* Senior standing in the School of Physical Education. (2). 9 TT; 129 W.Gym. Assistant Professor LAWSON.

PHYSICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $10.00.

Major: 20 hours from courses offered in the department. At least five hours must be offered from the group of courses for advanced undergraduates and graduates.

Minors: 20 hours in one or two of the following subjects, with not less than eight hours in each department if two subjects are chosen: mathematics (courses in calculus and beyond), astronomy, chemistry (except Chem. 1, 2, 3, 4, 5, 6 or 7), education or engineering.

For undergraduate students taking advanced work or a major in physics, the following courses are suggested:

Freshman year: Trigonometry and analytic geometry.
Sophomore year: Physics 1a-1b, 3a-3b, and calculus.
Junior year: Physics 14, 44, 60, 61, 62.
Senior year: Physics 23, 30, 71, 72, 78, 80.

Physics 7a-7b and 8a-8b are recommended to students not specializing in physics, mathematics, chemistry, or engineering.

The general physics prerequisite for certain courses may be satisfied by either Physics 1a-1b and 3a-3b or by 7a-7b and 8a-8b. The calculus prerequisite may be satisfied either by Mathematics 7 and 9 or by Mathematics 8a-8b.

Introductory Courses for Undergraduates

Physics 1a. General Physics.—*Prerequisite:* Credit in Math. 2 and 4; registration in Physics 3a.

3	Lect.	11	W	119 P.L.	SCHULZ
	Quiz A	11	TTF	108, 406 P.L.	and others
	Quiz B	2	MWF	306 P.L.	

Physics 3a. General Physics Laboratory.—*Prerequisite:* Physics 1a or registration therein.

2	A	2–5	Tu	403, 406 P.L.	SCHULZ
	B	2–5	W	406 P.L.	and others

Physics 1b. General Physics.—*Prerequisite:* Math. 2, 4; Physics 1a; registration in Physics 3b.

3	Lect. A	11	M	100 P.L.	KRUGER, ALMY,
	Lect. B	2	M	100 P.L.	and others
	Quiz A	8	MWF	305, 306, 403, 406 P.L.	
	Quiz B	9	MWF	305, 406 P.L.	
	Quiz D	11	MWF	302, 305, 403 P.L.	
	Quiz E	1	MWF	305, 406, 403 P.L.	
	Quiz F	8	TTS	305 P.L.	

†This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

Physics 3b. General Physics Laboratory.—*Prerequisite:* Physics 1b or registration therein.

Credit	Section	Hours	Days	Room	Instructor
2	B	2–5	M	302, 305 P.L.	KRUGER
	C	9–12	Tu	302, 305 P.L.	and others
	D	2–5	Tu	306 P.L.	
	F	2–5	W	302, 305 P.L.	
	G	9–12	Th	302, 305 P.L.	
	H	1–4	Th	302, 305 P.L.	
	J	2–5	F	302, 305 P.L.	
	K	9–12	S	302, 305 P.L.	

Physics 7b. General Physics.—*Prerequisite:* Physics 7a, and registration in Physics 8b.

3	Lect.	11	TT	100 P.L.	WATSON, PATON,
	Quiz A	8	WF	208 P.L.	and others
	Quiz B	9	WF	208, 302 P.L.	
	Quiz C	10	WF	208, 302 P.L.	
	Quiz D	11	WF	208, 306 P.L.	

Physics 8b. General Physics Laboratory.—*Prerequisite:* Physics 7b or registration therein.

2	B	1–4	M	208, 302 P.L.	PATON
	C	8–11	Tu	208 P.L.	and others
	D	2–5	Tu	208 P.L.	
	F	1–4	W	208, 302 P.L.	
	J	1–4	F	208, 302 P.L.	

Intermediate Courses

Physics 15. Electricity and Magnetism.—*Prerequisite:* General physics.

3	Lect.	8	MW	204 P.L.	WILLIAMS
	Lab.	1–4	F	112 P.L.	

Physics 25. Architectural Acoustics.—*Prerequisite:* General Physics.

2		9	MW	119 P.L.	WATSON

Courses for Advanced Undergraduates and Graduates

Physics 14b. Theoretical Mechanics.—*Prerequisite:* Physics 14a.

3		8	TTS	306 P.L.	MOTT-SMITH

Physics 44b. Electric and Magnetic Measurements.—*Prerequisite:* Physics 44a.

3	A	8–11	MF	104, 108 P.L.	KNIPP, WILLIAMS,
	B	1–4	MF	104, 108 P.L.	and others
	C	8–11	TT	104, 108 P.L.	
	D	1–4	TT	104, 108 P.L.	

Physics 51. Practical Optics.—*Prerequisite:* Physics 17 or 71a.

3	Lect.	9	MW	306 P.L.	SCHULZ
	Lab.	1–4	Th	313 P.L.	

Physics 62. Kinetic Theory of Heat and Radiation.—*Prerequisite:* Physics 60.

3		10	TTS	204 P.L.	PATON

Physics 78. Radioactivity, Nuclear Physics, and X-Rays.—*Prerequisite:* General physics and calculus.

3		10	MWF	204 P.L.	LOOMIS

Courses for Graduates

Physics 122b. Dynamics.—(1 unit). 8 MWF; 302 P.L. Professor KUNZ.

Physics 124. Conduction of Electricity Through Gases.—(1 unit). 9 TTS; 119 P.L. Professor KNIPP.

Physics 125. Hydrodynamics.—(1 unit). 8 TTS; 302 P.L. Professor KUNZ.

Physics 131b. Physical Laboratory Technique.—(½ to 2 units).* Arrange. Assistant Professor KRUGER.

Physics 146b. Electrodynamics.—(1 unit). 9 TTS; 306 P.L. Assistant Professor BARTLETT.

Physics 185. Band Spectra and Molecular Structure.—(1 unit). 11 MWF; 202 P.L. Dr. ALMY.

Physics 186b. Quantum Mechanics.—(1 unit). 11 TTS; 302 P.L. Assistant Professor MOTT-SMITH.

Physics 190. Research.—(1 to 3 units).* Arrange. Professors in the department.

Physics 198. Seminar.—(1 to 2 units).* Arrange. Professors in the department.

Physics 199. Physics Colloquium.—(No credit). 4:45 Th; 119 P.L. Assistant Professor MOTT-SMITH.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

PHYSIOLOGY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $3.50.

Major: 20 hours from courses offered in the department, exclusive of Physiology 1.

Minors: 20 hours in not more than two of the following: bacteriology, botany, chemistry, entomology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Physiol. 1. Mammalian Physiology.—A survey of the field of mammalian physiology.

Credit	Section	Hours	Days	Room	Instructor
3[1]	[2]Lect. A	10	TT	228 N.H.	Burge
[1]Seniors will receive	Quiz A1	10	M	425 N.H.	Wickwire
only 2 hours credit.	Quiz A2	11	M	425 N.H.	
[2]Students in Lect. A	Quiz A3	2	M	425 N.H.	
must elect an A quiz.	Quiz A4	9	Tu	425 N.H.	
[3]Students in Lect. B	[3]Lect. B	11	MW	228 N.H.	Steggerda
must elect a B quiz.	[5]Quiz B1	10	W	425 N.H.	Steggerda, Kneer,
[4]Recommended for	[5]Quiz B2	8	Th	434 N.H.	and Jones
Home Ec. students	[5]Quiz B3	9	F	425 N.H.	
and students above	[4]Quiz B4	11	F	425 N.H.	
freshman standing.	[4]Quiz B5	1	Tu	434 N.H.	
[5]Recommended for freshmen.					

Physiol. 1a. Mammalian Physiology Laboratory.—*Prerequisite:* Physiology 1 or registration therein. (Students must elect Lecture B if registered in Physiol. 1.)

2	[1]Lab. A	8–10	MW	413 N.H.	Steggerda, Kneer,
[1]Recommended for	[2]Lab. B	1–3	MW	413 N.H.	and Jones
Home Ec. students	[2]Lab. C	10–12	TT	413 N.H.	
and students above	[1]Lab. D	2–4	TT	413 N.H.	
freshman standing.					
[2]Recommended for freshmen.					

Physiol. 3b. Physiological Anatomy.—(For Physical Education students).

5[1]	Lect.	11	MW	315 U.H.	Elhardt
	Lab. A	1–3	MW	405 N.H.	Orth
[1]Seniors will receive	Lab. B	8–10	TT	408 N.H.	Neild
only 4 hours credit.	[2]Lab. C	10–12	TT	405 N.H.	
	Lab. D	1–3	TT	408 N.H.	
[2]Lab. C is for women.	Quiz E	9	F	247 N.H.	
	Quiz F	10	F	423 N.H.	
	Quiz G	11	F	434 N.H.	
	Quiz H	2	F	423 N.H.	

Physiol. 8. Thesis.—*Prerequisite:* Senior standing and 15 hours of physiology. (3 to 5).* Time to be arranged before registration. Associate Professor Burge and Mr. Wickwire.

Physiol. 9. Physiology of the Special Senses and Nervous System.—(Recommended for the general student). *Prerequisite:* Physiol. 1 or 4a.

5	Lect.	10	TT	423 N.H.	Wickwire
	Quiz A	3	Tu	423 N.H.	
	Quiz B	10	F	241 N.H.	
	Lab. A	1–3	TT	415 N.H.	
	Lab. B	10–12	WF	415 N.H.	
	Lab. C	3–5	WF	415 N.H.	

Course for Advanced Undergraduates and Graduates

Physiol. 7. Advanced Mammalian Physiology of Respiration, Digestion, and Endocrine Glands.—*Prerequisite:* Physiology 1 and 1a, one semester of general chemistry, or consent of instructor.

5	Lecture	9	TT	423 N.H.	Steggerda
	Quiz	11	F	228 N.H.	Steggerda
	Lab.	1–5	F	415 N.H.	Jones

Courses for Graduates

Physiol. 101. Journal Club.—Review of literature. (¼ unit). Arrange. Members of the staff.

Physiol. 102. Research.—(1 to 2 units).* Arrange. Associate Professor Burge.

Physiol. 103. Experimental Physiology.—(½ to 1 unit).* Arrange. Sect. A, Associate Professor Burge; Sect. B, Dr. Steggerda.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

POLITICAL SCIENCE

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 44 or 62).

Minors: 20 hours selected from one or two of the following subjects: history, economics, law, sociology, philosophy, and education. At least eight hours must be offered in each subject, if two are chosen.

Note: Courses 1 and 3 give a general survey of national, state, and local government in the United States. Undergraduates beginning the study of political science are advised to take first, course 1, 3, or 16, and those planning for advanced work should take course 1 and either 3 or 16 in their sophomore year. Course 1 is offered the first semester.

Courses for Undergraduates

Pol. Sci. 3. State and Local Government.—(Continuation of Political Science 1; may be taken independently). *Prerequisite:* Sophomore standing.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	300 L.H.	Snider
[1]The total credit for students who take both Pol. Sci. 3 and 16 will not be more than 4 hours.	A2	8	MWF	204 L.H.	Isakoff
	A3	8	MWF	238 L.H.	Hagan
	B1	9	MWF	300 L.H.	Berdahl
	B2	9	MWF	340 L.H.	Hagan
	B3	9	MWF	240 L.H.	Powell
	C1	10	MWF	300 L.H.	Mathews
	C2	10	MWF	204 L.H.	Isakoff
	C3	10	MWF	240 L.H.	Powell
	D1	11	MWF	340 L.H.	Hyneman
	D2	11	MWF	302 L.H.	Isakoff
	E1	1	MWF	204 L.H.	Snider
	E2	1	MWF	340 L.H.	Hagan
	F	2	MWF	204 L.H.	Snider
	G	3	MWF	204 L.H.	Hagan
	K	9	TTS	204 L.H.	Snider

Pol. Sci. 16. Government of Illinois.—(Intended for students who do not take Pol. Sci. 3. Seniors and students taking Pol. Sci. 3 will receive only one hour credit for Pol. Sci. 16.) *Prerequisite:* Sophomore standing. (2). 3 TT; 202 L.H. Professor Mathews.

Pol. Sci. 36b. Thesis and Honors Course.—*Prerequisite:* Senior standing. (2 to 5).* Arrange. Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: Junior standing is required for admission to the following courses.

Pol. Sci. 6b. International Law.—(Continuation of 6a). *Prerequisite:* Open to seniors, graduate students, and law students of junior standing. (3). 10 MWF; 202 L.H. Professor Garner.

Pol. Sci. 7. American Foreign Relations.—*Prerequisite:* Junior standing with six hours of political science. (3). 3 MWF; 202 L.H. Professor Mathews.

Pol. Sci. 9. Principles of Jurisprudence.—*Prerequisite:* Pol. Sci. 1, or its equivalent; junior standing. (3). 9 MWF; 204 L.H. Professor Fairlie.

Pol. Sci. 11. The Constitution and Industrial Legislation.—*Prerequisite:* Senior standing, or junior standing with five hours of political science or of economics, or of both.

3	A	10	MWF	304 L.H.	Hyneman
	B	1	MWF	304 L.H.	Hyneman

Pol. Sci. 14a. Political Parties: Party History and Issues.—*Prerequisite:* Junior standing. (3). 11 MWF; 303 L.H. Professor Berdahl.

Pol. Sci. 22. Continental European Governments.—*Prerequisite:* Graduate or senior standing, or junior standing with six hours of political science; History 32b and 34b recommended. (3). 11 MWF; 308 L.H. Professor Garner.

Pol. Sci. 32. Principles of Political Science.—*Prerequisite:* Six hours of political science. (2). 2 TT; 304 L.H. Professor Fairlie.

Pol. Sci. 34. Municipal Problems.—*Prerequisite:* Open to graduate students and to undergraduate students who have had Pol. Sci. 4 or Economics 1, or who have senior standing.

3	Lect.	9	TT	L.H. Theatre	Hill
	A Quiz	9	W	303 L.H.	Hill
	B Quiz	10	W	227 L.H.	Hill
	C Quiz	1	W	302 L.H.	Hill
	D Quiz	11	Th	308 L.H.	Hill
	E Quiz	1	Th	308 L.H.	Hill
	F Quiz	9	F	302 L.H.	Hill
	G Quiz	10	F	233 L.H.	Hill
	H Quiz	11	F	300 L.H.	Hill

Courses for Graduates

Pol. Sci. 102. The Nature of the State.—(1 unit). Twice a week. Arrange. Professor FAIRLIE.

Pol. Sci. 103. Seminar in Political Science and Public Law.—(1 to 2 units).* Once a week. Arrange. Members of the department.

Pol. Sci. 104. Municipal Administration.—(1 unit). Twice a week. Arrange. Professor FAIRLIE.

Pol. Sci. 106b. Special Topics in International Law.—(1 unit). Twice a week. Arrange. Professor GARNER.

Pol. Sci. 114. Political Parties.—(1 unit). Twice a week. Arrange. Professor BERDAHL.

PSYCHOLOGY

Note: Certain courses in this department require a laboratory fee of $1.

Major: 20 hours chosen from courses announced by the department, excepting Psych. 1. At least eight hours must be offered in the advanced group.

Minors: 20 hours chosen from not more than two of the following subjects: education, mathematics, philosophy, sociology, physiology, and zoology. At least eight hours must be offered in each, if two are chosen.

Courses for Undergraduates

Psych. 1. Introduction to Psychology.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
4	Lect. A	11	MW	218 U.H.	CULLER
	Quiz A1	8	TT	403 U.H.	
	Quiz A2	9	TT	403 U.H.	
	Quiz A3	10	TT	404 U.H.	
	Quiz A4	11	TT	403 U.H.	
	Quiz A5	1	TT	403 U.H.	
	Quiz A6	2	TT	403 U.H.	
	Lect. B	9	TT	218 U.H.	YOUNG
	Quiz B1	8	MW	403 U.H.	
	Quiz B2	9	MW	213 U.H.	
	Quiz B3	10	MW	213 U.H.	
	Quiz B4	11	MW	403 U.H.	
	Quiz B5	2	MW	403 U.H.	
	Quiz B6	3	MW	407 U.H.	
	Lect. C	2	TT	218 U.H.	RUCH
	Quiz C1	8	MW	404 U.H.	
	Quiz C2	9	MW	403 U.H.	
	Quiz C3	10	MW	403 U.H.	
	Quiz C4	11	MW	404 U.H.	
	Quiz C5	2	MW	407 U.H.	
	Quiz C6	3	MW	403 U.H.	

Psych. 2. General Psychology (Survey of the Fields of Psychology).—*Prerequisite:* Psych. 1 or junior standing.

4	Lect.	9	MW	410 U.H.	HIGGINSON
	Quiz A	9	TT	406 U.H.	
	Quiz B	10	TT	406 U.H.	
	Quiz C	11	TT	406 U.H.	
	Quiz D	1	TT	404 U.H.	
	Quiz E	2	TT	404 U.H.	

Psych. 3. Laboratory Practice (Elementary).—*Prerequisite:* Psych. 1.

2	Lab. A	10–12	MW	417, 418 U.H.	HIGGINSON
	Lab. B	2–4	MW	417, 418 U.H.	STOTT
	Lab. C	10–12	TT	417, 418 U.H.	
	Lab. D	2–4	TT	417, 418 U.H.	

Psych. 27b. Thesis and Honors Course.—(Primarily designed for major students and for candidates for honors). *Prerequisite:* Twelve hours of psychology; consent of the instructor. (2). Arrange; 402 U.H. Professor WOODROW.

Courses for Advanced Undergraduates and Graduates

Psych. 8. Feeling and Emotion.—*Prerequisite:* Six hours of psychology. (2). 2 TT; 211 U.H. Professor YOUNG.

Psych. 10. Mental and Physical Work (Industrial Psychology).—*Prerequisite:* Psych. 1 and junior standing. (2). 11 TT; 412 U.H. Dr. RUCH.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Psych. 14. Social Psychology.—*Prerequisite:* Psych. 1 and junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	9	MW	315 U.H.	McAllister
	Quiz A	9	F	315 U.H.	McAllister
	Quiz B	10	F	213 U.H.	McAllister

Psych. 18. Perception.—*Prerequisite:* Six hours of psychology. (2). 10 TT; 412 U.H. Associate Professor Culler.

Psych. 20. Systematic Psychology.—*Prerequisite:* Six hours of psychology and senior standing. (2). 9 TT; 412 U.H. Professor Woodrow.

Psych. 23. Abnormal Psychology.—*Prerequisite:* Six hours of psychology.

3	Lect.	11	MW	410 U.H.	Sears
	Quiz A	11	F	410 U.H.	Sears
	Quiz B	10	F	404 U.H.	Sears

Courses for Graduates

Psych. 103. Research.—(½ to 2 units).* Arrange. Professors Woodrow and Young; Associate Professor Culler.

Psych. 105. Seminar.—(1 unit). Once a week. Arrange; 419 U.H. Professor Woodrow.

RAILWAY ENGINEERING

Note: Certain courses in this department require a laboratory fee of $3.

Courses for Undergraduates

R.E. 4. Locomotives.—*Prerequisite:* R.E. 3; T.A.M. 2 and 3; registration in M.E. 64. (3). Sec. W, 11 MWF; 104 T.B. Assistant Professor Schrader.

R.E. 7. Locomotive and Car Design.—*Prerequisite:* R.E. 2. (3). Sec. W, 1-4 MWF; 104 T.B. Assistant Professor Schrader.

R.E. 8. Railway Laboratory.—*Prerequisite:* R.E. 5. (2). Sec. W, 8-11 TT; 104 T.B. Assistant Professor Schrader.

R.E. 33. Economic Theory of Railway Location.—*Prerequisite:* C.E. 3; T.A.M. 2. (4). Sec. U, 9 TTS, 1-4 Th; 117 T.B. Professor King.

R.E. 33. Economic Theory of Railway Location.—*Prerequisite:* C.E. 3; T.A.M. 2. (3). Sec. U, 9 TTS; 117 T.B. Professor King. (An abridgment of course 33, for students in departments other than railway engineering.)

R.E. 36. Railway Maintenance.—*Prerequisite:* Registration in C.E. 3. (3). Sec. U, 10 TT, 1-4 Tu; 117 T.B. Professor King.

R.E. 37. Railway Design Problems.—*Prerequisite:* Registration in C.E. 65. (2). Sec. U, 11 TT; 117 T.B. Professor King.

R.E. 51. Seminar.—Open to railway students only (1). Sec. U, 10 S; 117 T.B. Professor King.

R.E. 60. Electric Railway Principles.—*Prerequisite:* R.E. 59; T.A.M. 3; E.E. 25, 75. (2). Sec. V, 11 TT; 105 T.B. Associate Professor Tuthill.

R.E. 61. Electric Traction.—*Prerequisite:* T.A.M. 2 or 3; E.E. 11, 61 or 25, 75. (3). Sec. V, 10 MWF; 105 T.B. Associate Professor Tuthill.

R.E. 67. Seminar.—Open to seniors in railway courses only. (1). Sec. V, 9 Th; 117 T.B. Professor Schmidt.

R.E. 70. Electric Railway Design.—*Prerequisite:* R.E. 64; registration in R.E. 74. (2). Sec. V, 1-4 TT; 117 T.B. Associate Professor Tuthill.

R.E. 74. Electric Railway Economics.—*Prerequisite:* R.E. 64. (3). Sec. V, 9 MWF; 105 T.B Associate Professor Tuthill.

R.E. 98. Thesis.—(3). Arrange.

Courses for Graduates

R.E. 102. Locomotive Design.—(1 unit). Arrange. Professor Young.

R.E. 106. Locomotive Operation.—(1 unit). Arrange. Professor Schmidt.

R.E. 110. Railway Location.—(1 unit). Arrange. Professor King.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

ROMANCE LANGUAGES AND LITERATURE

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, and 6b, and including at least five hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), German, Greek, history, Italian, Latin, philosophy, Spanish, provided that at least eight hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, and 2a, and including at least five hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), French, German, Greek, history, Italian, Latin, philosophy, provided that at least eight hours be taken in any subject chosen.

A. FRENCH

Courses for Undergraduates

French 1a. Elementary Course.—For students who have no credit in French.

Credit	Section	Hours	Days	Room	Instructor
4[1]	A	8	TWTF	116 New Agr.	Ralph
[1]Seniors receive only 3 hours credit.	B	9	TWTF	123 New Agr.	Bussard
	C	10	TWTF	340 L.H.	Stuttle
	F1	2	MTWT	116 New Agr.	Hilton
	F2	2	MTWT	139 L.H.	Klingner

French 1b. Elementary Course (continued).—*Prerequisite:* French 1a, or one year of high school French.

4[1]	A1	8	TWTF	211 U.H.	Alexander
[1]Seniors will receive only 3 hours credit.	A2	8	TWTF	302 L.H.	Rowe
	A3	8	TWTF	148 L.H.	Favreau
	B1	9	TWTF	118 New Agr.	Ramsey
	B2	9	TWTF	203a L.H.	Goggin
	C1	10	TWTF	122 New Agr.	Carter
	C2	10	TWTF	238 L.H.	Amiel
	C3	10	TWTF	118 New Agr.	Beadle
	D	11	TWTF	122 New Agr.	Favreau
	E1	1	MTWT	212 U.H.	Allen
	E2	1	MTWT	148 L.H.	Alexander
	F	2	MTWT	212 U.H.	Alexander
	G	3	MTWT	214 U.H.	Alexander

French 2a. Modern French.—*Prerequisite:* French 1b, or two years of high school French.

4	A	8	TWTF	235 L.H.	Ramsey
	B	9	TWTF	122 New Agr.	Rew
	C	10	TWTF	123 New Agr.	Ralph
	F	2	MTWT	214 U.H.	Carter

French 2b. Modern French.—*Prerequisite:* French 2a, or three years of high school French.

4	[1]A1	8	TWTF	122 New Agr.	Hilton
[1]Sections A1, B1, C1, D1, and E1 are primarily for students who expect to go beyond French 2b. More attention is paid to the speaking and hearing of French.	A2	8	TWTF	120 L.H.	Goggin
	[1]B1	9	TWTF	224 L.H.	Roche
	B2	9	TWTF	214 U.H.	Rowe
	[1]C1	10	TWTF	114 L.H.	Bussard
	C2	10	TWTF	116 New Agr.	Rew
	[1]D1	11	TWTF	232 L.H.	Bussard
	D2	11	TWTF	227 L.H.	Amiel
	[1]E1	1	MTWT	207 U.H.	Pietrangeli
	E2	1	MTWT	122 New Agr.	Beadle
	F	2	MTWT	312 U.H.	Allen
	G	3	MTWT	139 L.H.	Dismukes

French 3b. Introduction to French Literature.—*Prerequisite:* French 2b, or four years of high school French.

3	A	8	MWF	211 L.H.	Jacob
	B	9	MWF	303a L.H.	Will
	C	10	MWF	224 L.H.	Will
	D	11	MWF	334 L.H.	Oliver
(In French)	E	1	MWF	128 L.H.	Roche
	F	2	MWF	303a L.H.	Jacob

French 6b. Second-Year Composition and Conversation.—*Prerequisite:* French 6a or 2a or three years of high school French.

2	K	9	TT	233 L.H.	Hilton
	N	1	TT	104 L.H.	Hilton

French 7b. Intermediate Composition and Conversation.—*Prerequisite:* French 7a. (*Note:* Prospective teachers of French are strongly advised to take French 7a and 7b.)

Credit	Section	Hours	Days	Room	Instructor
2	K	9	TT	300 L.H.	Amiel
	L	10	TT	211 L.H.	Roche
	M	11	TT	211 L.H.	Roche
	O	2	TT	219 L.H.	Amiel

French 8b. Advanced Composition and Conversation.—*Prerequisite:* French 8a.

2	[1]K	9	TT	204a L.H.	Jacob
[1]Plus particulièrement: exercices de grammaire avancée.	O	2	TT	105 L.H.	Roche

French 28b. Senior Thesis.—For candidates for honors in French. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in French have the following prerequisites: French 3b or the equivalent, and junior standing; or senior standing and consent of instructor.

French 10b. Survey of French Literature.—

3	B	9	MWF	211 L.H.	Carnahan

French 17b. French Drama of the Nineteenth Century.—

2	K	9	TT	206 L.H.	Will
	L	10	TT	224 L.H.	Hamilton

French 24b. French Drama of the Seventeenth and Eighteenth Centuries.—

3	C	10	MWF	219 L.H.	Oliver

French 32b. French Novel of the Nineteenth Century.—

3	B	9	MWF	133 L.H.	Jacob

French 33b. La Littérature Contemporaine.—(In French).

2	M	11	TT	109 L.H.	Michaud

Courses for Graduates

French 101. Old French Literature.—(1 unit). 9 MW; 206 L.H. Professor Oliver.

French 102. Villon, Rabelais, Montaigne, La Pléiade.—(1 unit). 4 TT; 425a Lib. Assistant Professor Will.

French 104. Eighteenth Century Literature.—(1 unit). 9 TT; 211 L.H. Professor Oliver.

French 127. French Romanticism.—(1 unit). 3 TT; 425a Lib. Professor Carnahan.

French 132. French Symbolism in Prose and Verse and the English and American Influences.—(1 unit). 3 MW; 222 L.H. Professor Michaud.

French 144. Le Réalism et Le Naturalisme Français.—(In French). (1 unit). 3-5 F; 120 L.H. Professor Michaud.

French 195. Seminar.—Research work in special topics. (1 to 2 units).* Members of the department.

B. ITALIAN

Courses for Undergraduates

Italian 1b. Elementary Course (continued).—*Prerequisite:* Italian 1a.

4[1]	C	10	TWTF	312 U.H.	Pietrangeli
[1]Seniors will receive only 3 hours credit.	F	2	MTWT	306 L.H.	Dismukes and Van Horne

Italian 2b. Intermediate Italian.—*Prerequisite:* Italian 2a.

3	D	11	MWF	312 U.H.	Pietrangeli

Course for Advanced Undergraduates and Graduates

Italian 3b. Dante: The Divine Comedy.—*Prerequisite:* Italian 3a; junior standing.

2	P	3	TT	214 L.H.	Van Horne

Courses for Graduates

Italian 140. Italian Literature in the Middle Ages: Petrarch, Boccacio.—(1 unit). 1 TT; 214 L.H. Professor Van Horne.

Italian 195. Seminar.—Research work in special topics. (1 to 2 units).* Professor Van Horne.

C. SPANISH

Courses for Undergraduates

Spanish 1a. Elementary Course.—For students who have no credit in Spanish.

Credit	Section	Hours	Days	Room	Instructor
4[1]	A	8	TWTF	214 U.H.	Bushart
[1]Seniors will receive only 3 hours credit.	B	9	TWTF	116 New Agr.	Lodge
	C	10	TWTF	139 L.H.	Hartsook
	D	11	TWTF	306 L.H.	Utley
	F	2	MTWT	148 L.H.	Kidder

Spanish 1b. Elementary Course (continued).—*Prerequisite:* Spanish 1a or one year of high school Spanish.

4[1]	A1	8	TWTF	318 U.H.	Utley
[1]Seniors will receive only 3 hours credit.	A2	8	TWTF	139 L.H.	Brown
	B	9	TWTF	148 L.H.	Kiler
	C1	10	TWTF	105 L.H.	Lodge
	C2	10	TWTF	109 L.H.	Bushart
	D1	11	TWTF	203a L.H.	Young
	D2	11	TWTF	302 U.H.	Kaar
	E	1	MTWT	211 L.H.	Kidder
	F	2	MTWT	311 U.H.	Kaar
	G	3	MTWT	227 L.H.	Dallera
	H	4	MTWT	227 L.H.	Dallera

Spanish 2a. Modern Spanish.—*Prerequisite:* Spanish 1b or two years of high school Spanish.

4	C	10	TWTF	148 L.H.	Young
	F	2	MTWT	233 L.H.	Adam

Spanish 2b. Modern Spanish.—*Prerequisite:* Spanish 2a or three years of high school Spanish.

4	[1]A1	8	TWTF	240 L.H.	Avilés
[1]In section A1, more attention is paid to the speaking and hearing of Spanish.	A2	8	TWTF	227 L.H.	Burner
	B	9	TWTF	139 L.H.	Utley
	C	10	TWTF	203a L.H.	Adam
	D	11	TWTF	303a L.H.	Hamilton
	E	1	MTWT	227 L.H.	Young
	F	2	MTWT	238 L.H.	Burner

Spanish 3b. Introduction to Spanish Literature.—*Prerequisite:* Spanish 2b, or four years of high school Spanish.

3	B	9	MWF	235 L.H.	Burner
	D	11	MWF	133 L.H.	Adam
	E	1	MWF	240 L.H.	Adam

Spanish 5b. Commercial Spanish.—*Prerequisite:* Spanish 5a.

2	K	9	TT	133 L.H.	Avilés

Spanish 7b. Intermediate Composition and Conversation.—*Prerequisite:* Spanish 7a. (*Note:* Prospective teachers of Spanish are strongly advised to take Spanish 7a and 7b.)

2	B	9	MW	238 L.H.	Avilés
	L	10	TT	113 L.H.	Avilés

Spanish 8b. Advanced Composition and Conversation.—*Prerequisite:* Spanish 8a.

2	M	11	TT	123 L.H.	Avilés

Spanish 25. Methods of Teaching Spanish.—Discussion and laboratory work in phonetics. *Prerequisite:* 20 hours in Spanish, or 16 hours in Spanish plus 20 in French. Not open to students other than seniors except by permission of the instructor. *Note:* Spanish 25 will be given only in second semester of the college year; French 25 only in the first semester. Laboratory fee, 50 cents.

3		2	MWF	310 U.H.	Gullette

Spanish 28b. Senior Thesis.—For candidates for honors in Spanish. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in Spanish have the following prerequisites: Spanish 3b or the equivalent, and junior standing; or senior standing and consent of instructor.

Spanish 10b. Survey of Spanish Literature.—

3	C	10	MWF	204a L.H.	Burner

Spanish 11b. Cervantes: Don Quijote.—

2	M	11	TT	205 L.H.	Van Horne

Spanish 17b. Modern Spanish Drama.—

2	L	9	TT	216 L.H.	Hamilton

Courses for Graduates

Spanish 131. Spanish Literature in the Seventeenth Century.—(1 unit). Arrange; 216 L.H. Associate Professor HAMILTON.

Spanish 135. Modern Spanish Novel.—(1 unit). Arrange; 216 L.H. Associate Professor HAMILTON.

Spanish 138. Spanish-American Literature.—(1 unit). 1 MW; 425a Lib. Professor VAN HORNE.

Spanish 195. Seminar.—Research work in special topics. (1 to 2 units).* Members of the department.

SOCIOLOGY

Major: 20 hours from any courses in the department.

Minors: 20 hours from one or two of the following subjects: history, philosophy, psychology, economics, political science. At least eight hours must be offered in either minor subject, if two are chosen.

Courses for Undergraduates

Sociol. 1. Principles of Sociology.—*Prerequisite:* Junior standing, or sophomore standing with a course in either economics or psychology or history.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	304 L.H.	HILLER
	B	9	MWF	202 L.H.	ALBIG
	C	9	MWF	326 L.H.	HOUGHTON
	D	10	MWF	334 L.H.	TYLOR
	E	11	MWF	202 L.H.	HILLER
	F	1	MWF	326 L.H.	TYLOR
	G	2	MWF	308 L.H.	HOUGHTON
	H	3	MWF	326 L.H.	HOUGHTON

Sociol. 2. Social Factors in Personality.—*Prerequisite:* Sociol. 1.

3	A	8	MWF	202 L.H.	AHRENS
	B	9	MWF	306 L.H.	

Sociol. 90b. Honors Course.—For majors in sociology and other seniors. Consent of instructor required.

2	Arrange	Members of the department

Courses for Advanced Undergraduates and Graduates

Sociol. 3. Social Evolution.—*Prerequisite:* Sociol. 1 and junior standing.

3	A	11	MWF	326 L.H.	AHRENS

Sociol. 4. Social Control.—*Prerequisite:* Sociol. 1 and junior standing.

2	A	1	MW	306 L.H.	ALBIG
	B	3	MW	334 L.H.	

Sociol. 7. Rural Sociology.—*Prerequisite:* Sociol. 1 and junior standing.

3	A	9	MWF	321 L.H.	TYLOR

Sociol. 8. Charities.—*Prerequisite:* Sociol. 1 and junior standing. Suggested background courses: Sociol. 2 and courses in economics and history.

3	A	11	MWF	204 L.H.	TIMMONS
	B	2	MWF	334 L.H.	

Sociol. 9. Criminology.—*Prerequisite:* Sociol. 2 or senior standing. (Open to pre-legal juniors by consent of instructor.)

3	A	1	MWF	334 L.H.	TAFT
	B	2	MWF	326 L.H.	

Sociol. 14. Group Opinion.—*Prerequisite:* Sociol. 1 and senior standing.

3	A	10	MWF	305 L.H.	ALBIG

Sociol. 24. Penology.—*Prerequisite:* Sociol. 9.

3	A	9	MWF	105 L.H.	TAFT

Sociol. 27. Community Welfare Organization.—*Prerequisite:* Fourteen credit hours in the Department of Sociology.

3	A	8	MWF	326 L.H.	TIMMONS

Sociol. 28. Immigration and Assimilation.—*Prerequisite:* Five hours of sociology.

3	A	10	MWF	326 L.H.	HILLER

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

Sociol. 107. Rural Communities.—(1 unit). Twice a week. Arrange; 201 L.H. Assistant Professor TYLOR.

Sociol. 109. Research in Criminology.—(1 unit). Twice a week. Arrange; 201 L.H. Professor TAFT.

Sociol. 128. Fusion of Culture Resulting from Immigration.—(1 unit). Twice a week. Arrange; 201 L.H. Professor HILLER.

Sociol. 150. Seminar.—Preparation of theses. (½ to 2 units).* Arrange. Members of the department.

THEORETICAL AND APPLIED MECHANICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $2.50.

Courses for Undergraduates

T.A.M. 1. Analytical Mechanics (Statics).—*Prerequisite:* Math. 7; registration in Math. 9.

Credit	Section	Hours	Days	Room	Instructor
2	C	8	TT	208 E.H.	
	Ch1	8	TT	202 E.H.	
	G	8	TT	313 M.T.L.	
	X	8	TT	316 M.T.L.	
	F	9	TT	310 M.T.L.	
	M	9	TT	305 M.T.L.	
	Q	9	TT	313 M.T.L.	
	R	9	TT	202 E.H.	
	Ch2	10	TT	202 E.H.	
	N	10	TT	310 M.T.L.	
	S	10	TT	313 M.T.L.	
	E	11	TT	313 M.T.L.	
	J	11	TT	202 E.H.	
	K	1	TT	305 M.T.L.	
	O	1	TT	310 M.T.L.	
	P	1	TT	202 E.H.	
	L	2	TT	305 M.T.L.	

T.A.M. 2. Analytical Mechanics (Dynamics).—*Prerequisite:* T.A.M. 1.

3	C	9	MWF	202 E.H.	
	Y	11	MWF	305 M.T.L.	
	Z	4	MWF	202 E.H.	

T.A.M. 3. Resistance of Materials.—*Prerequisite:* T.A.M. 1.

3	N	9	MWF	310 M.T.L.	
	K	11	MWF	202 E.H.	
	L	1	MWF	305 M.T.L.	
	M	1	MWF	310 M.T.L.	

T.A.M. 4. Hydraulics.—*Prerequisite:* T.A.M. 1 and registration in T.A.M. 2.

2	G	8	TT	305 M.T.L.	
	J	8	TT	310 M.T.L.	
	E	10	TT	305 M.T.L.	
	F	11	TT	305 M.T.L.	
	O	11	TT	310 M.T.L.	

T.A.M. 18. Strength of Materials.—*Prerequisite:* T.A.M. 17.

3	A	8	WF	305 M.T.L.	
		8–10	M	305 M.T.L.	
	B	10	MW	305 M.T.L.	
		9–11	F	305 M.T.L.	

T.A.M. 63. Resistance of Materials Laboratory.—*Prerequisite:* Registration in T.A.M. 3.

1	X	8–10	M	223 M.T.L.	
	L	3–5	M	223 M.T.L.	
	N	1–3	Tu	223 M.T.L.	
	K	3–5	Tu	223 M.T.L.	
	M	3–5	W	223 M.T.L.	

T.A.M. 64. Hydraulics Laboratory.—*Prerequisite:* Registration in T.A.M. 4.

1	J	1–3	M	M.T.L.	
	O	2–4	Tu	M.T.L.	
	G	8–10	W	M.T.L.	
	F	2–4	W	M.T.L.	
	E	2–4	Th	M.T.L.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

T.A.M. 42. Properties of Engineering Materials: Specifications and Inspection.—*Prerequisite:* T.A.M. 3 and 63. (3). Arrange. Professor SEELY.

T.A.M. 43. Laboratory Work in Hydraulics.—*Prerequisite:* T.A.M. 4 and 64. (3). Twice a week. Arrange. Professor ENGER and Mr. LANSFORD.

T.A.M. 44. Laboratory Work in Testing Materials.—*Prerequisite:* T.A.M. 3 and 63. (3 semester hours or ½ to 1 unit).* Arrange. Professor MOORE and Professor PUTNAM.

Courses for Graduates

T.A.M. 101. The Development of Basic Ideas in Mechanics.—(1 unit). Twice a week. Arrange. Professor MOORE.

T.A.M. 103. Hydraulics.—(1 unit). Twice a week. Arrange. Professor ENGER.

T.A.M. 107. Laboratory Investigations in Strength of Materials.—(1 to 2 units).* Twice a week. Arrange. Professor MOORE.

T.A.M. 108. Laboratory Investigations in Hydraulics.—(1 to 2 units).* Twice a week. Arrange. Professor ENGER.

T.A.M. 109. Laboratory Investigations in Plain and Reinforced Concrete.—(1 to 2 units).* Twice a week. Arrange. Professor RICHART.

T.A.M. 111. Analytical Study of Experimental Work on Reinforced Concrete: Columns and Slabs.—(1 unit). Twice a week. Arrange. Professor RICHART.

T.A.M. 113. Graphical and Approximate Methods of Structural Analysis.—(½ unit). Twice a week. Arrange. Professor WESTERGAARD.

T.A.M. 115. Theory of Elasticity with Application to Engineering Problems.—(Continuation of T.A.M. 114). (1 unit). 9 TT. Professor WESTERGAARD.

T.A.M. 117. The Properties of Engineering Materials.—(1 unit). Three times a week. Arrange. Professor SEELY.

ZOOLOGY

Note: Certain courses in this department require laboratory fees varying from $1 to $4.50.

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: animal husbandry, bacteriology, botany, chemistry, entomology, geology, physics, physiology, psychology. At least eight hours must be offered in each subject, if two are chosen.

Note: Credit for seniors who take Zoology 1 or 2 will be reduced one hour.

Courses for Undergraduates

Zool. 1. General Zoology.—

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	9	MWF	228 N.H.	THOMAS, KUDO, LUCE, BROWN, HALL, and assistants
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	TTS	310 N.H.	
	D Lab. & Quiz	10–12	MWF	310 N.H.	
	E Lab. & Quiz	10–12	MWF	312 N.H.	
	G Lab. & Quiz	1–3	MWF	310 N.H.	
	H Lab. & Quiz	1–3	MWF	312 N.H.	
	K Lab. & Quiz	1–4	TT	310 N.H.	
	L Lab. & Quiz	1–4	TT	312 N.H.	

Zool. 2. Vertebrate Zoology and Comparative Anatomy.—*Prerequisite:* Zool. 1.

5[1]	Lect.	10	MWF	228 N.H.	ADAMS, CAHN, BROWN, HALL, and assistants
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	MWF	330 N.H.	
	B Lab. & Quiz	8–10	MWF	314 N.H.	
	C Lab. & Quiz	10–12	TTS	330 N.H.	
	D Lab. & Quiz	8–10	TTS	330 N.H.	
	E Lab. & Quiz	1–3	MWF	330 N.H.	
	F Lab. & Quiz	1–3	MWF	314 N.H.	
	G Lab. & Quiz	1–4	TT	330 N.H.	
	H Lab. & Quiz	1–4	TT	314 N.H.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Zool. 3. Vertebrate Embryology.—*Prerequisite:* Zool. 1 and 2.

Credit	Section	Hours	Days	Room	Instructor
5	Lect.	1	TT	228 N.H.	SHUMWAY
	A Lab.	8–10	MWF	323 N.H.	ADAMSTONE
[1]Lab. section D and	B Lab.	10–12	MWF	323 N.H.	and assistants
quiz section 4 will not	C Lab.	1–3	MWF	323 N.H.	
be opened until others	[1]D Lab.	3–5	MWF	323 N.H.	
are filled.	1 Quiz	8	Tu	423 N.H.	
	2 Quiz	10	Th	247 N.H.	
	3 Quiz	2	Tu	229 N.H.	
	[1]4 Quiz	2	Th	229 N.H.	

Zool. 4. Invertebrate Zoology.—*Prerequisite:* Zool. 1 and 30 hours of university work.

3	Lect. or Quiz	3	TT	229 N.H.	VAN CLEAVE and
	A Lab.	10–12	TT	420 N.H.	assistant
	B Lab.	1–3	TT	420 N.H.	

Zool. 5. Heredity.—*Prerequisite:* One year of university work. Credit may not be received in both Zool. 5 and Zool. 15.

2	Lect.	9	MW	229 N.H.	ZELENY, LUCE,
	A Quiz	8	F	423 N.H.	and assistant
	B Quiz	9	F	423 N.H.	
	C Quiz	11	F	423 N.H.	
	D Quiz	8	M	423 N.H.	
	E Quiz	9	Th	425 N.H.	
	F Quiz	11	Th	423 N.H.	

Zool. 6. Vertebrate Histology.—*Prerequisite:* Zool. 3.

3	A	3–5	TT	323 N.H.	ADAMSTONE

Zool. 10. Field Ecology and Ornithology.—Study in forests, streams, and lakes in the vicinity of Reelfoot Lake, Tenn. Covering Easter vacation. Expenses about $23. *Prerequisite:* Registration in Zool. 9 or 16 or their equivalent, and 30 hours of university work. (1). Professor SHELFORD, Assistant Professor CAHN.

Zool. 16. General Ornithology.—*Prerequisite:* 30 hours of university work.

2	Lect.	2	TT	228 N.H.	CAHN and assistants
	Field	(Four hours of field trips each week during April and May only; hours to be arranged.)			

Course for Advanced Undergraduates

Zool. 8b. Thesis Investigation.—*Prerequisite:* Two years of zoology.

3 to 5*	Arrange	Members of the department

Courses for Advanced Undergraduates and Graduates

Zool. 9. Animal Ecology.—*Prerequisite:* One year of zoology and junior standing.

3 to 4*[1]	Lect.	9	TT	229 N.H.	SHELFORD
[1]For 4 hours credit, additional field work is assigned.	Lab.	9–11	S	202 Exp. Zool. Lab.	(1st half semester)
	Field	9–12 and two all-day trips	S		(2d half semester)

Zool. 19b. Vertebrate Ecology.—*Prerequisite:* Zool. 1 and 2. (Zool. 9 or registration therein also recommended.)

2 or 3*	Lect.	11	TT	202 Exp. Zool. Lab.	CAHN

Zool. 20b. Current Investigation.—Required of all graduate students majoring in zoology; may be elected by seniors majoring in zoology with consent of instructor.

1	A	3	F	340 N.H.	Members of the department

Zool. 21b. Introduction to Zoological Research.—*Prerequisite:* One year in zoology courses; senior standing.

2 to 5*	To be arranged	Members of the department

Zool. 23. Comparative Anatomy of Vertebrates.—*Prerequisite:* Zool. 3 and 22.

2 to 4*	Lect.	4	Tu	419 N.H.	ADAMS
	Lab.	1–5	TT	419 N.H.	

Zool. 25. Experimental Genetics.—*Prerequisite:* Zool. 1 and Zool. 5 (may be taken concurrently) and junior standing.

3 to 5*	Lab.	1–3	MWF	418 N.H.	LUCE

Zool. 31. Helminthology.—*Prerequisite:* Zool. 1 and 2 and junior standing.

2	A	3–5	MW	418 N.H.	THOMAS

Zool. 66. Vertebrate Organogeny.—*Prerequisite:* Zoology 3 or 63.

2 to 5*	A	10	MW	326 N.H.	SHUMWAY
		Other hours to be arranged			

Zool. 74. Advanced Invertebrate Zoology.—*Prerequisite:* Zool. 4 or its equivalent, and junior standing.

3 to 5*	To be arranged	420 N.H.	VAN CLEAVE

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

Students entering on graduate study in the Department of Zoology should have had two years of undergraduate work in the subject. When chosen as a minor the courses listed for graduates and undergraduates must be preceded by at least one full year's undergraduate work in zoology. Work done at other institutions will be evaluated on conference with the head of the department.

Zool. 103. Cytology: The Animal Cell.—(1 unit). 2 MW; 432 N.H. Professor SHUMWAY.

Zool. 109. Physiological Ecology.—(½ to 1 unit).* Arrange. Professor SHELFORD.

Zool. 111. Experimental and Field Ecology.—(½ to 2 units).* Arrange. Professor SHELFORD.

Zool. 115. Factors of Individual and Racial Development.—(1 unit). 3 MW; 340 N.H. Professor ZELENY.

Zool. 117. Invertebrate Taxonomy.—(½ to 1 unit).* Arrange; 420 N.H. Professor VAN CLEAVE.

Zool. 118. Advanced Protozoology.—(1 unit). 1-4 TT; 418 N.H. Assistant Professor KUDO.

Individual Research Courses

Zool. 121. Invertebrate Zoology and Parasitology.—(1 to 2 units).* Arrange. Professor VAN CLEAVE, Assistant Professor THOMAS.

Zool. 122. Vertebrate Morphology.—(1 to 2 units).* Arrange. Assistant Professor ADAMS.

Zool. 124. Experimental Zoology and Genetics.—(1 to 2 units).* Arrange. Professor ZELENY.

Zool. 125. Animal Ecology and Behavior.—(1 to 2 units).* Arrange. Professor SHELFORD.

Zool. 126. Vertebrate Embryology and Cytology.—(1 to 2 units).* Arrange. Professor SHUMWAY.

Zool. 128. Protozoology.—(1 to 2 units).* Arrange. Assistant Professor KUDO.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

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UNIVERSITY OF ILLINOIS BULLETIN

Vol. XXXIII September 3, 1935 No. 1

TIME TABLE

FIRST SEMESTER

1935-1936

THE LIBRARY OF THE
AUG 20 1935
UNIVERSITY OF ILLINOIS

This Time Table is issued early, for the convenience of faculty members and students. Preserve your copy for use during the period of registration, as there will not be a supply for general distribution at that time.

PUBLISHED WEEKLY BY THE UNIVERSITY OF ILLINOIS

[Entered as second-class matter December 11, 1912, at the post office at Urbana, Illinois, under the Act of August 24, 1912. Acceptance for mailing at the special rate of postage provided for in section 1103, Act of October 3, 1917, authorized July 31, 1918]

REGISTRATION CALENDAR

1935-36

FIRST SEMESTER

1935

Sept. 4-7, Wed.-Sat.....Entrance examinations (get programs and permits at the Registrar's Office).
Sept. 12, Thurs., 7:30 p.m...Freshman Welcome.
Sept. 13, Fri., 8 a.m.....Meetings for freshman groups with advisers.
Sept. 13, Fri., 9 a.m.....Rhetoric examination.
Sept. 13, Fri., 1 p.m.....Meetings for freshman groups with advisers.
Sept. 13, Fri., 7:30 p.m.....Student night meeting.
Sept. 13-14, Fri.-Sat.....Registration for graduate students.
Sept. 14, Sat., 8 a.m.-5 p.m...Registration for freshmen.
Sept. 16-17, Mon.-Tues.....Registration for upperclassmen.
Sept. 16, Mon., 1:30 p.m....Hygiene examination.
Sept. 17, Tues., 8 a.m.....Talks for freshmen by Dean of Men and Dean of Women.
Sept. 18, Wed., 8 a.m.....Instruction begun.
Sept. 23, Mon., 12 m.....Latest date for change of study-lists without fee.
Sept. 28, Sat., 12 m.....Latest date for rebates in full.
Oct. 29, Tues.....Latest date for announcement of subjects for theses.
Nov. 16, Sat., 12 m.....Latest date for rebates of one-half fees, and latest date for seniors graduating in February to make substitutions in courses or to remove failures of the last semester or the summer session.
Nov. 21-23, Thurs.-Sat.....High School Conference.
Nov. 27, Wed., 12 m.....Thanksgiving recess begun.
Dec. 2, Mon., 1 p.m.....Instruction resumed.
Dec. 21, Sat., 12 m.....Holiday recess begun.

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Jan. 6, Mon., 8 a.m.....Instruction resumed.
Jan. 10, Fri.....Latest date for special examinations.
Jan. 21, Tues.....Semester examinations begun.
Jan. 29, Wed.....Semester examinations ended.

SECOND SEMESTER

Jan. 29-Feb. 1, Wed.-Sat....Entrance examinations (get programs and permits at the Registrar's Office).
Jan. 31-Feb. 1, Fri.-Sat.....Registration for graduate students.
Feb. 3-4, Mon.-Tues.....Registration for undergraduate students.
Feb. 5, Wed., 8 a.m.....Instruction begun.
Feb. 10, Mon.....Earliest date for special examinations.
Feb. 10, Mon., 12 m.....Latest date for change of study-lists without fee.
Feb. 15, Sat., 12 m.....Latest date for rebates in full.
April 4, Sat., 12 m.....Latest date for rebates of one-half fees, and latest date for seniors to make substitutions in courses or to remove failures of the first semester.
April 9, Thurs., 12 m.....Easter recess begun.
April 14, Tues., 1 p.m.....Instruction resumed.
May 1, Fri., 10 a.m.....Honors day convocation.
May 11, Mon.....Latest date for special examinations.
May 21, Thurs.....Military day.
May 22, Fri.....Semester examinations begun.
June 1, Mon.....Semester examinations ended.
June 8, Mon.....Sixty-fourth Annual Commencement.

SUMMER SESSION, 1936

June 15, Mon.....Registration day.

KEY TO NAMES OF DEPARTMENTS AND DIVISIONS

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EXPLANATION OF LISTING OF COURSES

The arrangement of subjects in the following Time Table is alphabetical by names of departments. The connections of allied departments and divisions are indicated by cross references. (See page 3 for key to names of departments and divisions.)

The courses offered by each department or division are listed, in numerical order, in groups with headings that indicate the students for whom they are designed. Groups of general, elementary, and introductory courses are listed as "Courses for Undergraduates." Intermediate and advanced groups are listed as "Courses for Advanced Undergraduates and Graduates." Courses with numbers beginning at 100 are listed as "Courses for Graduates" and are not open to undergraduates.

Following the title of each course of instruction will be found the requirements, if any, for admission to that particular course. The sequence indicated by these prerequisites must be followed. For example, on page 10, in Art 35a-35b, Commercial Art, the prerequisites given are Art 28 and Architecture 72; these two courses must be completed before Art 35a-35b may be taken.

If a course not required for graduation is selected by fewer than five students it may be withdrawn for the semester.

Credit

Credit for undergraduate students is reckoned in *semester hours*, or simply *hours*. An *hour* is one class period a week for one semester or the equivalent in laboratory, shop, or drafting room. The number of hours for which each course counts is shown in parentheses in the description of the course, thus, (2), except where the credits, sections, etc., are tabulated.

Credit for first-year graduate students, candidates for the master's degree, is counted in *units*. A *unit* course is one which requires ten hours of time per week through one semester, irrespective of the distribution of that time in class work, laboratory work, and private study. Four such courses or their equivalent constitute a full minimum program for one semester. The unit values of graduate courses (numbered 100 and upwards) are indicated in parentheses following the titles of these courses. Courses of the intermediate groups "for graduates and advanced undergraduates" generally are evaluated for graduate credit as follows: (a) courses open only to students having at least senior standing, 1 unit for a 4-hour or a 5-hour course, ½ unit for a 1-hour, 2-hour, or 3-hour course; (b) courses open to juniors, ½ unit for a 4-hour or 5-hour course, ¼ unit for a 1-hour, 2-hour, or 3-hour course.

Buildings

University buildings are designated by the following abbreviations:

Administration Building (East)	Adm.(E)	Law Building	Law
Agriculture Building (Old)	Agr.	Library	Lib.
Agricultural Engineering Building	Agr.Eng.	Lincoln Hall	L.H.
Animal Pathology Laboratory	An.Path.L.	Materials Testing Laborarory	M.T.L.
Architecture Building	Arch.	Mathematics Building	Math.
Armory	Arm.	Mechanical Engineering Laboratory	M.E.L.
Ceramics Building	Cer.	Men's New Gymnasium	New Gym.
Chemistry Annex	Chem.A.	Men's Old Gymnasium	Old Gym.
Chemistry Building	Chem.	Mining Engineering Laboratory	Min.L.
Civil Engineering Surveying Building	C.E.S.B.	Natural History Building	N.H.
Commerce Building	Com.	New Agriculture Building	New Agr.
Dairy Manufactures Building	D.Mfrs.	Physics Laboratory	P.L.
Electrical Engineering Annex	E.E.A.	Smith Memorial Music Hall	S.M.H.
Electrical Engineering Laboratory	E.E.L.	Stock Judging Pavilion	S.P.
Engineering Hall	E.H.	Transportation Building	T.B.
Entomology Building	Entom.	University Hall	U.H.
Floriculture Greenhouses	F.G.	University High School	U.H.S.
Genetics Building	Gen.Bldg.	Vegetable Greenhouse	V.G.
Highway Laboratory	H.L.	Woman's Building	W.B.
Horticultural Field Laboratory	H.F.L.	Woman's Gymnasium	W.Gym.

TIME TABLE FOR COURSES OF INSTRUCTION
FIRST SEMESTER, 1935-1936

AGRICULTURAL ECONOMICS

Courses for Undergraduates

Agr. Econ. 1. Introductory Agricultural Economics.—(Laboratory fee, 50 cents.)

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	3	W	103 New Agr.	Ross
	Disc. A1	3	MF	313 New Agr.	Ross
[1]No credit for juniors and seniors.	Disc. A2	3	MF	316 New Agr.	Jordan
	Disc. B	10	MW	313 New Agr.	Ross
	Disc. C1	2	TT	313 New Agr.	Ross
	Disc. C2	2	TT	316 New Agr.	Ackerman
	Disc. D	10	TT	313 New Agr.	Ross
	Disc. E	11	TT	313 New Agr.	Ackerman
	Disc. F	11	WF	313 New Agr.	Ackerman

Agr. Econ. 20. Farm Management.—*Prerequisite:* Sophomore standing. Local field trips will be arranged; estimated cost, $2.

3	Lect. and Disc.	10	TT	316 New Agr.	Case
	S Lab.	1–3	Th	331 New Agr.	Wilcox
	T Lab.	1–3	F	331 New Agr.	Wills

Agr. Econ. 30. Marketing of Agricultural Products.—*Prerequisite:* Sophomore standing.

3	Lect.	10	M	316 New Agr.	Jordan and Ashby
	A Quiz	10	WF	316 New Agr.	
	B Quiz	9	WF	313 New Agr.	

Agr. Econ. 40. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; approval of head of department. (5). Arrange.

(a) **Agricultural Marketing.**—Members of the department.
(c) **Agricultural Prices and Statistics.**—Members of the department.
(e) **Farm Management.**—Professor Case.
(g) **Land Economics.**—Professor Stewart.

Courses for Advanced Undergraduates and Graduates

Agr. Econ. 10. Economic Relationships of Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing. (3). 11 MWF; 316 New Agr. Professor Stewart.

Agr. Econ. 22. Types and Systems of Farming.—*Prerequisite:* Agr. Econ. 20. Lectures and quiz. (3). 8 MWF; 316 New Agr. Associate Professor Wilcox.

Agr. Econ. 24. Farm Operation.—*Prerequisite:* Agr. Econ. 20; junior standing. Local field trips will be arranged; estimated cost, $3. (2). 11 TT; 316 New Agr. Mr. Wills.

Agr. Econ. 26. Farm Administration.—*Prerequisite:* Agr. Econ. 20; senior standing. (2). 9 TT; 316 New Agr. Professor Case, Mr. Ackerman.

Agr. Econ. 36. Marketing Horticultural Products.—*Prerequisite:* Econ. 1 or 2; Agr. Econ. 30; senior standing. Inspection trip required; estimated cost, $12. (3). 3 MWF; 203 V.G. Professor Lloyd.

Agr. Econ. 41. Problems in Agricultural Economics.—*Prerequisite:* Senior standing; approval of head of department. (5). Arrange.

(a) **Agricultural Marketing.**—Members of the department.
(b) **Agricultural Prices and Statistics.**—Members of the department.
(c) **Farm Management.**—Professor Case.
(d) **Land Economics.**—Professor Stewart.

Courses for Graduates

Agr. Econ. 109. Seminar. Thesis Course.—All graduate students majoring in Agricultural Economics must register in Agr. Econ. 109, but only those students writing theses acceptable for the degree of Master of Science will be given credit. (1 to 2 units).* Once a week. Arrange. Members of the department.

Agr. Econ. 110. Theory of Agricultural Economics.—(1 unit). Arrange. Professor Stewart.

Agr. Econ. 111. Agricultural Prices and Statistics.—(1 unit). Arrange. Assistant Professor Bartlett.

Agr. Econ. 112. Agricultural Economics Research.—(1 to 2 units).* Credit is conditional on completion of acceptable report of investigation. Arrange. Members of the department.

Agr. Econ. 120. Farm Management Principles and Investigational Methods.—(1 unit). Twice a week. Arrange. Professor Case.

Agr. Econ. 135. Marketing Fruits and Vegetables. –(1 to 2 units).* Arrange. Professor Lloyd.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

AGRICULTURAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $8.

Courses for Undergraduates

Agr. Eng. 1. Introduction to Agricultural Engineering.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	8	WF	201 Agr. Eng.	YOUNG
[1]Seniors will receive only 2 hours credit.	B Quiz	9	W	201 Agr. Eng.	
	J Quiz	8	Tu	201 Agr. Eng.	
	N Quiz	1	Tu	201 Agr. Eng.	
	S Quiz	9	F	201 Agr. Eng.	
	A Lab.	8–10	M		
	J Lab.	8–10	Th		
	N Lab.	1–3	Th		

Agr. Eng. 2. Field and Power-Driven Machinery.—*Prerequisite:* Agr. Eng. 1.

3	Lect.	9	TT	201 Agr. Eng.	SHAWL
	J Quiz	8	Tu	205 Agr. Eng.	
	A Quiz	8	W	205 Agr. Eng.	
	N Lab.	1–3	Th		
	A Lab.	8–10	F		

Agr. Eng. 5. Drainage and Surveying.—*Prerequisite:* Sophomore standing.

3	Lect.	1	M	205 Agr. Eng.	LEHMANN
	Quiz	1	W	205 Agr. Eng.	
	Lab.	1–4	F		

Agr. Eng. 18a. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; approval of head of department. (5). Professor LEHMANN, Assistant Professor SHAWL.

Agr. Eng. 20. Farm Concrete Construction.—*Prerequisite:* Agr. Eng. 1.

2	Lect.	3	Tu	205 Agr. Eng.	YOUNG
	P Lab.	3–5	Th		
	J Lab.	8–10	S		

Courses for Advanced Undergraduates and Graduates

Agr. Eng. 28. Advanced Gas Engines and Tractors.—*Prerequisite:* Agr. Eng. 3 and consent of instructor. (3). 2-5 MW; Lect., arrange; 201 Agr. Eng. Assistant Professor SHAWL.

Agr. Eng. 51. Special Power and Field Machinery.—*Prerequisite:* Agr. Eng. 17 or 28. Consult instructor before registering. (3). Arrange. Professor LEHMANN, Assistant Professor SHAWL.

AGRONOMY

Note: Certain courses in this department require laboratory fees varying from $2 to $4.

Courses for Undergraduates

Agron. 18. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; approval of head of department. (5). Arrange.

Soils.—Professors BAUER, DETURK, R. S. SMITH; Associate Professor SEARS.
Crops.—Professors BURLISON, WOODWORTH; Associate Professor DUNGAN.

Agron. 25. Farm Crops.—

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	2	MW	205 Agr.	PIEPER, DUNGAN, and VANDOREN
	Lab.	1–3	Tu	600 Agr.	
	Quiz	2	F	205 Agr.	

Agron. 28. Soils.—*Prerequisite:* Chem. 5; Geol. 44. (Local field trip, cost not to exceed $1.)

5	Lect.	8	MWF	205 Agr.	WIMER and CRANE
	Quiz	8	TT	205 Agr.	
	A Lab.	1–4	Th	650 Agr.	
	C Lab.	8–11	S	650 Agr.	

Courses for Advanced Undergraduates and Graduates

Agron. 7. Crop Production as Affected by Environmental Factors.—*Prerequisite:* Agron. 25; Bot. 5; junior standing. (3). Lect., 8 MWF; 553 Agr. Professor BURLISON, Associate Professor DUNGAN.

Agron. 11. Rôle of Micro-organisms in Soil Fertility.—*Prerequisite:* Agron. 28; Bact. 5a; junior standing (3). Lect., 9 MWF; 205 Agr. Associate Professor SEARS.

Agron. 33. Chemical Methods of Soil Investigation.—(Given in 1935-36 and in alternate years.) *Prerequisite:* Agron. 28; junior standing. (3). Lect., 1 M, 205 Agr.; Lab., 1-4 WF, 218 Agr. Professor DETURK.

Courses for Graduates

Agron. 101. Chemical Properties of Soils; Their Relation to Soil Development and Plant Growth.—(1 unit). Twice a week. Arrange; 306 Agr. Professor DeTurk.

Agron. 104. Seminar.—(¼ unit). Once a week. Arrange. Graduate staff.

Agron. 112. Theory and Analysis of Plant Breeding Problems.—(1 unit). Three times a week. Arrange. Professor Woodworth.

Agron. 118. Research.—(½ to 4 units).* Arrange.

Soils.—Professors Bauer, DeTurk, R. S. Smith.
Crops.—Professors Burlison, Woodworth; Associate Professor Dungan.

ANIMAL HUSBANDRY

Courses for Undergraduates

An. Husb. 1. Introduction to Animal Husbandry.—Required of students not having had livestock judging in high school. (No credit in this course allowed to juniors and seniors.) (2). 3-5 TT; S.P. Mr. Crawford.

An. Husb. 3. Livestock Judging.—*Prerequisite:* An. Husb. 1 or equivalent. (5). 10-12 MTWTF; S.P. Associate Professor Snapp.

An. Husb. 9a-s. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including 20 hours pertinent to thesis problem; approval of head of department. (5). Arrange.

(a) **Beef Cattle.**—Professor Rusk, Associate Professor Snapp.
(c) **Horses.**—Professor Edmonds.
(e) **Sheep.**—Associate Professor Kammlade.
(g) **Swine.**—Professor Carroll.
(j) **Poultry.**—Professor Card.
(l) **Animal Nutrition.**—Professor Mitchell.
(n) **Animal Genetics.**—Professor Roberts.
(q) **Animal Pathology.**—Professor Graham.
(s) **Meats.**—Associate Professor Bull.

An. Husb. 12. Special Problems.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Arrange. Members of the department.

An. Husb. 21. Principles of Feeding.—*Prerequisite:* Chem. 1 or 2.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	2	W	553 Agr.	Bull
	A Quiz	2	MF	553 Agr.	
	B Quiz	11	TT	553 Agr.	

An. Husb. 34. Anatomy and Physiology, and Non-Contagious and Parasitic Diseases of Farm Animals.—*Prerequisite:* An. Husb. 21. (3). 10 MWF; An. Path. L. Professor Graham.

An. Husb. 36. Selection and Use of Meat.—(2). 9 TT; 403 Agr. Associate Professor Bull.

An. Husb. 38. Poultry Breeds and Judging.—*Prerequisite:* An. Husb. 37. (3). 3-4:30 MTWTF; Poultry Plant. (This course is concluded at the beginning of the Christmas recess.) Dr. Sloan.

From the students taking or having had this course will be chosen the team to represent the University in the Annual Mid-West Intercollegiate Poultry Judging Contest. The class will visit a near-by poultry show. The cost of the trip will be from $10 to $15.

Courses for Advanced Undergraduates and Graduates

An. Husb. 7. Principles of Animal Nutrition.—*Prerequisite:* Senior standing, including An. Husb. 21; Chem. 32. (5). Arrange. 553 Agr. Mr. Hamilton.

An. Husb. 22. Advanced Stock Judging.—*Prerequisite:* An. Husb. 3. (3). 3 MTWTF; S.P. Heads of divisions.

From the students in this class will be chosen the team to represent the University in the Annual Intercollegiate Student Judging Contest.

An. Husb. 24. Meat Judging and Special Problems.—*Prerequisite:* An. Husb. 10 or 36. (2 to 5).* Arrange. Associate Professor Bull.

From the students in this class will be chosen the team to represent the University in the Annual Intercollegiate Student Judging Contest. Students registering for meat judging only should register for 2 hours credit. This part of the course will terminate at Thanksgiving.

An. Husb. 25. Beef Production.—*Prerequisite:* An. Husb. 6. (3). 2 MWF; 316 New Agr. Professor Rusk, Associate Professor Snapp.

An. Husb. 26. Pork Production.—*Prerequisite:* An. Husb. 21. (3). 9 MWF; 316 New Agr. Professor Carroll.

An. Husb. 40. Economics of Poultry Keeping.—*Prerequisite:* Senior standing, including An. Husb. 37. (3). 8 MWF; 313 New Agr. Professor Card.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

An. Husb. 112a-f. Research.—Arrange. One to three times a week. (½ to 2 units).*

(a) **Economic Factors Involved in Meat Production.**—Professor RUSK.
(b) **Systems of Livestock Farming.**—Professor CASE.
(c) **Animal Pathology.**—Professor GRAHAM.
(d) **Animal Nutrition.**—Professor MITCHELL.
(e) **Animal Genetics.**—Professor ROBERTS.
(f) **Poultry Husbandry.**—Professor CARD.

An. Husb. 117. Animal Genetics.—(1 unit). One to three times a week. Arrange. Professor ROBERTS.

An. Husb. 118. Animal Nutrition Seminar.—(½ unit). Two hours a week. Arrange. Professor MITCHELL.

An. Husb. 119. Laboratory Methods in Animal Nutrition.—(½ to 1 unit).* Two to five times a week. Arrange. (Laboratory fee, $5.) Professor MITCHELL.

An. Husb. 120. Laboratory Methods in the Diagnosis of Animal Diseases.—(½ to 1 unit).* Two to five times a week. Arrange. (Laboratory fee, $2.) Professor GRAHAM.

An. Husb. 121. Laboratory Methods in Animal Genetics.—(½ to 1 unit).* Two to five times a week. Arrange. (Laboratory fee, $3.) Professor ROBERTS.

ARCHITECTURE

Courses for Undergraduates

Arch. 11. History of Architecture.—(Not open to students expecting a degree in Architecture). (3). 3 MWF; 117 L.H.

Arch. 13. History of Architecture.—*Prerequisite:* Arch. 31a and 32a or sophomore standing in Architecture. (2). 11 MW; 120 Arch.

Arch. 15. History of Architecture.—*Prerequisite:* Arch. 14. (2). 11 TT; 120 Arch.

Arch. 17. History of Architecture.—*Prerequisite:* Arch. 16. (2). 9 TT; 120 Arch.

Arch. 31. Architectural Design.—

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	2	W	120 Arch.	
	A	1–4	TT	210 Arch.	
	B	8–11	MF	210 Arch.	
	C	8–11	TT	210 Arch.	

Arch. 33. Architectural Design.—*Prerequisite:* Arch. 32a.

3	A	1–4	MW	210 Arch.
		8–11	S	210 Arch.
	B	1–4	WF	210 Arch.
		8–11	S	210 Arch.

Arch. 34. Architectural Design.—*Prerequisite:* Arch. 33. (3). See Arch. 33 for hours. 210 Arch.

Arch. 35. Architectural Design.—*Prerequisite:* Arch. 34 and registration in Arch. 65.

5	A	9–12	M	200 Arch
		1–5	MWF	200 Arch.

Arch. 36. Architectural Design.—*Prerequisite:* Arch. 35. (5). See Arch. 35 for hours. 200 Arch.

Arch. 37. Architectural Design.—*Prerequisite:* Arch. 36 and senior standing in Architecture. (7). 8-11 S, 1-4 MT, 1-5 WTF; 200 Arch.

Arch. 38. Architectural Design.—*Prerequisite:* Arch. 37 and senior standing in Architecture. (7). 8-11 S, 1-4 MT, 1-5 WTF; 200 Arch.

Arch. 43. Technology of Materials.—*Prerequisite:* Arch. 31a and 32a.

3	A	1–4	TT	310 Arch.
	Lect.	11	F	302 Arch.
	B	1–4	MW	310 Arch.
	Lect.	11	W	302 Arch.

Arch. 45. Graphic Statics.—*Prerequisite:* T.A.M. 1 or 18 and registration in continuing T.A.M.

3	A	9–12	WF	310 Arch.
	Lect.	9	Tu	302 Arch.
	B	1–4	TT	310 Arch.
	Lect	11	M	302 Arch.

Arch. 47. Steel Construction.—*Prerequisite:* Arch. 46 and registration in Arch. 57. (5). 9 TT, 1-4 MWF; 300 Arch.

Arch. 57. Reinforced Concrete, Theory.—*Prerequisite:* Arch. 46 and registration in Arch. 47. (3). 2 TT, 9 S; 301 Arch.

Arch. 65. Theory of Architecture.—*Prerequisite:* Arch. 34 and registration in Arch. 35. (1). 9 Th; 302 Arch.

Arch. 68. Specifications.—*Prerequisite:* Senior standing in Architecture. (3). 11 MWF; 301 Arch.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Arch. 71. Architectural Design.—(Not open to students expecting a degree in Architecture.)

Credit	Section	Hours	Days	Room	Instructor
3	A	1–4	TWT	210 Arch.	
	B	9–12	TT	210 Arch.	
		2–5	W	210 Arch.	

Arch. 75. Frame Construction Details.—*Prerequisite:* Consent of instructor. (Not open to students expecting a degree in Architecture.)

2	A	1–4	TT	310 Arch.	

Arch. 83. Office Practice.—*Prerequisite:* Senior standing in Architecture. (2). 10 TT; 301 Arch.

Arch. 99. Inspection Trip.—*Prerequisite:* Senior standing in Architecture. (No credit).

Courses for Graduates

Arch. 101. Architectural Construction.—Theory and design. (½ to 2 units).* Professor PALMER.

Arch. 103. Architectural Construction.—Special problems. (½ to 2 units).* Professor MORGAN.

Arch. 104. Architectural Design.—(1 to 3 units).* Professor DEAM.

Arch. 105. Architectural Practice.—(¼ to ½ unit).* Professor PROVINE.

Arch. 106. Architectural History.—(½ to 2 units).* Professor NEWCOMB.

ART

Note: Certain courses in this department require laboratory fees varying from $1.25 to $6.25.

Courses for Undergraduates

Art 1a. Design.—

Credit	Section	Hours	Days	Room	Instructor
2	A	8–10	TT	342 L.H.	GOUGLER
	B	8–10	WF	342 L.H.	GOUGLER
	C	10–12	WF	342 L.H.	ANDERSON, GOUGLER
	D	1–3	MW	342 L.H.	ANDERSON, GOUGLER

Art 1b. Design.—*Prerequisite:* Art 1a.

2	A	10–12	TT	342 L.H.	ANDERSON, GOUGLER

Art 2a-2b. Water Color.—*Prerequisite:* Art 25b.

2	A	1–4	Tu	401a Arch.	NEARPASS
		9–12	S		

Art 3a-3b. Water Color.—*Prerequisite:* Art 2b.

2	A	1–4	Tu	401a Arch.	NEARPASS
		9–12	S		

Art 4a-4b. Interior Design.—*Prerequisite:* Art 32a concurrently, or Art 1b.

2	A	1–3	TT	342 L.H.	ANDERSON

Art 10a. Course for Teachers.—*Prerequisite:* Art 32a or junior standing.

3	Lect.	9	M	342 L.H.	ANDERSON
	Dem.	10	M	342 L.H.	ANDERSON
	Quiz	11	M	342 L.H.	ANDERSON

Art 11. History of Fine Arts.—*Prerequisite:* Sophomore standing.

2	A	8	TT	120 Arch.	LAKE

Art 13. Art Appreciation.—*Prerequisite:* Art 12 or junior standing.

3	A	4	MWF	120 Arch.	NICHOLSON

Art 15. History of Italian Art.—(Primarily for students in colleges other than Fine and Applied Arts.) *Prerequisite:* Junior standing.

3	A	9	MWF	120 Arch.	NICHOLSON

Art 17. History of Ancient Art.—(Primarily for students in colleges other than Fine and Applied Arts.) *Prerequisite:* Junior standing.

3	A	1	MWF	120 Arch.	NICHOLSON

Art 21a-21b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture.)

2	A	8–11	TT	10 Arch.	WOODROOFE
	B	2–5	MF	410b Arch.	
	C	9–12	MF	Hall of Casts	HOGAN

Art 22a-22b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture.) *Prerequisite:* Art 21b.

2	A	8–11	TT	Hall of Casts	
	B	1–4	TT	410b Arch.	KENNEDY

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Art 23a-23b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture.) *Prerequisite:* Art 22b.

Credit	Section	Hours	Days	Room	Instructor
2	A	1–4	TT	Hall of Casts	WOODROOFE

Art 24a-24b. Freehand Drawing.—(Primarily for students in Architecture.) *Prerequisite:* Art 23b.

2	A	8–11	MW	10 Arch.	BAILEY

Art 25a-25b. Drawing and Anatomy.—

4	A	9–12	TT	410a Arch.	DONOVAN
		1–4	F	410a Arch.	DONOVAN
		9–12	S	410a Arch.	HOGAN
	B	9–12	MWF	410a Arch.	
		9–12	S	403b Arch.	KENNEDY
[1]Section C, for students other than Painting curriculum, 3 hours credit.	C[1]	1–4	MWF	Hall of Casts	

Art 27. Life Drawing.—*Prerequisite:* Art 25b.

5	A	1–4	MTWTF	10 Arch.	BAILEY, HOGAN
	B	1–4	MWF	403a Arch.	
		9–12	TT	403a Arch.	BAILEY

Art 28. Life Drawing.—*Prerequisite:* Art 27.

5	A	1–4	MTWTF	10 Arch.	BAILEY, HOGAN
	B	1–4	M	403a Arch.	
		9–12	TT	403a Arch.	BAILEY
		2–5	WF	403 Arch.	

Art 29. Life Drawing and Sketch.—*Prerequisite:* Art 28.

4	A	9–12	MWF	403a Arch.	BRADBURY
		1–4	M	403b Arch.	BRADBURY

Art 30. Life Drawing and Sketch.—*Prerequisite:* Art 29.

4	A	9–12	MWF	403a Arch.	BRADBURY
		1–4	M	403b Arch.	BRADBURY

Art 32a-32b. Composition.—*Prerequisite:* Sophomore standing in Art.

2	A	8	WF	302 Arch.	NEARPASS

Art 33a-33b. Composition and Illustration.—*Prerequisite:* Art 32b.

2	A	1	WF	302 Arch.	NEARPASS

Art 34a-34b. Composition (Mural).—*Prerequisite:* Art 33b.

3	A	1–4	Th	403b Arch.	NEARPASS

Art 35a-35b. Commercial Art.—*Prerequisite:* Art 28 and Arch. 72.

2	A	8	TT	301 Arch.	DONOVAN
		9–12	S	310 Arch.	DONOVAN

Art 36a-36b. Commercial Art.—*Prerequisite:* Art 35b.

2	A	8	TT	301 Arch.	DONOVAN
		9–12	S	310 Arch.	DONOVAN

Art 41a-41b. Still Life.—*Prerequisite:* Art 25a.

2	A	9–12	MW	410b Arch.	KENNEDY
	B	1–4	TT	410a Arch.	DONOVAN

Art 42a-42b. Landscape.—*Prerequisite:* Art 41b.

2	A	1–4	TT	410a Arch.	DONOVAN

Art 43a-43b. Landscape.—*Prerequisite:* Art 42b.

2	A	1–4	TT	410a Arch.	DONOVAN

Art 44a-44b. Portrait.—*Prerequisite:* Art 28.

2	A	9–12	TT	410b Arch.	HOGAN

Art 46a-46b. Sketch.—*Prerequisite:* Art 30.

1	A	1–4	M	403b Arch.	BRADBURY

Art 47. Life Painting.—*Prerequisite:* Art 30 and Art 44b.

5	A	9–12	MTWTF	403b Arch.	BRADBURY

Art 48. Life Painting.—*Prerequisite:* Art 47.

5	A	9–12	MTWTF	403b Arch.	BRADBURY

Art 50. Modeling.—*Prerequisite:* Art 25a.

2	A	1–4	TT	20 Arch.	LAKE

Art 51a-51b. Modeling.—*Prerequisite:* Art 50.

2	A	1–4	TT	20 Arch.	LAKE

Art 52a-52b. Modeling.—*Prerequisite:* Art 51b.

2	A	1–4	TT	20 Arch.	LAKE

Art 90a-90b. Original Project.—*Prerequisite:* Senior standing in art.

Credit	Section	Hours	Days	Room	Instructor
2	A	To be arranged			Members of the department

ASTRONOMY

Course for Undergraduates

Astron. 1. Descriptive Astronomy.—*Prerequisite:* Sophomore standing. (3). 11 MWF, 229 N.H.; one hour Wednesday evening, Observatory. Professor BAKER.

Course for Advanced Undergraduates and Graduates

Astron. 14. Observational Astronomy.—*Prerequisite:* Consent of instructor. (3). Arrange; Observatory. Professor BAKER.

Courses for Graduates

Astron. 101. Seminar.—(1 unit). 11 TTS; Observatory. Professor BAKER.

Astron. 103. Celestial Mechanics.—(1 unit). 1 MWF; Observatory. Professor BAKER.

BACTERIOLOGY

Note: Certain courses in this department require laboratory fees varying from $4 to $5.

Major: 20 hours chosen from the courses offered by this department. Dairy Husbandry 10 (Advanced Dairy Bacteriology) may be offered in partial satisfaction of this requirement. At least five hours must be offered from the advanced groups.

Minors: 20 hours chosen from one or two of the following subjects: agronomy, botany, chemistry, entomology, physiology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Bact. 5a. Introductory Bacteriology.—*Prerequisite:* Sophomore standing; or consent of the instructor.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	8	TT	100 Chem.	TANNER
	A	8	S	301 Chem.	LAFFER
	B	2	Tu	303 Chem.	CLARK
	C	3	Tu	163 Chem.	CLARK
	D	2	Th	204 Chem.	CLARK
	E	3	Th	163 Chem	CLARK
	F	2	W	301 Chem.	PARK
	G	3	W	301 Chem.	PARK

Bact. 5b. Introductory Bacteriology Laboratory.—*Prerequisite or concurrent:* Bact. 5a.

2	A Lab.	10–12	MW	367 Chem.	CLARK, LAFFER
	B Lab.	1–3	MW	367 Chem.	CLARK, PARK
	C Lab.	10–12	TT	367 Chem.	CLARK, LAFFER
	D Lab.	1–3	TT	367 Chem.	WALLACE, PARK

Course for Advanced Undergraduates

Bact. 7a. Research and Special Problems.—*Prerequisite:* Junior standing; 10 hours in bacteriology; consent of instructor. (3 to 5).* Arrange. Conference, 2-4 W. Professor TANNER, Assistant Professor WALLACE.

Courses for Advanced Undergraduates and Graduates

Bact. 20. General Bacteriology.—*Prerequisite:* Two years of college chemistry; senior standing; consent of instructor. Students with credit in Bact. 5a and 5b will not be allowed credit for Bact. 20. (5). Lect., 11 MWF; 303 Chem. Lab., 1-3 MW; 360 Chem. Assistant Professor WALLACE.

Bact. 26. Pathogenic Bacteriology.—*Prerequisite:* Bact. 5a and 5b (or 20); junior standing. (5). Lect., 8 TT; 103 Chem. Lab., 8-10 MWF; 367 Chem. Assistant Professor WALLACE and Miss PARK.

Courses for Graduates

Bact. 103. Physiology of Bacteria.—(1 unit). Lect., 9 MW; 366 Chem. Professor TANNER.

Bact. 107. Research in Bacteriology.—(1 to 4 units).* Conference, arrange. Lab., arrange; 365 Chem. Professor TANNER.

Bact. 118a. Current Literature.—Required of all graduate students majoring in bacteriology. *Prerequisite:* 10 hours of bacteriology and consent of the instructor. (¼ unit). 9 Tu; 366 Chem. Professor TANNER.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

BOTANY

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

Major: 20 hours of botany exclusive of Bot. 1 and 5, and inclusive of Bot. 2 or 12, 3, and at least five hours in courses listed for advanced undergraduates and graduates.

Minors: 20 hours in one or two departments chosen in consultation with the head of the department from the following list: agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least eight hours must be offered in each department, if two are chosen.

Courses for Undergraduates

Bot. 1a. Introductory Botany (Cultural Course).—The relation of the plant world to the physical and animal worlds. The progressive development of the plant world and its evolutional significance; its part in the formation of soils, the production of food, and the maintenance of life. Lectures, demonstrational quiz. Designed to accompany Bot. 1b, but may be elected without it.

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	9	TT	228 N.H.	HOTTES, BUCHHOLZ, VESTAL, FULLER, and others
	Discussion sections for students taking Bot. 1a only.				
[1]Seniors will receive only 2 hours credit.	Disc. 1	8	Tu	258 N.H.	
	Disc. 2	10	Tu	258 N.H.	
	Disc. 4	1	Tu	258 N.H.	
	Discussion sections for students taking both Bot. 1a and 1b.				
	Disc. 3	11	Tu	258 N.H.	
	Disc. 5	1	Tu	350 N.H.	
	Disc. 6	8	Th	258 N.H.	
	Disc. 7	10	Th	258 N.H.	

Bot. 1b. Introductory Botany (Laboratory).—Morphology, physiology, and ecology of representative groups of the plant world. *Prerequisite:* Bot. 1a or concurrent registration therein.

2	A Lab.	8–10	MW	258 N.H.	FULLER and assistants
	B Lab.	10–12	MW	258 N.H.	
	C Lab.	1–3	MW	258 N.H.	

Bot. 2. Morphology.—*Prerequisite:* Bot. 1 or 5. (3). 1-3 MWF; 204 Entom. Dr. HAGUE.

Bot. 3. Plant Physiology.—*Prerequisite:* Bot. 1 or 5.

5	Lect.	11	TT	229 N.H.	HOTTES and assistants
	A Lab.	8–10	MWF	153 N.H.	
	B Lab.	10–12	MWF	154 N.H.	

Bot. 5. Botany for Students in Agriculture.—

3[1]	Lect.	9	Th	229 N.H.	HOTTES, ———, BUCHHOLZ, VESTAL, FULLER, and assistants
[1]Seniors will receive only 2 hours credit.	A Lab.	10–12	TT	259 N.H.	
	B Lab.	1–3	TT	259 N.H.	

Bot. 7. Plant Pathology.—*Prerequisite:* Bot. 1 or 5.

3	Lect.	9	M	425 N.H.	———— and assistant
	A Lab.	8–10	WF	349 N.H.	

Courses for Advanced Undergraduates

Bot. 90a. Thesis Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

Bot. 91a. Honors Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

Courses for Advanced Undergraduates and Graduates

Bot. 33. Physiology.—*Prerequisite:* Bot. 3 and junior standing. (3 or 5).* 1-3 MWF; 155 N.H. Professor HOTTES and assistant.

Bot. 45. Histology, Anatomy, and Technic.—*Prerequisite:* 1 year of botany, inclusive of Bot. 2a or 2b, and junior standing. (3 or 5).* 8-10 MWF; 206 Entom. Professor BUCHHOLZ.

Bot. 46. Heredity and Evolution.—*Prerequisite:* One year of botany and junior standing. (3 or 5).* Lect., 10 S; Lab., 10-12 TT; 201 Entom. Professor BUCHHOLZ.

Bot. 56. Plant Geography.—*Prerequisite:* One year of botany and junior standing. (3 or 5).* 10-12 MWF; 216 N.H. Associate Professor VESTAL.

Bot. 70. Taxonomy of Pathogenic Fungi.—*Prerequisite:* Bot. 7 and junior standing. (3 or 5).* Lect., 11 Tu; Lab., 10-12 ThS; 304 N.H. Professor ————.

Bot. 81. Plant Ecology.—*Prerequisite:* One year of botany and junior standing. (3 or 5).* Lect., 8 TT; 229 N.H.; field work on four or five Saturdays. Associate Professor VESTAL.

Courses for Graduates

Bot. 110. Botanical Discussion.—(No credit). Required of all graduate students in botany and members of the instructional staff. 4 Tu; 258 N.H.

Bot. 112. Discussions in Plant Morphology.—(¼ unit). 4 F; 205 Entom. Professor BUCHHOLZ.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Bot. 113. Discussions in Plant Physiology.—(¼ unit). 4 Th; 155 N.H. Professor HOTTES.

Bot. 117. Discussions in Plant Pathology and Mycology.—(¼ unit). 4 W; 304 N.H. Professor ————.

Bot. 118. Discussions in Plant Ecology.—(¼ unit). 4 M; 204 N.H. Associate Professor VESTAL.

Research Courses

Bot. 120. Plant Morphology.—(½ to 2 units).* (Botany 112 to be taken concurrently.) One hour on either W or F, from 1 to 3, the rest arrange; 201 Entom. Professor BUCHHOLZ.

Bot. 130. Plant Physiology.—(½ to 2 units).* (Botany 113 to be taken concurrently.) One hour on M, W, or F, from 1 to 3, the rest arrange; Botany Annex. Professor HOTTES.

Bot. 170. Plant Pathology or Mycology.—(½ to 2 units).* (Botany 117 to be taken concurrently.) One hour on either M or W, from 2 to 4, the rest arrange; 304 N.H. Professor ————.

Bot. 180. Plant Ecology or Geography.—(½ to 2 units).* (Botany 118 to be taken concurrently.) Conf., 1 M or 10 Tu, the rest arrange; 204 N.H. Associate Professor VESTAL.

BUSINESS ORGANIZATION AND OPERATION

(Including Accountancy and Business Law)

A. ACCOUNTANCY

Courses for Undergraduates

Accy. 1a. Principles of Accounting.—Beginners' course. (Students who present one unit of bookkeeping for entrance will not be allowed credit in Accy. 1a and should register in Accy. 1e. Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their semester grade is "C" or above.)

Credit	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	125 Com.	McMAHAN
	A2	8	MWF	119 Com.	HACKETT
	A3	8	MWF	328 Com.	McDONALD
	J1	8	TTS	123 Com.	MOYER
	J2	8	TTS	322 Com.	HUEGY
	J3	8	TTS	122 Com.	GREEN
	B1	9	MWF	115 Com.	HACKETT
	K1	9	TTS	123 Com.	MOYER
	K2	9	TTS	325 Com.	McDONALD
	K3	9	TTS	222 Com.	KESSLER
	C1	10	MWF	125 Com.	KARRENBROCK
	C2	10	MWF	310 Com.	BAILY
	L1	10	TTS	306 Com.	McDONALD
	L2	10	TTS	224 Com.	KESSLER
	L3	10	TTS	312 Com.	GREEN
	D1	11	MWF	125 Com.	KARRENBROCK
	D2	11	MWF	119 Com.	BAILY
	D3	11	MWF	322 Com.	KESSLER
	M1	11	TTS	312 Com.	MOYER
	M2	11	TTS	326 Com.	JONES
	M3	11	TTS	119 Com.	GREEN
	F1	2	MWF	312 Com.	GREEN
	F2	2	MWF	329 Com.	McMAHAN
	G1	3	MWF	119 Com.	GREEN
	G2	3	MWF	329 Com.	McMAHAN

Accy. 1b. Accounting Procedure.—A continuation of Accy. 1a. (Credit is given for Accy. 1a without Accy. 1b.) *Prerequisite:* Accy. 1a.

3	C	10	MWF	106 Com.	NEWCOMER
	D	11	MWF	106 Com.	NEWCOMER
	J	8	TTS	108 Com.	HACKETT
	K	9	TTS	108 Com.	HACKETT
	F	2	MWF	223 Com.	HUEGY
	G	3	MWF	223 Com.	HUEGY

Accy. 1e. Principles of Accounting.—Similar to Accy. 1a. (Students who have one unit of bookkeeping must take this course rather than Accy. 1a).

2[1]	J	8	TT	113 Com.	MANDEVILLE
	K	9	TT	106 Com.	NEWCOMER
	L	10	TT	106 Com.	NEWCOMER
	O	2	TT	108 Com.	KARRENBROCK
	P	3	TT	108 Com.	KARRENBROCK

[1]Students who have failed Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their semester grade is "C" or above.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Accy. 2a. Elementary Cost Accounting.—*Prerequisite:* Accy. 1b; registration or credit in Econ. 1.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	113 Com.	Moyer
	J	8	TTS	306 Com.	Frese
	B	9	MWF	113 Com.	Moyer
	K1	9	TTS	310 Com.	McMahan
	K2	9	TTS	219 Com.	Frese
	C1	10	MWF	222 Com.	Schlatter
	C2	10	MWF	111 Com.	Higginbotham
	L1	10	TTS	322 Com.	McMahan
	L2	10	TTS	111 Com.	Higginbotham
	D	11	MWF	122 Com.	Higginbotham
	M	11	TTS	306 Com.	Frese
	F	2	MWF	122 Com.	Lukas
	G1	3	MWF	122 Com.	Lukas
	G2	3	MWF	123 Com.	Hackett

Accy. 2b. Intermediate Accounting.—*Prerequisite:* Accy. 2a.

3	A	8	MWF	126 Com.	Theiss
	B	9	MWF	126 Com.	Theiss
	C	10	MWF	312 Com.	Frese

Accy. 12. Fundamentals of Accounting.—A survey course for non-commerce students only. *Prerequisite:* Junior standing.

3	D	11	MWF	329 Com.	Frese

Accy. 90a. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis as part of the requirement. (2 to 4).* Arrange. Professor Littleton and others.

Accy. 91a. Independent Study.—Seniors registered in the College of Commerce who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this Department or sixteen semester hours if divided between this Department and any other department. This course may be elected by candidates for high honors in lieu of a thesis. (3 to 5).* Arrange. Professor Littleton and others.

Courses for Advanced Undergraduates and Graduates

Accy. 3a. Advanced Accounting.—*Prerequisite:* Accy. 2a-2b; Econ. 3; an average of "C" or better in Accy. 1 and 2.

3	A	8	MWF	224 Com.	Filbey
	B	9	MWF	224 Com.	Filbey
	D	11	MWF	224 Com.	Littleton
	F	2	MWF	113 Com.	Newcomer

Accy. 3b. Auditing.—*Prerequisite:* Accy. 3a.

3	D	11	MWF	115 Com.	Filbey

Accy. 4a. Cost Accounting.—*Prerequisite:* Accy. 2a-2b.

2	K	9	TT	113 Com.	Karrenbrock
	L	10	TT	219 Com.	Schlatter
	M	11	TT	219 Com.	Schlatter

Accy. 4b. Accounting Systems.—*Prerequisite:* Accy. 2a-2b; Econ. 3. (Credit is given for either 4a or 4b separately).

2	J	8	TT	119 Com.	Baily
	K	9	TT	119 Com.	

Accy. 5a. C.P.A. Problems.—*Prerequisite:* Accy. 3a-3b.

3	C	10	MWF	317 Com.	Scovill
	D	11	MWF	317 Com.	

Accy. 13. Governmental Accounting.—*Prerequisite:* Accy. 3a.

2	O	2	TT	206 Adm.(E)	Morey

Accy. 30. Budgets and Accounting Control.—*Prerequisite:* Accy. 2b.

3	F	2	MWF	115 Com.	Theiss

Courses for Graduates

Accy. 103. Advanced Theory.—(1 unit). 3-5 Tu; 209 Com. Professor Littleton.

Accy. 104. Accounting Systems.—(1 unit). 3-5 Th; 209 Com. Professor Scovill.

Accy. 120. Income Tax Development.—(1 unit). Arrange. Professor Filbey.

Accy. 129. Thesis.—(1 unit). 4-6 W; 420 Com. Professor Littleton and others.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

B. BUSINESS ORGANIZATION AND OPERATION

Courses for Undergraduates

B.O.O. 1. Industrial Organization and Management.—*Prerequisite:* 45 credit hours. Junior and senior engineering students are admitted with consent of instructor.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	312 Com.	MANDEVILLE
	B	9	MWF	223 Com.	MANDEVILLE
	L	10	TTS	326 Com.	MANDEVILLE
	C	10	MWF	322 Com.	ANDERSON
	D	11	MWF	223 Com.	ANDERSON
	M	11	TTS	223 Com.	MANDEVILLE
	F	2	MWF	224 Com.	ANDERSON

B.O.O. 2. Marketing Organization and Operation.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	A	8	MWF	322 Com.	CONVERSE
	J	8	TTS	224 Com.	WHITLO
	K	9	TTS	223 Com.	WHITLO
	B	9	MWF	125 Com.	JONES
	C	10	MWF	326 Com.	CONVERSE
	D	11	MWF	123 Com.	CONVERSE
	F1	2	MWF	310 Com.	CONVERSE
	F2	2	MWF	123 Com.	JONES

B.O.O. 10. Newspaper Advertising.—(Same as Journ. 10.) For students specializing in journalism. (Offered first semester only.) *Prerequisite:* Journ. 5 and 6.

3	B	9	MWF	310 Com.	RUSSELL
	D	11	MWF	310 Com.	RUSSELL

B.O.O. 12a. Typewriting.—A course for beginners who intend to apply their knowledge later in teaching the subject. Required of all students in the Curriculum in Commercial Teaching in the College of Commerce and Business Administration. To be taken concurrently with B.O.O. 13a. Continued as B.O.O. 12b in the second semester. *Prerequisite:* Junior standing; credit or concurrent registration in Ed. 25. Lab. fee $5. (No University credit allowed.) 4 MTWTF; 204 U.H.S. Mrs. HAGAN.

B.O.O. 13a. Shorthand.—A course for beginners who intend to apply their knowledge later in teaching the subject. Required of all students in the Curriculum in Commercial Teaching in the College of Commerce and Business Administration. To be taken concurrently with B.O.O. 12a. Continued as B.O.O. 13b in the second semester. *Prerequisite:* Junior standing; credit or concurrent registration in Ed. 25. (No University credit allowed.) 3 MTWTF; 214 U.H.S. Mrs. HAGAN.

B.O.O. 90a. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis as part of the requirement. (2 to 4).* Arrange. Professor RUSSELL and others.

B.O.O. 91a. Independent Study.—Seniors registered in the College of Commerce who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this Department or sixteen semester hours if divided between this Department and any other Department. This course may be elected by candidates for high honors in lieu of a thesis. (3 to 5).* Arrange. Professor RUSSELL and others.

Courses for Advanced Undergraduates and Graduates

B.O.O. 3. Retail and Chain Store Organization and Operation.—*Prerequisite:* B.O.O. 2.

3	C	10	MWF	223 Com.	WHITLO

B.O.O. 4. Management in Manufacturing.—(Offered first semester only.) *Prerequisite:* B.O.O. 1.

3	A	8	MWF	329 Com.	ANDERSON

B.O.O. 7. Salesmanship.—*Prerequisite:* B.O.O. 2.

2	J	8	TT	101 Com.	JONES
	L	10	TT	101 Com.	JONES
	N	1	TT	312 Com.	HESLIP
	O	2	TT	312 Com.	HESLIP

B.O.O. 8. Advertising.—*Prerequisite:* B.O.O. 2.

3	A	8	MWF	310 Com.	RUSSELL
	B	9	MWF	329 Com.	HESLIP
	C	10	MWF	329 Com.	HESLIP

B.O.O. 11. Types of Business Organization.—Effective management of a business under various forms of organization. *Prerequisite:* Accy. 2b.

3	A	8	MWF	106 Com.	DILLAVOU

B.O.O. 17. Problems in Sales Administration.—*Prerequisite:* Credit or concurrent registration in B.O.O. 7.

2	K	9	TT	312 Com.	HESLIP

B.O.O. 20. Credits and Collections.—*Prerequisite:* B.O.O. 2; junior standing.

3	D	11	MWF	305 Com.	HUEGY

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

B.O.O. 102. Marketing Research and Policies.—(1 unit). Arrange. Professor CONVERSE.

B.O.O. 104. Scientific Management.—(1 unit). Arrange. Professor ANDERSON.

B.O.O. 107. Sales Campaigns.—(1 unit). Arrange. Professor RUSSELL.

B.O.O. 129. Thesis.—(1 unit). Arrange. Professor RUSSELL and others.

C. BUSINESS LAW

Courses for Undergraduates

Bus. Law 1a. General Principles of Business Law.—*Prerequisite:* 60 hours of university credit, including Econ. 1 and Accy. 1b.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	222 Com.	CURTIS
	B	9	MWF	222 Com.	ROBERTS
	K1	9	TTS	224 Com.	LUKAS
	K2	9	TTS	328 Com.	ROBERTS
	C	10	MWF	126 Com.	CURTIS
	L	10	TTS	126 Com.	LUKAS
	D	11	MWF	126 Com.	ROBERTS
	F	2	MWF	119 Com.	DILLAVOU

Bus. Law 1b. General Principles of Business Law.—*Prerequisite:* Bus. Law 1a.

3	D	11	MWF	219 Com.	CURTIS
	F	2	MWF	125 Com.	CURTIS

Bus. Law 2. Elementary Law of Business.—This course is offered exclusively for non-commerce students. *Prerequisite:* Junior standing.

3	A	8	MWF	219 Com.	ROBERTS

Courses for Advanced Undergraduates and Graduates

Bus. Law 10. Law of Security Relations and Banking.—*Prerequisite:* Senior standing and registration or credit in Bus. Law 1b.

3	C	10	MWF	115 Com.	DILLAVOU
	D	11	MWF	100 Com.	

D. BUSINESS ENGLISH

(See Rhetoric 10, 21, and 22 under English Department.)

CERAMIC ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2.00 to $7.50.

Courses for Undergraduates

Cer.E. 1. Ceramic Materials.—*Prerequisite:* Chem. 4.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	218 Cer.	
	B	8	TTS	218 Cer.	
	C	11	TTS	218 Cer.	

Cer.E. 5. Ceramic Bodies.—*Prerequisite:* Cer. 1, 4.

5	Lect.	10	MW	218 Cer.
	Quiz A	10	Th	218 Cer.
	Quiz B	10	F	218 Cer.
	Lab. A	1–4	MWF	113-114 Cer.
	Lab. B	9–12	TTS	113-114 Cer.

Cer.E. 7. Structural Clay Products.—*Prerequisite:* Cer. 1, 4. (3). Lect. and quiz, 11 MWF; 218 Cer.

Cer.E. 16. Enamels.—*Prerequisite:* Cer. 14.

3	Lect.	8	Th	214 Cer.
	Lab. A	9–12	TT	102, 113-114 Cer.
	Lab. B	1–4	TT	102, 113-114 Cer.

Cer.E. 18. Ceramic Microscopy.—*Prerequisite:* Chem. 40; Geol. 47 and 49 or equivalent. (3). 1-4 TT, 8-11 S; 312 Cer.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Cer.E. 21. Ceramic Pyrometry.—*Prerequisite:* General physics; inorganic chemistry.

Credit	Section	Hours	Days	Room	Instructor
1	A	4	Tu	218 Cer.	
	B	4	W	218 Cer.	

Cer.E. 22. Kilns and the Burning of Clay Products.—*Prerequisite:* Cer. 5 and 11. (3). 9 MWF; 218 Cer.

Cer.E. 23. Dryer and Kiln Design.—*Prerequisite:* Cer. 11; registration in Cer. 22; G.E.D. 1 or 4. (2). 2-5 TT; 212 Cer.

Cer.E. 97. Thesis.—(3 to 5).* Arrange.

Cer.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. (No credit).

Courses for Graduates

Cer.E. 101. The Chemistry of the Compounds of Silicon.—*Prerequisite:* Elementary courses in organic and physical chemistry. (1 unit).

Cer.E. 102. General Technology of the Clay Industries.—*Prerequisite:* The elements of mineralogy and of physical chemistry. (1 or 2 units).*

Cer.E. 103. Chemistry of the Silicates.—Laboratory to supplement Ceramic Engineering 101, which must precede or accompany it. (1 to 2 units).*

Cer.E. 106. Research.—Professors PARMELEE, HURSH, ANDREWS.

CHEMISTRY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $18.00.

Students in the curricula of chemistry and chemical engineering, majors in chemistry, and all others who desire a thorough training in the fundamentals of chemistry and their applications to modern life, should select courses from the following, and usually in the sequence given: Chemistry 1 or 2, 6, 10, 24, 34a, 36b, 37b, 40, 41, 42, 43, 50a, and courses in the chemical engineering, sanitary chemistry, and miscellaneous groups. Students in engineering should register for Chemistry 3 or 2, 4, 24. Students who are compelled to meet chemical requirements briefly may register for the following sequence: Chemistry 1 or 2, 5, 24, 32 or 33.

Students who find it impossible to take more than one semester's work are requested to register in Chemistry 1 or 2 in the second semester rather than in the first.

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, 6, 7, 93a, and inclusive of courses in qualitative, quantitative, and organic chemistry. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from not more than two of the following: bacteriology, botany, ceramic engineering, entomology, geology, mathematics, philosophy, physiology, physics, psychology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in Chemistry 1, 2, 3, 4, 5, 6, and 7.

Courses for Undergraduates

Chem. 7. General Chemistry.—Not open to students who have earned credit in high school chemistry. This course may be applied toward the science group requirements. After completing Chem. 7 a student is permitted to register in Chem. 2; or upon passing a proficiency examination in Chem. 2, he may register in Chem. 4, 5, or 6.

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	10	TT	112 Chem.A.	HOPKINS
	70 Quiz	8	MW	9, 8 Chem.A.	
	Lab.	8–10	TT	1 Chem.A.	
	71 Quiz	10	MW	8 Chem.A., 116 Chem.	
	Lab.	1–3	TT	1 Chem.A.	
	72 Quiz	1	MW	9 Chem.A.	
	Lab.	1–3	TT	1 Chem.A.	

[1]Seniors will receive only 3 hours credit.

Chem. 93a. General Chemistry.—Lectures, demonstrations, and recitations. An elementary résumé of the various fields of chemistry. (*Note:* This course is accepted in partial fulfilment of the general science requirement. It is not accepted as a prerequisite to other chemistry courses. It will be given only if registration is 25 or above.) *Prerequisite:* Junior standing or consent of the instructor. No credit is allowed students who have previous credit in college chemistry. (3). 2 MWF; 100 Chem. Professor BUSWELL and assistant.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 1. Inorganic Chemistry.—*Prerequisite:* One unit of entrance credit in physics, or 2½ units of entrance credit in mathematics, or registration in Math. 2 or 3. Students may register in either lecture section but are required to take the quiz and laboratory in some one section.

Credit	Section	Hours	Days	Room	Instructor
3 or 5[1]	A Lect.	11	TT	100 Chem.	Bailar
	B Lect.	9	TT	100 Chem.	Nicholson
[1]Students who have received entrance credit for high school chemistry are given only 3 hours credit for Chem. 1. Seniors will receive only 3 hours credit.	1 Quiz	3	TT	300 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	2 Quiz	10	TT	103, 163 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	3 Quiz	1	TT	103, 163 Chem.	
	Lab.	2–5	TT	101 Chem.A.	
	4 Quiz	2	WF	103 Chem.	
	Lab.	1–4	TT	101 Chem.A.	
	5 Quiz	11	MW	103 Chem.	
	Lab.	1–4	TT	212 Chem.A.	
	6 Quiz	8	TT	163, 116, 162 Chem., 9 Chem.A.	
	Lab.	8–10	MWF	1 Chem.A.	
	7 Quiz	1	TT	204 Chem.	
	Lab.	1–3	MWF	101 Chem.A.	
Primarily for students in premedical courses:					
	8 Quiz	10	TT	301 Chem.	
	Lab.	1–3	MWF	101 Chem.A.	
	9 Quiz	11	MW	201 Chem.	
	Lab.	1–4	TT	212 Chem.A.	
	10 Quiz	2	WF	300 Chem.	
	Lab.	1–4	TT	101 Chem.A.	
	11 Quiz	10	TT	116 Chem.	
	Lab.	10–12	MWF	1 Chem.A.	
	12 Quiz	3	TT	204 Chem.	
	Lab.	10–12	MWF	1 Chem.A.	
Primarily for students in the College of Agriculture:					
	14 Quiz	3	TT	210 Chem.A.	
	Lab.	10–12	MWF	1 Chem.A.	
	15 Quiz	10	TT	210 Chem.A.	
	Lab.	10–12	MWF	1 Chem.A.	
	16 Quiz	1	TT	308 Chem.A.	
	Lab.	1–3	MWF	201 Chem.A.	
	17 Quiz	10	TT	9 Chem.A.	
	Lab.	1–3	MWF	201 Chem.A.	
For students majoring in home economics:					
	18 Quiz	1	TT	301 Chem.	
	Lab.	1–3	MWF	1 Chem.A.	
	19 Quiz	8	TT	204 Chem., 8 Chem.A.	
	Lab.	8–10	MWF	101 Chem.A.	

Chem. 2. Inorganic Chemistry.—(For all students who have had high school chemistry.) *Prerequisite:* One unit of entrance credit in chemistry. Students may register for any lecture section, but are required to take the quiz and laboratory in some one section. Students in the curriculum of chemistry, chemical engineering, or ceramics should register in Lecture G and Sections 47 and 48. *Note:* Students whose preparation in chemistry is inadequate are advised to register for Chem. 1 or 3 rather than Chem. 2.

2, 3, or 5[1]	D Lect.	10	F	100 Chem.	Audrieth
	E Lect.	11	F	100 Chem.	Reed
	F Lect.	9	F	100 Chem.	Bailar
	G Lect.	10	F	217 Chem.	
[1]Seniors will receive only 2 hours credit in Chem. 2. Students below the rank of senior receive 5 hours credit, provided their high school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.	20 Quiz	1	TT	201, 111 Chem.	
	Lab.	8–10	S	1 Chem.A.	
	21 Quiz	10	TT	303, 300 Chem., 8 Chem.A.	
	Lab.	8–10	Th	1 Chem.A.	
	22 Quiz	2	MW	201 Chem.	
	Lab.	8–10	Tu	1 Chem.A.	
	23 Quiz	1	WF	201, 204 Chem.	
	Lab.	2–4	W	212 Chem.A.	
	24 Quiz	9	MW	162 Chem.	
	Lab.	1–3	M	212 Chem.A.	
	25 Quiz	10	MW	201 Chem.	
	Lab.	10–12	Th	212 Chem.A.	
Primarily for students in premedical courses:					
	26 Quiz	10	TT	308 Chem.A.	
	Lab.	8–10	Th	1 Chem.A.	
	27 Quiz	2	MW	204 Chem.	
	Lab.	8–10	Tu	101 Chem.A.	
	28 Quiz	10	MW	300 Chem.	
	Lab.	10–12	Th	212 Chem.A.	
	29 Quiz	11	TT	204 Chem.	
	Lab.	3–5	Th	101 Chem.A.	
	30 Quiz	9	TT	9 Chem.A.	
	Lab.	1–3	W	1 Chem.A.	

Chem. 2. Inorganic Chemistry (concluded)

Primarily for students in the College of Engineering:

Credit	Section	Hours	Days	Room	Instructor
2, 3, or 5[1]	31 Quiz	11	TT	201, 303 Chem.	
	Lab.	8–10	Th	101 Chem.A.	
[1]Seniors will receive only 2 hours credit in Chem. 2. Students below the rank of senior receive 5 hours credit, provided their high school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.	32 Quiz	11	TT	300 Chem.	
	Lab.	1–3	Th	201 Chem.A.	
	33 Quiz	8	TT	300 Chem.	
	Lab.	8–10	S	212 Chem.A.	
	34 Quiz	9	TT	8 Chem.A.	
	Lab.	1–3	W	101 Chem.A.	
	35 Quiz	1	TT	303 Chem.	
	Lab.	8–10	S	212 Chem.A.	
	36 Quiz	8	WF	210 Chem.A., 103 Chem.	
	Lab.	8–10	M	101 Chem.A.	
	37 Quiz	1	WF	8 Chem.A.	
	Lab.	2–4	W	101 Chem.A.	
	38 Quiz	9	MW	210 Chem.A., 163 Chem.	
	Lab.	1–3	M	101 Chem.A.	

Primarily for students in the College of Agriculture:

40 Quiz	8	TT	303 Chem.	
Lab.	8–10	S	1 Chem.A.	
42 Quiz	10	TT	204 Chem.	
Lab.	8–10	Th	101 Chem.A.	

For students majoring in home economics:

44 Quiz	8	TT	301, 111 Chem.	
Lab.	8–10	M	201 Chem.A.	

For students in the curricula of chemistry, chemical engineering, and ceramics, and chemistry majors who are not premedics:

47 Quiz	11	MW	300, 301 Chem., 210 Chem.A.	
Lab.	1–3	Tu	201 Chem.A.	
48 Quiz	10	MW	9, 308, 210 Chem.A.	
Lab.	1–3	Th	101, 201 Chem.A.	

Chem. 3. Inorganic Chemistry.—(For engineering students who have had no chemistry.) Students may register for any lecture section, but are required to take the quiz and laboratory in some one section. *Note:* Students who have credit for high school chemistry should register for Chem. 2 rather than Chem. 3.

Credit	Section	Hours	Days	Room	Instructor
3 or 4[1]	A Lect.	11	TT	100 Chem.	Bailar
	B Lect.	9	TT	100 Chem.	Nicholson
[1]Students who have used their high school chemistry for entrance credit are given only 3 hours credit for Chem. 3. Seniors will receive only 3 hours credit.	81 Quiz	8	WF	300 Chem.	
	Lab.	1–3	TT	201 Chem.A.	
	82 Quiz	1	WF	303 Chem.	
	Lab.	8–10	TT	101 Chem.A.	
	83 Quiz	11	MW	111 Chem.	
	Lab.	8–10	MW	201 Chem.A.	
	84 Quiz	10	TT	111 Chem.	
	Lab.	1–3	WF	1 Chem.A.	
	85 Quiz	9	TT	210 Chem.A.	
	Lab.	3–5	MW	201 Chem.A.	

Chem. 4. Chemistry of the Metallic Elements.—(For students in engineering.) *Prerequisite:* Chem. 1, 2, or 3.

Credit	Section	Hours	Days	Room	Instructor
3 or 4[1]	Lect.	10	TT	100 Chem.	Reed
	90 Quiz	8	MW	111 Chem.	
[1]Seniors will receive only 3 hours credit.	Lab.	1–3	TT	1 Chem.A.	
	91 Quiz	1	MW	111 Chem.	
	Lab.	8–10	TT	1 Chem.A.	
	92 Quiz	9	TT	111 Chem.	
	Lab.	1–3	WF	1 Chem.A.	

Chem. 5. Inorganic and Qualitative Analysis.—(For all students except those in engineering and in the curricula of chemistry, chemical engineering, and ceramics.) *Prerequisite:* Chem. 1, 2, or 3.

Credit	Section	Hours	Days	Room	Instructor
3 or 5[1]	Lect.	9	TT	112 Chem.A.	Copley
	50 Quiz	8	TT	201 Chem., 210 Chem.A.	
[1]Seniors will receive only 3 hours credit.	Lab.	8–10	MWF	201 Chem.A.	
	51 Quiz	3	TT	8, 9 Chem.A.	
	Lab.	3–5	MWF	201 Chem.A.	
	52 Quiz	11	TT	8, 9 Chem.A.	
	Lab.	10–12	MWF	201 Chem.A.	
	53 Quiz	1	TT	8 Chem.A.	
	Lab.	{3–5 {8–10	TT S	201 Chem.A.	

Chem. 6. Inorganic Chemistry.—(For students in the curricula of chemistry, chemical engineering, and ceramics, and chemistry majors who are not premedics.) *Prerequisite:* Chem. 1, 2, or 3.

Credit	Section	Hours	Days	Room	Instructor
3 or 5[1]	Lect.	10	TT	100 Chem.	Reed
[1]Seniors will receive only 3 hours credit.	60 Quiz	11	TT	210 Chem.A.	
	Lab.	10–12	MWF	101 Chem.A.	

Chem. 10. Qualitative Analysis.—(Open to all students; required of those majoring in chemistry or registered in the curricula of chemistry or chemical engineering.) *Prerequisite:* Chem. 6.

Credit	Section	Hours	Days	Room	Instructor
5 or 2[1]	Lect.	9	W	100 Chem.	REEDY
	1 Quiz	9	MF	103, 111, 301 Chem.	
	Lab.	8–11	TTS	310 Chem.A.	
	2 Quiz	9	MF	201, 300 Chem., 308 Chem.A.	
	Lab.	1–4	MWF	310 Chem.A.	
	3 Quiz	9	MF	8, 9 Chem.A.	
	Lab.	1–4	TT	310 Chem.A.	
		8–11	S	310 Chem.A.	
	4 Quiz[1]	9	MF	116 Chem.	

[1]Students who already have credit for the laboratory work of qualitative analysis may, with the consent of the instructor, register for lecture and quiz only, and receive a credit of 2 hours. Such students must register in section 4.

Chem. 22. Elementary Quantitative Analysis.—*Prerequisite:* Chem. 4 or 5. (For all students who have not followed the sequence Chemistry 1, 2 or 3, 6 and 10.)

5	Lect.	11	W	112 Chem.A.	ENGLIS
	A Quiz	11	MF	8, 308 Chem.A.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	11	MF	9 Chem.A.	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S	301 Chem.A.	

Chem. 24. Quantitative Analysis.—*Prerequisite:* Chem. 10.

5	Lect.	9	F	112 Chem.A.	CLARK
	A Quiz	9	MW	204 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	9	MW	303 Chem.	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S	301 Chem.A.	

Chem. 32. Elementary Organic Chemistry.—(Especially for students in agriculture.) *Prerequisite:* Chem. 5 or 10.

3	Lect.	8	TT	161 Chem.	FUSON, BABCOCK, and assistants
	Quiz	1	Tu	116, 161 Chem.	
	Lab.	2–5	Tu	250 Chem.	

Chem. 33. Elementary Organic Chemistry.—(For students in home economics and pre-medical courses.) *Prerequisite:* Chem. 10 or 5. (Limited to 120 students.)

5	Lect.	8	MW	100 Chem.	SHRINER and assistants
	Quiz	8	F	100 Chem.	
				204 Chem.	
Quiz section assignments will be made by the instructor after registration is complete.				163 Chem.	
				217 Chem.	
				303 Chem.	
	Conf.	8	Tu	217 Chem.	
	Lab.	9–11	Tu	250 Chem.	
		8–11	Th	250 Chem.	

Chem. 34a. Organic Chemistry.—(For students majoring in chemistry or for those registered in the curriculum of chemistry or of chemical engineering.) *Prerequisite:* Chem. 6, 10, and 24.

5	Lect.	9	MWF	217 Chem.	MARVEL and assistants
	Conf.	1	M	217 Chem.	
	Lab.	2–4	M	250 Chem.	
		1–4	W	250 Chem.	

Chem. 90a. Thesis.—(*Note:* Senior research in chemistry and chemical engineering optional instead of required. Each student who desires research must receive special permission both from the instructor under whom he is to work and from the head of the division in which the research is to be taken. Such written permission should be presented, at the time of registration, to the adviser for the chemists or chemical engineers.) *Prerequisite:* Chem. 24, 34a, 40, 41, 42, and 43, or the consent of the head of the department. (3 to 5).* Professor ADAMS (in charge)

Courses for Advanced Undergraduates and Graduates

Chem. 15a. Inorganic Chemistry.—*Prerequisite:* Senior standing, and 10 hours credit in chemistry in addition to the elementary courses.

2		9	MW	112 Chem.A.	AUDRIETH

Chem. 16a. Inorganic Chemistry.—(Laboratory.) *Prerequisite:* Registration or credit in Chem. 15a.

2	Conf.	9	F	210 Chem.A.	BAILAR
	Lab.	Arrange		350 Chem.	

Chem. 27. Special Methods and Instruments in Quantitative Analysis.—*Prerequisite:* Chem. 24, 34a, 40 and 41, or registration in 40 and 41.

3	Lect.	11	Tu	161 Chem.	SMITH
	A Lab.	1–4	TT	305 Chem.	
	B Lab.	1–4	F	305 Chem.	
		8–11	S	305 Chem.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 38a. Qualitative Organic Analysis.—*Prerequisite:* Chem. 36b and 37b.

Credit	Section	Hours	Days	Room	Instructor
3	Conf.	1	TT	217 Chem.	SHRINER
	Lab.	2–4	TT	250 Chem.	

Chem. 40. Elementary Physical Chemistry.—*Prerequisite:* Chem. 24; Physics 1a-1b or 7a-7b; Math. 7 or 8. (3). 10 MWF; 112 Chem.A. Professor RODEBUSH.

Chem. 41. Elementary Physical Chemistry.—(Laboratory.) To accompany Chem. 40.

1	A Lab.	1–4	Tu	124 Chem.	PHIPPS
	B Lab.	1–4	Th	124 Chem.	
	C Lab.	1–4	F	124 Chem.	

Chem. 42. Elementary Physical Chemistry.—*Prerequisite:* Chem. 40. (3). 9 TTS; 161 Chem. Associate Professor PHIPPS.

Chem. 43. Elementary Physical Chemistry.—(Laboratory.) *Prerequisite:* Chem. 40, 41, and registration in Chem. 42.

1	A Lab.	1–4	Th	124 Chem.	PHIPPS
	B Lab.	1–4	F	124 Chem.	

Chem. 44a. Advanced Physical Chemistry.—*Prerequisite:* Chem. 40, 41. (2). 10 TT; 161 Chem. Associate Professor PHIPPS.

Chem. 50a. Physiological Chemistry.—*Prerequisite:* Chem. 24 or 22, and 33 or 34a.

5	Lect.	9	TT	217 Chem.	ROSE, CARTER, and assistants
	A Lab.	1–4	TT	450 Chem.	
		8–11	S	450 Chem.	
	B Lab.	1–4	MWF	450 Chem.	

Chem. 60a. Chemical Technology.—*Prerequisite:* Senior standing. (Estimated cost of optional inspection trip is $30 to $35 per student.)

4	Lect.	11	MWF	161 Chem.
	A Lab.	1–5	M	50 Chem.
	B Lab.	1–5	Tu	50 Chem.
	C Lab.	1–5	Th	50 Chem.
	D Lab.	1–5	F	50 Chem.

Chem. 61a. Principles of Chemical Engineering.—*Prerequisite:* Chem. 42 or senior standing

4	Lect.	9	MWF	161 Chem.	KRASE
	A Lab.	1–5	M	50 Chem.	HOWARD
	B Lab.	1–5	Tu	50 Chem.	HOWARD
	C Lab.	1–5	W	50 Chem.	HOWARD
	D Lab.	1–5	Th	50 Chem.	HOWARD

Chem. 62a. Principles of Research and Development in Chemical Engineering.—*Prerequisite:* Senior standing in chemistry or chemical engineering. (2). Lect., 10 MW; 161 Chem. Professor KEYES.

Chem. 73a. Metallurgy.—*Prerequisite:* Senior standing in engineering courses only. (3). Lect., 8 MWF; 161 Chem. Mr. Howard.

Chem. 86a. Water Treatment.—*Prerequisite:* Chem. 24. Lectures, demonstrations, field trips. Methods for determining water quality. Special water requirements of industries. Chemistry of water conditioning for municipal and industrial use. By-product recovery from industrial and other wastes. (3). 10 MWF; 162 Chem. Professor BUSWELL and assistant.

Chem. 92a. Chemical Literature and Reference Work.—(Required of juniors in chemistry; expected also of juniors taking major work in chemistry.) *Prerequisite:* 18 hours of chemistry, one year of French or German, junior standing.

1	A	10	Th	201 Chem.	BARTOW
	B	8	F	201 Chem.	
Graduates only.....	K	4	W	201 Chem.	

Chem. 95a. History of Science with Particular Reference to Chemistry.—*Prerequisite:* Junior standing and 20 hours of laboratory science. (2). 8 TT; 112 Chem.A. Dr. BARTOW.

Courses for Graduates

Chem. 101a. Inorganic Chemistry.—(½ unit). (For laboratory work see Chem. 102a.) 8 MW; 303 Chem. Professor HOPKINS.

Chem. 102a. Inorganic Chemistry.—(Laboratory work to accompany or follow Chem. 101a.) Arrange. (¼ to 1 unit).* Professor HOPKINS.

Chem. 105a. Inorganic Seminar and Special Topics.—(¼ to 1 unit).* Seminar, 11 S; 162 Chem. Special topic: The mechanism of chemical reactions (Dr. COPLEY). 9 MW; 105 Chem.A. Professor HOPKINS.

Chem. 123a. Qualitative Analysis.—(½ unit). Lectures. 11 MF; 116 Chem. Associate Professor REEDY.

Chem. 123c. Qualitative Analysis.—(Laboratory work, optional, to accompany Chem. 123a. For 1935-36, microanalysis.) (¼ to ¾ unit).* Arrange. Associate Professor REEDY.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 125a. Quantitative Analysis.—(Seminar). (Required of all students taking a major or minor in analytical chemistry.) (¼ to 1 unit).* 4 Th; 162 Chem. Professor CLARK.

Chem. 126a. Quantitative Instrumental and Chemical Methods of Analysis in Chemical Research.—(Ultimate bomb analysis, gas density, polarimetry, refractometry, spectrophotometry, colorimetry, microscopy, etc.). (½ unit). Lectures. 9 TT; 303 Chem. Assistant Professor ENGLIS.

Chem. 126c. Quantitative Instrumental and Chemical Methods of Analysis in Chemical Research.—(Laboratory work, optional, to accompany Chem. 126a.) (¼ to ¾ unit).* Arrange; 305a Chem. Assistant Professor ENGLIS.

Chem. 127a. Modern Applications of X-rays to Chemical and Industrial Problems.—(½ unit). Lectures. 10 TT; 217 Chem. Professor CLARK.

Chem. 127c. Modern Applications of X-rays to Chemical and Industrial Problems.—(Laboratory work, optional, to accompany Chem. 127a.) (¼ to ½ unit).* Arrange; 308 Chem. Professor CLARK.

Chem. 132a. Organic Chemistry.—(First course.) (¾ unit). 11 TT; 217 Chem. Professor MARVEL.

Chem. 134. Organic Chemistry.—Chiefly laboratory work. (½ to 1 unit).* Arrange; 219 Chem. Professor MARVEL.

Chem. 135a. Organic Chemistry.—(Seminar). (¼ unit). Once a week. 11 W; 217 Chem. Professor ADAMS.

Chem. 145a. Physical Chemistry.—(Seminar). (¾ unit). 10-12 S; 176 Chem. Professor RODEBUSH.

Chem. 152a. Physiological Chemistry.—Chiefly laboratory. (½ to 1 unit).* Arrange; 467b Chem. Professor ROSE.

Chem. 155a. Physiological Chemistry.—(Seminar required of all students majoring in physiological chemistry). (¾ unit). Two hours a week. 9-11 F; 456 Chem. Professor ROSE.

Chem. 160a. Advanced Chemical Technology and Chemical Engineering.—*Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 1 MW; 162 Chem. Professor KEYES.

Chem. 161a. Chemical Plant Design.—Calculations and layout of equipment for recently developed processes. *Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 9 TT; 162 Chem. Associate Professor KRASE.

Chem. 186a. The Chemistry of Water Treatment.—(½ to 1¼ units).* Arrange; 60b Chem. Professor BUSWELL.

Chem. 190a. Research.—Work may be taken in the following subjects:

Physical and Electrochemistry.—Professor RODEBUSH; Associate Professor PHIPPS; Dr. COPLEY.
Inorganic Chemistry.—Professor HOPKINS; Associate Professor REEDY; Assistant Professors AUDRIETH, BAILAR, NICHOLSON.
Analytical Chemistry.—Professor CLARK; Associate Professors REEDY, SMITH; Assistant Professor ENGLIS.
Food Chemistry.—Assistant Professor ENGLIS.
Applied X-rays.—Professor CLARK.
Organic Chemistry.—Professors ADAMS, MARVEL, SHRINER; Assistant Professor BAILAR.
Zymochemistry.—Professor BUSWELL.
Phytochemistry.—Assistant Professor ENGLIS.
Physiological Chemistry.—Professor ROSE.
Chemical Engineering.—Professor KEYES; Associate Professor KRASE; Assistant Professor SWANN; Mr. HOWARD.
Ceramic Chemistry.—Professor PARMELEE.

CIVIL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $2.

Courses for Undergraduates

C.E. 1. Plane Surveying.—*Prerequisite:* Math. 4; G.E.D. 1 or 4.

Credit	Section	Hours	Days	Room	Instructor
3	E	8–10	MWF	C.E.S.B.	RAYNER
	F	10–12	MWF	C.E.S.B.	BAUER
	G	1–3	MWF	C.E.S.B.	DELL
	H	1–3	MWF	C.E.S.B.	PICKELS

C.E. 3. Railway and Highway Surveying.—*Prerequisite:* C.E. 1, 15, 16 or 18.

4	E	10–12	MTWT	407 E.H.	WILEY

C.E. 15. General Surveying.—*Prerequisite:* Math. 4, G.E.D. 1 or 4.

3	E	8–11	TT	C.E.S.B.	DELL
	F	1–4	MF	C.E.S.B.	WILEY
	G	1–4	TT	C.E.S.B.	RAYNER

C.E. 17. Surveying for Landscape Architects.—*Prerequisite:* Math. 4.

3	E	1–3	MWF	C.E.S.B.	RAYNER

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

C.E. 20a. Highway Construction.—*Prerequisite:* C.E. 2, 15, or 18, or consent of instructor.

Credit	Section	Hours	Days	Room	Instructor
3	E	8	MWF	101 E.H.	WILEY

C.E. 22. Highway and Municipal Design.—*Prerequisite:* C.E. 21.

4	E	9	MWF	101 E.H.	CRANDELL
		1–4	Th	309 E.H.	

C.E. 30. Highway Materials Laboratory.—*Prerequisite:* Junior standing in engineering, architecture, or landscape architecture.

1	E	2–5	W	112 M.T.L.	BAUER
	F	1–4	Th	112 M.T.L.	BAUER
	G	1–4	Tu	112 M.T.L.	BAUER

C.E. 35. Plain Concrete.—*Prerequisite:* Junior standing in engineering, architecture, or landscape architecture.

2	E	8	Tu	112 M.T.L.	BAUER
		8–11	Th	112 M.T.L.	BAUER

C.E. 36. Construction Materials.—*Prerequisite:* Junior standing in engineering, architecture, or landscape architecture.

1	E	8–10	Th	400 E.H.	OLIVER
	F	10–12	Tu	400 E.H.	OLIVER
	G	8–10	Tu	400 E.H.	OLIVER

C.E. 40. Water Supply.—*Prerequisite:* T.A.M. 3 and 4.

4	E	10	MWF	208 E.H.	BABBITT
		1–4	Tu	211 E.H.	
	F	11	MWF	208 E.H.	BABBITT
		1–4	Tu	214 E.H.	

C.E. 41. Sewerage.—*Prerequisite:* C.E. 40 or 40a.

3	E	8	TT	208 E.H.	DOLAND
		1–4	Th	211 E.H.	

C.E. 42. Water Purification.—*Prerequisite:* Registration or credit in C.E. 40 or 40a.

4	E	9	MF	208 E.H.	BABBITT
		9–12	TT	214 E.H.	

C.E. 49. Municipal Sanitation.—*Prerequisite:* 60 hours of university credit.

3	E	8	MWF	102 E.H.	DOLAND

C.E. 50. Hydrology.—*Prerequisite:* Senior standing in engineering.

2	E	9	TT	101 E.H.	PICKELS
	F	10	TT	101 E.H.	PICKELS

C.E. 60. Bridge and Building Construction.—*Prerequisite:* Sophomore standing in the University.

3	E	9	MTW	102 E.H.	DOLAND
	F	1	MWF	102 E.H.	DOLAND

C.E. 61. Structural Stresses.—*Prerequisite:* Registration or credit in T.A.M. 3.

4	E	9	MWF	405 E.H.	SHEDD
		1–4	Tu	419 E.H.	
	F	10	MWF	405 E.H.	SHEDD
		1–4	Tu	419 E.H.	
	G	9	MWF	400 E.H.	VAWTER
		1–4	Th	419 E.H.	

C.E. 62. Elementary Structural Design.—*Prerequisite:* Registration or credit in C.E. 61.

3	E	8–10	MWF	407 E.H.	DELL

C.E. 63. Theory of Reinforced Concrete.—*Prerequisite:* T.A.M. 3, and credit or registration in C.E. 61.

2	E	9	TT	205 E.H.	VAWTER

C.E. 64a. Structural Design.—*Prerequisite:* C.E. 62 and 63.

5	E	8	MWF	405 E.H.	SHEDD
		1–4	MW	211 E.H.	
	F	8	MWF	400 E.H.	STUBBS
		1–4	MW	214 E.H.	
	G	8	MWF	205 E.H.	OLIVER
		1–4	MW	309 E.H.	

C.E. 65. Structural Design.—*Prerequisite:* C.E. 64.

5	E	8	TT	205 E.H.	VAWTER
		1–4	MWF	419 E.H.	

C.E. 66. Masonry Construction.—*Prerequisite:* C.E. 61 and 63.

3	E	9	MWF	109 E.H.	HUNTINGTON

C.E. 67. Statically Indeterminate Structures.—*Prerequisite:* Registration or credit in C.E. 64.

3	E	11	MWF	205 E.H.	CROSS

C.E. 86. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 61.

Credit	Section	Hours	Days	Room	Instructor
4	E	1	TT	408 E.H.	Stubbs
		2–5	TT	408 E.H.	

C.E. 89. Structural Engineering.—*Prerequisite:* Senior standing in engineering or architecture.

3	E	10	MWF	400 E.H.	Oliver

C.E. 90. Contracts and Specifications.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	10	MW	101 E.H.	Pickels
	F	11	TT	101 E.H.	Crandell

C.E. 91. Estimates and Costs.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	10	TT	102 E.H.	Stubbs

C.E. 97. Thesis.—*Prerequisite:* High standing and approval of head of department.

0-3	To be arranged	Members of the department

C.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. (No credit).

Courses for Graduates

C.E. 101. Water Supply.—					
1 unit		8	TT	204 E.H.	Babbitt
C.E. 103. Highway Engineering.—					
1 unit		11	MW	308 E.H.	Crandell
C.E. 105. Reinforced Concrete Design.—					
1 unit		4	MF	205 E.H.	Cross Shedd
C.E. 106. Structural Theory and Design.—					
1 or 2 units*		4	TT	205 E.H.	Cross
C.E. 109. Water Purification and General Sanitation.—					
1 unit		8	MW	204 E.H.	Babbitt
C.E. 112. Masonry Construction.—					
½ to 1½ units*		9	MW	201 E.H.	Huntington
C.E. 130. Hydrology.—					
1 unit		1	TT	208 E.H.	Pickels
C.E. 140. Special Problems.—					
½ to 2 units*		To be arranged			Members of the department
C.E. 198. Thesis.—					
1 to 2½ units*		To be arranged			Members of the department

CLASSICS

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, and 17.

Minors: 20 hours chosen from not more than two of the following: foreign language (Latin being especially recommended), English literature, history, and philosophy. At least eight hours must be taken in each subject, if two are chosen.

Latin

Major: 20 hours, excluding Latin 1a-1b, 6, 11a-11b, 13, and 20, and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours chosen from not more than two of the following: foreign language (Greek being especially recommended), English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17 and Latin 1a-1b, 6, 9, 11a-11b, 13, 20. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours chosen from not more than two of the following: foreign language, English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

A. GREEK

Courses for Undergraduates

Greek 1a. Elementary Greek.—(4). 11 TWTF; 120 L.H. Associate Professor PERRY.

Greek 3. Second Year Greek. Plato.—*Prerequisite:* Greek 1a-1b. (3). 11 MWF; 114 L.H. Mr. ZICKGRAF.

Courses for Advanced Undergraduates and Graduates

Greek 6. Thucydides and Plato.—*Prerequisite:* Greek 3 and 4 or an equivalent. (3). 9 TTS; 114 L.H. Associate Professor PERRY.

GREEK LIFE AND HISTORY

Note: For Greek 16, 18, and History 55, a knowledge of Greek is not presupposed.

Greek 16. Life of the Ancient Greeks.—*Prerequisite:* Sophomore standing. (1). 3 Th; 120 L.H. Mr. ZICKGRAF.

Greek 18. Greek Archaeology.—*Prerequisite:* Sophomore standing. (2). 2 TT; 120 L.H. Mr. DALY.

Greek History.—See History 55. 1 MWF; 202 L.H. Professor OLDFATHER.

Courses for Graduates

Note: Students desiring to take graduate work in Greek should have had at least three years of college Greek or an equivalent.

Greek 106a. Greek Drama; Tragedy.—(1 unit). 9 WF; 114 L.H. Associate Professor PERRY.

Greek 110a. See Latin 110a.

B. LATIN

Courses for Undergraduates

Latin 1a. Ovid.—*Prerequisite:* Three entrance units in Latin or Latin 6. (4). 1 TWTF; 114 L.H. Mr. JOHNSTON.

Latin 3. Lucretius and Horace (Odes).—*Prerequisite:* Latin 12a-12b or an equivalent. (3). 10 MWF; 120 L.H. Mr. JOHNSTON.

Latin 5a. Latin Composition.—*Prerequisite:* Three entrance units in Latin or registration in Latin 6. Required to secure the department's recommendation to teach. (1). 4 Th; 120 L.H. Professor CANTER.

Latin 6. Cicero.—*Prerequisite:* Two entrance units in Latin or Latin 11a-11b. (4). 2 TWTF; 114 L.H. Mr. STONE.

Latin 12a. Plautus, Terence, Catullus.—*Prerequisite:* Four entrance units in Latin or Latin 1a-1b. (4). 9 TWTF; 120 L.H. Professor CANTER.

Latin 30a. Honors Course.—Thesis or a special course of study approved by the department. *Prerequisite:* Senior standing and 14 hours of Latin acceptable for a major. (2). Arrange. Professor CANTER.

ROMAN LIFE AND HISTORY

Latin 20. Mythology of Greece and Rome.—*Prerequisite:* Sophomore standing. *Note:* This course presupposes no knowledge of Latin and is open to all students except freshmen. (2). 2 TT; 202 L.H. Associate Professor PERRY.

Courses for Advanced Undergraduates and Graduates

Latin 21. Tacitus (Annales) and Juvenal.—*Prerequisite:* 12 hours of Latin acceptable for a major. (3). 2 MWF; 120 L.H. Professor CANTER.

Courses for Graduates

Note: Students desiring to take graduate work in Latin should have had at least three years of college Latin in addition to the Latin presented to meet entrance requirements.

Latin 109. Vergil.—(1 unit). 4-6 Tu; 120 L.H. Professor CANTER.

Latin 104. Latin Paleography.—(1 unit). 10 ThS; 118 Lib. Professor OLDFATHER.

Latin 110a. Bibliography and Criticism.—(1 unit). 11 S; 118 Lib. Professors OLDFATHER, CANTER: Associate Professor PERRY.

DAIRY HUSBANDRY

Note: Certain courses in this department require laboratory fees varying from $2 to $3.

Courses for Undergraduates

D.H. 1. Testing Dairy Products.—*Prerequisite:* D.H. 24b or sophomore standing. (3). 1-4 TT; 503 Agr. Associate Professor OVERMAN, Mr. GARRETT.

D.H. 6a. Dairy Products Plant Operations.—*Prerequisite:* D.H. 24b and consent of instructor. (3). 7-10 two days a week and one hour to be arranged; D.Mfrs. Associate Professor TRACY, Mr. TUCKEY.

D.H. 22. Cheese Making.—*Prerequisite:* D.H. 24b and sophomore standing. (3). 8 TT, 7-12 S; D.Mfrs. Professor RUEHE, Mr. TUCKEY.

D.H. 23a-j. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; approval of head of department. (5). Arrange.

(a) **Dairy Bacteriology.**—Professor PRUCHA, Assistant Professor BRANNON.
(c) **Dairy Chemistry.**—Associate Professor OVERMAN.
(e) **Dairy Farming and Economic Milk Production.**—Professor FRASER.
(g) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.
(j) **Dairy Production.**—Professors GAINES, YAPP; Associate Professor NEVENS.

D.H. 24a. Elementary Dairy Production.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	9	M	127 New Agr.	NEVENS, KUHLMAN
[1]Juniors and seniors receive only 2 hours credit.	Lab.	8–10	W	S.P.	
	Quiz	9	F	118 New Agr. 127 New Agr.	

D.H. 24b. Elementary Testing and Manufacture of Dairy Products.—

3[1]	Lect.	1	Th	D.Mfrs.	TUCKEY
[1]Juniors and seniors receive only 2 hours credit.	Quiz	2	Th	D.Mfrs.	
	A Lab.	1–3	Tu	D.Mfrs.	

Courses for Advanced Undergraduates and Graduates

D.H. 4. Ice Cream Making.—*Prerequisite:* D.H. 24b and junior standing. (5). 1-4 TT, 4 MWF; D.Mfrs. (Inspection trip requirement waived for 1935-36). Associate Professor TRACY.

D.H. 10. Advanced Dairy Bacteriology.—*Prerequisite:* Bact. 5a and 5b; junior standing. (4). 1-4 MWF; 456 Agr. Assistant Professor BRANNON, Professor PRUCHA.

D.H. 17. Advanced Study of Dairy Breeds.—*Prerequisite:* D.H. 2 and junior standing. (3). Arrange; 553 Agr. Professor YAPP.

D.H. 20. Economic Problems in Dairy Farming.—*Prerequisite:* Junior standing. (3). 9 MWF; 553 Agr. Professor FRASER.

D.H. 25. Advanced Study of Dairy Cattle Feeding.—*Prerequisite:* D.H. 2 and junior standing. (2). Arrange; 120 Agr. Associate Professor NEVENS.

Courses for Graduates

D.H. 101. Economic Milk Production.—(½ to 2 units).* Twice a week. Arrange. Professor FRASER.

D.H. 105. Dairy Manufactures.—(½ to 2 units).* Arrange. Professor RUEHE, Associate Professor TRACY.

D.H. 106. Dairy Bacteriology.—(½ to 2 units).* Arrange. Professor PRUCHA.

D.H. 107. Dairy Chemistry.—(½ to 2 units).* Arrange. Associate Professor OVERMAN.

D.H. 108. Physiology of Lactation.—(½ to 2 units).* Arrange. Professor GAINES.

D.H. 112a-f. Research.—(1 to 4 units).* Arrange. *Note:* Graduate students writing a thesis should so indicate when registering in D.H. 112.

(a) **Dairy Bacteriology.**—Professor PRUCHA.
(b) **Dairy Chemistry.**—Associate Professor OVERMAN.
(c) **Dairy Cattle Breeding.**—Professor YAPP.
(d) **Dairy Cattle Feeding.**—Associate Professor NEVENS.
(e) **Milk Production.**—Professor GAINES.
(f) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.

D.H. 113. Seminar.—Current literature in dairy bacteriology, dairy chemistry, and dairy manufactures. (½ unit). Once a week. Members of the graduate staff.

D.H. 114. Seminar.—Current literature in biology of milk production. (½ unit). Once a week. Professor GAINES.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

ECONOMICS

Including courses formerly in Public Utilities and Transportation

(See also Agricultural Economics and Business Organization and Operation)

Major: For students in the College of Liberal Arts and Sciences, 20 hours made up of Economics 1 and other courses in economics for which it is a prerequisite.

Minors: 20 hours in any one or two of the following subjects: geography, history, philosophy, political science, and sociology.

Note: Economics 22 and 27 are open only to freshmen, without previous requirements.

Economics 1 is the fundamental course in economics. It is a prerequisite for most of the advanced courses, and students expecting to do advanced work in economics should take it in their sophomore year.

The courses in economics may be grouped in several rather distinct fields in which students may find it profitable to concentrate in their junior and senior years. The following fields are suggested: economic theory, history, and statistics; public and private finance, including insurance; labor; foreign trade; public utilities and transportation.

Courses for Undergraduates

Econ. 1. Principles of Economics.—*Prerequisite:* 30 hours of university work.

Credit	Section	Hours	Days	Room	Instructor
5	[1]Lect. 1	9	TT	114 Com.	Thompson
	B1 Quiz	9	MWF	312 Com.	Hudson
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II, in Lect. II.	B2 Quiz	9	MWF	307 Com.	Heckman
	B3 Quiz	9	MWF	328 Com.	Allen
	B4 Quiz	9	MWF	326 Com.	Gay
	B5 Quiz	9	MWF	111 Com.	Hoover
	B6 Quiz	9	MWF	108 Com.	Weston
	B7 Quiz	9	MWF	106 Com.	
	C3 Quiz	10	MWF	307 Com.	Lockling
	E Quiz	1	MWF	113 Com.	Lockling
	F1 Quiz	2	MWF	328 Com.	Allen
	[1]Lect. II	11	TT	114 Com.	Thompson
	A Quiz	8	MWF	307 Com.	Hudson
	C1 Quiz	10	MWF	328 Com.	Allen
	C2 Quiz	10	MWF	108 Com.	Muntz
	D1 Quiz	11	MWF	111 Com.	Hoover
	D2 Quiz	11	MWF	326 Com.	Gay
	D3 Quiz	11	MWF	307 Com.	Heckman
	D4 Quiz	11	MWF	325 Com.	Behling
	D5 Quiz	11	MWF	108 Com.	Muntz
	F2 Quiz	2	MWF	306 Com.	Lockling

Econ. 2. Elements of Economics.—Exclusively for non-commerce students. Not open to those who have had Econ. 1. *Prerequisite:* 30 hours of university work.

3	A Quiz	8	MWF	325 Com.	Lounsbury
	B Quiz	9	MWF	219 Com.	Bruce
	C1 Quiz	10	MWF	325 Com.	Lounsbury
	C2 Quiz	10	MWF	210 Com.	Bruce
	C3 Quiz	10	MWF	305 Com.	Stalnaker
	C4 Quiz	10	MWF	306 Com.	Wright
	C5 Quiz	10	MWF	224 Com.	Helbing
	D Quiz	11	MWF	222 Com.	Steiner
	E1 Quiz	1	MWF	326 Com.	Stalnaker
	E2 Quiz	1	MWF	111 Com.	Morris
	F1 Quiz	2	MWF	222 Com.	Helbing
	F2 Quiz	2	MWF	111 Com.	Osborn

Econ. 3. Money, Credit, and Banking.—*Prerequisite:* Econ. 1 or 2.

3	Lect.	9	W	114 Com.	Lee
	B1 Quiz	9	MF	325 Com.	Lee
	B2 Quiz	9	MF	322 Com.	Lounsbury
	B3 Quiz	9	MF	317 Com.	Lockling
	K Quiz	9	TT	322 Com.	Lounsbury
	L Quiz	10	TT	325 Com.	Lockling
	M Quiz	11	TT	325 Com.	Lee

Econ. 22. Economic History of the United States.—Open to freshmen only.

3	[1]Lect. I	1	M	114 Com.	Bogart and others
	E1 Quiz	1	WF	306 Com.	Gay
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II, in Lect. II; and those under Lect. III, in Lect. III.	E2 Quiz	1	WF	307 Com.	Osborn
	E3 Quiz	1	WF	122 Com.	Miller
	E4 Quiz	1	WF	310 Com.	Steiner
	E5 Quiz	1	WF	312 Com.	
	J Quiz	8	TT	111 Com.	Hoover
	K1 Quiz	9	TT	307 Com.	Morris
	N Quiz	1	TT	307 Com.	Miller
	[1]Lect. II	2	M	114 Com.	Bogart
	F1 Quiz	2	WF	325 Com.	Stalnaker
	F2 Quiz	2	WF	326 Com	Steiner

Econ. 22. Economic History of the United States (concluded)

Credit	Section	Hours	Days	Room	Instructor
3	F3 Quiz	2	WF	307 Com.	
	F4 Quiz	2	WF	219 Com.	Morris
	F5 Quiz	2	WF	106 Com.	Miller
	O1 Quiz	2	TT	113 Com.	Weston
	O2 Quiz	2	TT	307 Com.	Muntz
	K2 Quiz	9	TT	111 Com.	Hoover
[1]Students registered in quiz sections under Lect. III must enroll in Lect. III.	[1]Lect. III	10	Tu	114 Com.	Bogart
	A Quiz	8	MW	111 Com.	Hoover
	B Quiz	9	MW	119 Com.	
	C Quiz	10	MW	119 Com.	Osborn
	G Quiz	3	MW	310 Com.	Hudson
	K3 Quiz	9	ThS	126 Com.	Weston
	L1 Quiz	10	ThS	113 Com.	Weston
	L2 Quiz	10	ThS	310 Com.	Gay

Econ. 92 (formerly Trans. 1). Economics of Transportation.—*Prerequisite:* Econ. 1 and junior standing.

3	A Quiz	8	MWF	101 Com.	Behling
	B Quiz	9	MWF	101 Com.	Behling
	C Quiz	10	MWF	101 Com.	Locklin
	D Quiz	11	MWF	101 Com.	Locklin
	F Quiz	2	MWF	101 Com.	Behling

Courses for Advanced Undergraduates

Econ. 90a. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis or take a comprehensive examination, as part of the requirement. (2 or 4).* Arrange. Associate Professor Berman and other members of the Department.

Econ. 91a. Independent Study.—Seniors registered in the College of Commerce who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this Department or sixteen semester hours if divided between this Department and any other department. (3 to 5).* Arrange. Associate Professor Gray and other members of the Department.

Courses for Advanced Undergraduates and Graduates

Econ. 9. Advanced Theory and Practice of Banking.—*Prerequisite:* Econ. 1 or 2, senior standing.

3	Lect.	8	W	215 Com.	Wright
	A Quiz	8	MF	326 Com.	Wright
	K Quiz	9	TT	326 Com.	Wright

Econ. 10. Corporation Finance and Management.—*Prerequisite:* Econ. 1 and 3; Accy. 1a and 1b.

3	A Quiz	8	MWF	123 Com.	Van Arsdell
	B Quiz	9	MWF	123 Com.	Van Arsdell
	L Quiz	10	TTS	119 Com.	Van Arsdell

Econ. 11. Industrial Consolidation.—*Prerequisite:* Econ. 10.

3	Lect.	9	M	114 Com.	Brown
	B Quiz	9	WF	122 Com.	Brown
	C Quiz	10	WF	122 Com.	Brown
	K Quiz	9	TT	122 Com.	Brown
	L Quiz	10	TT	108 Com.	Brown

Econ. 23. Current Economic Problems.—*Prerequisite:* Econ. 1 or 2; junior standing. Not open to Commerce students or L.A.S. students whose major subject is economics.

3	D Quiz	11	MWF	306 Com.	Lee

Econ. 24. Economic Development of Modern Europe.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	K Quiz	9	TTS	125 Com.	Bogart

Econ. 35. Corporation Finance.—*Prerequisite:* Econ. 1 or 2. For engineering students only.

3	C Quiz	10	MWF	108 P.L.	Van Arsdell

Econ. 41. Introduction to Labor Problems.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	2	F	215 Com.	Berman
	F Quiz	2	MW	322 Com.	Berman
	G Quiz	3	MW	322 Com.	Berman
	M Quiz	11	TT	322 Com.	Heckman

Econ. 44. Socialism and Economic Reform.—*Prerequisite:* Econ. 1 or 2, and senior standing.

3	E	1	MWF	219 Com.	Helbing

Econ. 51. Public Finance.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	11	M	114 Com.	Hunter
	D1 Quiz	11	WF	328 Com.	Hunter
	D2 Quiz	11	WF	312 Com.	Allen
	J Quiz	8	TT	312 Com.	Allen
	L Quiz	10	TT	328 Com.	Hunter
	M Quiz	11	TT	328 Com.	Hunter

Econ. 55. Economics of Insurance.—*Prerequisite:* Econ. 1 or 2, and junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	9	M	215 Com.	DICKINSON
	J Quiz	8	TT	305 Com.	DICKINSON
	K Quiz	9	TT	305 Com.	DICKINSON

Econ. 61. Economic Theory.—*Prerequisite:* Econ. 1 or 2, and senior standing.

3	D Quiz	11	MWF	113 Com.	BERMAN

Econ. 65. Social Control of Business.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	C Quiz	10	MWF	100 Com.	GRAY

Econ. 71. Economic Statistics.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	C Quiz	10	Tu	307 Com.	DICKINSON
	Practice	1–3	TT	317 Com.	DICKINSON

Econ. 81 (formerly Pub. Util. 81). Principles of Public Utilities.—*Prerequisite:* Econ. 1 or 2, and 3.

3	B	9	MWF	100 Com.	GRAY

Econ. 95 (formerly Trans. 10). Railroad Rates.—*Prerequisite:* Econ. 92.

3	K	9	TTS	101 Com.	LOCKLIN

Econ. 99. Current Economic Problems.—*Prerequisite:* Senior standing. Open to Commerce seniors or Economics major seniors.

2	L	10	TT	215 Com.	THOMPSON

Courses for Graduates

Econ. 101. Economic Theory.—(1 unit). 2-4 M; 212 Com. Professor FETTER.

Econ. 102. Monetary Theory and History from the Restriction Period to the Present.—(1 unit). Arrange. Dr. LOUNSBURY.

Econ. 105. Public Finance.—(1 unit). 4-6 Tu; 212 Com. Professor HUNTER.

Econ. 109. Comparison of the Theory and Practice of the Leading Central and Reserve Banks, with Special Reference to England, Germany, France, and the United States.—(1 unit). 11 TT; 212 Com. Professor WRIGHT.

Econ. 110. Corporation Finance.—(1 unit). 2-4 Tu; 212 Com. Assistant Professor BROWN.

Econ. 112a. Labor Problems: Wages and Unemployment.—(1 unit). 4-6 W; 212 Com. Associate Professor BERMAN.

Econ. 118. Seminar.—Thesis course. (All graduate students writing theses in economics must register in Economics 118; registration for other students is optional.) 4-6 Th (alternate weeks); 420 Com.

(a) **Third Year: Seminar.**—Professor BOGART.
(b) **First Year: General Economics.**—Professor BROWN.
(c) **First Year: Public Utilities.**—Associate Professor GRAY.

Econ. 120. History of Economic Thought.—(1 unit). 3-5 W; 209 Com. Professor FETTER.

Econ. 122. Economic History of the American People.—(1 unit). 10-12 S; 209 Com. Professor BOGART.

Econ. 123. Industrial and Financial Organization of Society.—(1 unit). 4-6 W; 420 Com. Professor LEE.

Econ. 143. Administration of Industrial Relations.—(1 unit). 9 TT; 209 Com. Dr. HELBING.

Econ. 144. Economic Statistics with Special Reference to Time Series and Business Cycles.—(1 unit). Arrange. Assistant Professor DICKINSON.

Econ. 180 (formerly Pub. Util. 180). Management of Public Utilities.—(1 unit). 4-6 W; 224 Com. Associate Professor GRAY.

Econ. 192 (formerly Trans. 100). Economics of Transportation. (1 unit). Arrange. Associate Professor LOCKLIN.

EDUCATION

A. GENERAL EDUCATION

Introductory Courses

Ed. 2. History of Education.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	B	9	MWF	303 Adm.(E)	SEYBOLT
	C	10	MWF	303 Adm.(E)	SEYBOLT

Ed. 5. Comparative Education.—*Prerequisite:* Junior standing.

3	E	1	MWF	204 Adm.(E)	JOHNSTON
	F	2	MWF	204 Adm.(E)	JOHNSTON
	L	10	TTS	204 Adm.(E)	JOHNSTON

Ed. 6. Principles of Secondary Education.—*Prerequisite:* Ed. 25.

Credit	Section	Hours	Days	Room	Instructor
3	J	8	TTS	206 Adm.(E)	Williams
	K	9	TTS	308 Adm.(E)	Clement
	L	10	TTS	206 Adm.(E)	Potthoff
	M	11	TTS	204 Adm.(E)	Johnston
	E1	1	MWF	206 Adm.(E)	Williams
	E2	1	MWF	304 Adm.(E)	Weber
	F	2	MWF	304 Adm.(E)	Weber
	G1	3	MWF	303 Adm.(E)	Peters
	G2	3	MWF	307 Adm.(E)	Potthoff

Ed. 10. Technic of Teaching.—*Prerequisite:* Ed. 25.

Students who are preparing to teach biology, chemistry, civics, economics, English, French, general science, German, history, home economics, Latin, music, physics, or Spanish, or who expect to teach in elementary schools, and who plan to take Educational Practice, must register in the sections indicated immediately below, and must register at the same time for the Educational Practice indicated. Only students specializing in the fields indicated may enroll in these sections. Sections G1 and G2 are offered for 4 hours credit and meet four days a week; all others 3 hours credit.

(Biology—Ed. Prac. 6) (Chemistry—Ed. Prac. 7) (Gen. Sci.—Ed. Prac. 13) (Physics—Ed. Prac. 21)	A1	8	MWF	303 U.H.S.	Harnish
(Elem. Sch.—Ed. Prac. 25)	A2	8	MWF	206 Adm.(E)	Reagan
(Music—Ed. Prac. 20)	D1	11	MWF	207 U.H.S.	Holmes
(Home Econ.—Ed. Prac. 14)	F1	2	MWF	104 U.H.S.	King
(P.E. Men—Ed. Prac. 1, 2, 3, 4)	F2	2	MWF	209 New Gym.	Jackson
(English—Ed. Prac. 11) (Speech—Ed. Prac. 11a)	G1	3	MTWF	205 U.H.S.	McHarry
(Civics—Ed. Prac. 8) (History—Ed. Prac. 15) (Economics—Ed. Prac. 27)	G2	3	MWTF	210 U.H.S.	Habberton
(French—Ed. Prac. 12) (German—Ed. Prac. 28) (Latin—Ed. Prac. 17) (Spanish—Ed. Prac. 23)	G3	3	MWF	312 U.H.S.	Arndt

Students preparing to teach in other fields than those listed above and those who do **not** plan to take Educational Practice will enroll in the sections listed below:

A3	8	MWF	312 Adm.(E)	Odell
B	9	MWF	206 Adm.(E)	Reagan
C	10	MWF	206 Adm.(E)	Odell
D2	11	MWF	206 Adm.(E)	Monroe

Ed. 25. Educational Psychology.—*Prerequisite:* Psych. 1 for all sections except Section G.

3	J	8	TTS	303 Adm.(E)	Potthoff
	K	9	TTS	312 Adm.(E)	Dolch
[1]Section G is for students who have not taken Psych. 1. Consent of instructor must be obtained.	L	10	TTS	312 Adm.(E)	Peters
	M	11	TTS	312 Adm.(E)	Peters
	E	1	MWF	312 Adm.(E)	Peters
	F	2	MWF	312 Adm.(E)	Potthoff
	F2	2	MWF	308 Adm.(E)	Dolch
	[1]G	3	MWF	204 Adm.(E)	Cameron
	H	4	MWF	308 Adm.(E)	Dolch

Ed. 99a. Thesis.—*Prerequisite:* Senior standing. (2). Arrange. Dean Benner and others.

Courses for Advanced Undergraduates and Graduates

Ed. 11. Ancient and Medieval Education.—*Prerequisite:* Senior standing or Ed. 2. (2). 10 TT; 303 Adm.(E). Professor Seybolt.

Ed. 15. Mental Hygiene in the School.—*Prerequisite:* Ed. 25 and senior standing. (3). 9 MWF; 204 Adm.(E). Professor Griffith.

Ed. 18. Educational Measurements.—*Prerequisite:* Ed. 25. (3). 9 MWF; 308 Adm.(E). Associate Professor Odell.

Ed. 21. Supervision of Elementary Education.—*Prerequisite:* Junior standing and Ed. 25. (3). 2 MWF; 303 Adm.(E). Assistant Professor Browne.

Ed. 45. Genetic Psychology for Teachers.—*Prerequisite:* Ed. 25 and senior standing. (3). 11 MWF; 204 Adm.(E). Professor Griffith.

Ed. 46. Recent Developments in the Teaching of the Elementary School Subjects.—*Prerequisite:* Ed. 25. (2). 10-12 S; 307 Adm.(E). Assistant Professor Dolch.

Ed. 52. Part-Time and Evening Schools.—(Same as Ind. Ed. 52). *Prerequisite:* Junior standing. (3). 9 MWF; 304 Adm.(E). Professor Mays.

Ed. 53. Problems of Industrial Education.—(Same as Ind.Ed. 53). *Prerequisite:* Junior standing or consent of instructor. (3). 10 MWF; 304 Adm.(E). Professor Mays.

Courses for Graduates

In addition to complying with the general rules of the Graduate School, candidates for the master's degree in education must meet the following requirements: (1) Education 125 is a required course for all students; (2) for students who have not taken a course in the history of education, Education 11 or Education 30 is required; (3) Education 6 and 25, or their equivalents, are prerequisites for all graduate courses.

No student is recommended to the Dean of the Graduate School for formal admission to candidacy for the master's degree until at least four units of the eight ordinarily required for the degree have been completed satisfactorily. In the case of a student who has been allowed to waive the thesis (see Graduate School Bulletin), two papers will be required. The first shall be written during the first half of the student's residence and shall be an important factor in determining his further status in the department. The second shall be written during the second half of the student's period of residence.

Ed. 102. Research in the History of Education.—(1 unit). Arrange; 311 Adm.(E). Professor SEYBOLT.

Ed. 104. Educational Administration.—(1 unit). 10-12 S; 303 Adm.(E). Associate Professor WEBER.

Ed. 106. High School Administration.—(1 unit). 4-6 Tu; 308 Adm.(E). Professor CLEMENT.

Ed. 109. Seminar in Curriculum Revision.—(½ to 1 unit).* *Prerequisite:* Ed. 119a or 119b or consent of instructor. Arrange; 302 Adm.(E). Assistant Professor EVERETT.

Ed. 119a. Problems of the Curriculum.—(1 unit). 4-6 M; 312 Adm.(E). Assistant Professor EVERETT.

Ed. 123. Educational Statistics.—(1 unit). 4-6 M; 304 Adm.(E). Associate Professor ODELL.

Ed. 124. Readings in Educational Research.—(1 unit). 4-6 Th; 206 Adm.(E). Professor MONROE.

Ed. 125. Educational Psychology.—(1 unit). 4 MW; 204 Adm.(E). Professor CAMERON.

Ed. 127. High School Curricula.—(1 unit). 10-12 S; 308 Adm.(E). Professor CLEMENT.

Ed. 128. Junior High School.—(1 unit). 4-6 Th; 308 Adm.(E). Professor CLEMENT.

Ed. 147. Psychology of the Elementary School Subjects.—(1 unit). 4-6 F; 204 Adm.(E). Professor CAMERON.

Ed. 150. Thesis.—(1 to 2 units).* Dean BENNER and others.

Ed. 170. Public School Finance and Business Administration.—*Prerequisite:* Ed. 104. (1 unit). 4-6 W; 307 Adm.(E). Associate Professor WEBER.

Ed. 185. Seminar in Educational Psychology.—*Prerequisite:* Ed. 125 and consent of instructor. (1 unit). Arrange; 203 Adm.(E). Professors CAMERON and GRIFFITH.

Ed. 187. Seminar in Industrial Education and Guidance.—(1 unit). 10-12 S; 304 Adm.(E). Professor MAYS.

Ed. 190. Research in Education.—*Prerequisite:* 3 units of graduate credit in education and consent of instructor. (1 unit). Arrange. Dean BENNER and others.

B. RELATED COURSES IN SPECIAL SUBJECTS

The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 20 hours in Education for graduation; for the 15 hours in Education for the State High School Certificate; or for the hours of Education necessary as a qualification for teachers in the North Central Association accredited schools.

Art 10a. Course for Teachers.—(3). (See Art).

B.O.O. 12a. Typewriting.—(No credit). Lab. fee $5. (See B.O.O.).

B.O.O. 13a. Shorthand.—(No credit). (See B.O.O.).

English 42. Teaching of English Composition.—(2). (See English)

French 25. Methods of Teaching French.—(3). (See French).

History 18. Teaching of History.—(2). (See History).

Home Economics 11. Teachers' Course.—(3). (See Home Economics).

Mathematics 35. Teachers' Course.—(3). (See Mathematics).

Music 25a. Elementary School Methods.—(3). (See Music).

Music 26a. High School Methods.—(3). (See Music).

Physical Education for Women 95a. Methods.—(4). (See Physical Education for Women).

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

C. EDUCATIONAL PRACTICE

The courses listed below are open only to seniors. *Prerequisite:* Ed. 25, 6, and 10, except that students who take Ed. Prac. 6, 7, 8, 11, 11a, 13, 14, 15, 20, 21, 25 or 27 must register at the same time for Ed. 10. For Educational Practice in Agriculture, see Associate Professor NOLAN at 116 Old Agriculture. For Educational Practice in Physical Education, see Mr. JACKSON at 202 New Gymnasium. For Educational Practice in Home Economics, see Miss ROBINSON and Miss KING at 119 Woman's Building. Arrange for all other courses in Educational Practice with Principal C. W. SANFORD, at 102 University High School.

Ed. Prac. 1. Physical Education for Men.—(2 to 4).*

Ed. Prac. 2. Physical Education for Men.—(2 to 4).*

Ed. Prac. 3. Physical Education for Men.—(2 to 4).*

Ed. Prac. 4. Physical Education for Men.—(2 to 4).*

Ed. Prac. 5. Agricultural Education.—(3 to 5).* (Same as Agr. Ed. 50.)

Ed. Prac. 6. Biology.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 7. Chemistry.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 8. Civics.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 9. Drawing, Art.—(3 to 5).*

Ed. Prac. 10. Drawing, Mechanical.—(3 to 5).*

Ed. Prac. 11. English.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 11a. Speech.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 12. French.—(5). Students must be registered in Ed. 10, Section G3.

Ed. Prac. 13. General Science.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 14. Home Economics Education.—(5). Students must be registered in Ed. 10, Section F.

Ed. Prac. 15. History.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 16. Industrial Education.—(3 to 5).*

Ed. Prac. 17. Latin.—(5). Students must be registered in Ed. 10, Section G3.

Ed. Prac. 19. Mathematics.—(5).

Ed. Prac. 20. Music.—(3 to 5).* Students must be registered in Ed. 10, Section D1.

Ed. Prac. 21. Physics.—(5). Students must be registered in Ed. 10, Section A.

Ed. Prac. 23. Spanish.—(5). Students must be registered in Ed. 10, Section G3.

Ed. Prac. 24. Stenography and Typewriting.—(3 to 5).*

Ed. Prac. 25. Elementary Education.—(5). Students must be registered in Ed. 10, Section H.

Ed. Prac. 26. Bookkeeping.—(5).

Ed. Prac. 27. Economics.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 28. German.—(5). Students must be registered in Ed. 10, Section G3.

D. AGRICULTURAL EDUCATION

Courses for Undergraduates

Agr. Ed. 1. Introduction to Agricultural Education.—*Prerequisite:* Sophomore standing and 10 hours of technical agriculture. (2). 11 TT; 122 Agr. Associate Professor NOLAN.

Agr. Ed. 50. Teaching.—*Prerequisite:* Ed. 25 and senior standing. (Same as Ed. Prac. 5.)

Credit	Section	Hours	Days	Room	Instructor
2 to 5*	A	Conference 4	Tu	Tolono H.S.	HENDERSON
		Teaching to be arranged			
	B	Conference 4	Tu	St. Joseph H.S.	RUCKER
		Teaching to be arranged			
	C	Apprentice teaching in state			NOLAN

Agr. Ed. 51. Teachers' Course in Agriculture.—*Prerequisite:* Ed. 25 and senior standing. (3). 4 MWF; 122 Agr. Associate Professor NOLAN.

Agr. Ed. 91. Special Problems of Education in Rural Communities.—*Prerequisite:* Senior standing and at least 6 hours in Education. (2). 11 MW; 122 Agr. Associate Professor NOLAN.

E. INDUSTRIAL EDUCATION

Courses for Undergraduates

Ind. Ed. 1. Industrial Arts.—First Course.

4	Lect.	9	TT	Wood Shop	BRAUCHER and
	Shop	8–10	MWF	Pat. Lab.	assistant

Ind. Ed. 2. Advanced Industrial Arts.—

4	Lect.	10	TT	Wood Shop	BRAUCHER and
	Shop A	10–12	MWF	Pat. Lab.	assistant

Ind. Ed. 62. History and Organization of Industrial Arts.—(3). 11 MWF; 310 Adm.(E). Professor MAYS.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Note: The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 25 hours in Industrial Education.

G.E.D. 1. Elements of Drawing.—(4). (See General Engineering Drawing).

G.E.D. 2. Descriptive Geometry.—(4). (See General Engineering Drawing).

G.E.D. 4. Advanced Drawing.—(4). (See General Engineering Drawing).

Journ. 9a. History and Practice of Printing and Publishing.—(2). (See Journalism).

M.E. 85. Pattern and Foundry Laboratory.—(3). (See Mechanical Engineering).

M.E. 87. Machine Laboratory.—(3). (See Mechanical Engineering).

Courses for Advanced Undergraduates and Graduates

Ind. Ed. 52. Part-Time and Evening Schools.—(Same as Ed. 52). *Prerequisite:* Junior standing. (3). 9 MWF; 304 Adm.(E). Professor MAYS.

Ind. Ed. 53. Problems of Industrial Education.—(Same as Ed. 53.) *Prerequisite:* Junior standing or consent of instructor. (3). 10 MWF; 304 Adm.(E). Professor MAYS.

Extra-Mural Courses in Industrial Education.—Arrange. Assistant Professor DODGE.

ELECTRICAL ENGINEERING

Note: Certain courses in this department require laboratory fees of $2.

Courses for Undergraduates

E.E. 11. Direct Current Apparatus and Single Phase Alternating Current Circuits.—*Prerequisite:* Physics 1a, 1b, 3a, 3b; Math. 8 or 9; registration in E.E. 61.

Credit	Section	Hours	Days	Room	Instructor
3	X1	8	MWF	305 E.H.	
	X2	8	MWF	111 E.H.	
	Q1	10	MWF	305 E.H.	
	Q2	10	MWF	111 E.H.	
	J1	11	MWF	305 E.H.	
	J2	11	MWF	105 E.H.	
	P1	1	MWF	305 E.H.	
	P2	1	MWF	109 E.H.	

E.E. 14. Commercial and Industrial Wiring and Illumination.—*Prerequisite:* Sophomore standing or equivalent.

3		9	TTS	200 E.E.A.

E.E. 25. Direct Current Apparatus.—*Prerequisite:* Math. 9; registration in E.E. 75 and Physics 44a.

4	K	1	MTWTF	111 E.H.
	L	9	MTWTF	111 E.H.
	M	11	MTWTF	111 E.H.
	N	11	MTWTF	108 P.L.

E.E. 35. Alternating Current Apparatus.—*Prerequisite:* E.E. 26 and 76; registration in E.E. 85.

4	K	8	MTWTF	109 E.H.
	L	10	MTWTF	109 E.H.
	M	11	MTWTF	109 E.H.

E.E. 51. Radio Communication Apparatus.—*Prerequisite:* E.E. 26 or consent of instructor.

3	Quiz	9	WF	305 M.T.L.
	K Lab.	2–5	Tu	311 E.E.L.
	L Lab.	2–5	W	311 E.E.L.

E.E. 54. Vacuum Tubes and Control Devices.—*Prerequisite:* E.E. 26.

3		1	MWF	105 E.H.

E.E. 55. Electrical Design.—*Prerequisite:* E.E. 26; registration in E.E. 35.

2	Lect. KLMNY	9	Th	305 E.H.
	K	2–4	TT	312 E.H.
	L	10–12	WF	312 E.H.
	M	2–4 8–10	W S	312 E.H.

E.E. 61. Direct and Alternating Current Laboratory.—*Prerequisite:* Registration in E.E. 11.

Credit	Section	Hours	Days	Room	Instructor
1	X	1–4	M	214 E.E.L.	
	Q1	9–12	Tu	200 E.E.L.	
	Q2	9–12	Tu	214 E.E.L.	
	R1	2–5	Tu	200 E.E.L.	
	R2	2–5	Tu	214 E.E.L.	
	P1	9–12	Th	214 E.E.L.	
	S1	2–5	Th	200 E.E.L.	
	S2	2–5	Th	214 E.E.L.	
	C1	1–4	F	214 E.E.L.	
	C2	1–4	F	200 E.E.L.	
	Y	9–12	S	214 E.E.L.	

E.E. 71. Electrical Engineering Problems.—*Prerequisite:* Registration or credit in E.E. 25.

1 to 3*	L	To be arranged			

E.E. 75. Electrical Engineering Laboratory.—*Prerequisite:* Registration in E.E. 25.

2	Lect. A	8	Tu	215 E.E.L.	
	Lect. B	1	Tu	215 E.E.L.	
	K	8–11	M	200 E.E.L.	
	L1	2–5	W	200 E.E.L.	
	L2	2–5	W	214 E.E.L.	
	M	8–11	Th	200 E.E.L.	
	N	9–12	F	200 E.E.L.	
	Y	1–4	F	200 E.E.L.	
	Z	9–12	S	200 E.E.L.	

E.E. 84. Vacuum Tube Laboratory.—*Prerequisite:* Registration in E.E. 54 and consent of instructor.

1	K	2–5	Tu	300 E.E.L.	
	L	2–5	Th	300 E.E.L.	

E.E. 85. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 76; registration in E.E. 35

2	Lect. KLMNYZ	9	Tu	215 E.E.L.	
	K	9–12	M	200 E.E.L.	
	L	2–5	M	200 E.E.L.	
	M	2–5	Tu	200 E.E.L.	
	N	8–11	W	200 E.E.L.	
	Y	2–5	W	200 E.E.L.	
	Z	2–5	Th	200 E.E.L.	

E.E. 90. Building Lighting.—*Prerequisite:* Junior standing.

1	K	10	Tu	200 E.E.A.	
	L	11	Tu	200 E.E.A.	
	M	1	Tu	200 E.E.A.	

E.E. 92a. Building Wiring.—*Prerequisite:* Junior standing.

1	K	11	Th	200 E.E.A.	
	L	1	Th	200 E.E.A.	

E.E. 95. Seminar.—*Prerequisite:* Senior standing in E.E.

1	K	9	M	305 E.H.	
	L	1	Tu	305 E.H.	
	M	9	W	305 E.H.	
	N	11	W	101 E.H.	
	Y	1	Th	305 E.H.	

E.E. 97. Thesis.—Arrange. (No credit).

E.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. (No credit).

Courses for Graduates

Note: Entrance on graduate work in electrical engineering presupposes the equivalent of the full undergraduate course in that subject. The undergraduate courses in electrical engineering are open for minor credit to students majoring in other departments who have the proper prerequisite.

E.E. 101. Advanced Courses in Alternating Currents.—(½ to 2 units).*

(a) **Graduate Seminar.**—(No credit). 4 F; 305 E.H. (Required of all graduate students.) Professor PAINE.
(b) **Circuit Transients.**—Arrange. Professor KNIGHT.
(c) **Symmetrical Components.**—Arrange. Assistant Professor KRAEHENBUEHL.

E.E. 102. Electric Waves, Oscillations, and Transients.—(½ to 2 units).*

(c) **Theory of Energy Radiation.**—Arrange. Assistant Professor BROWN.

E.E. 103. Electrical Design.—(1 unit).

(a) **Power Plant Design.**—Arrange. Professor PAINE.
(b) **Machine Design.**—Arrange. Professor PAINE.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

E.E. 104. Vacuum Tubes and Electronic Control.—(1 unit).

(a) **Theoretical Electronics.**—Arrange; 300 E.E.L. Assistant Professor REICH.
(b) **Vacuum Tubes and Amplifiers.**—Arrange. Assistant Professor REICH.

E.E. 105. Electrical Engineering Research.—(1 to 3 units).* Arrange. Professors PAINE, TYKOCINER, KNIGHT; Assistant Professors BROWN, REICH, KEENER, KRAEHENBUEHL.

ENGINEERING

Courses for Undergraduates

Note: Each of the following courses may be used as an approved or non-technical elective in all engineering curricula.

Eng. 10. Engineering Economics.—Evolution and growth of industry; basic industrial principles; ownership and securities; standardization; valuation and depreciation; comparisons and selections of engineering projects. *Prerequisite:* Junior standing in engineering.

Credit	Section	Hours	Days	Room	Instructor
3	A	9	MWF	115 T.B.	KING
	B	10	MWF	105 T.B.	KING
	C	2	MWF	105 T.B.	KING

Eng. 39. Industrial Relations.—History of the development of industry; the factory system; manufacturers' organizations; labor organizations; works management; trade unions; wage systems; personnel problems; labor legislation. *Prerequisite:* Junior or senior standing.

3	PQ	11	MWF	1 Wood Shop	CASBERG

Eng. 92. Engineering Law.—Contracts, evidence, torts, equity, real property, corporations, agency, sales, negotiable instruments,, water rights, patent rights, special assessments, contract letting, general conditions. *Prerequisite:* Senior standing in engineering or architecture.

3	A	9	MWF	105 E.H.	PICKELS
	B	10	MWF	105 E.H.	CRANDELL

ENGLISH

(Including Rhetoric, Speech, and Scandinavian Languages)

Major: 20 hours in English *excluding* Rhetoric 1, 2, 10, 12, 21, 22, English 10a, 10b, 20a, 20b, 41, 42, and *including* at least ten hours in English literature, at least three hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours in (a) Latin or Greek or French or German or Spanish; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history; or (e) in history and philosophy. No language courses may be regarded as satisfying the minor requirement if they are excluded from the majors of the language departments (excepting elementary courses in Greek, Latin, French 2a, and Spanish 2a). At least eight hours must be offered in each subject.

Major in Speech

Major: 10 hours in speech, inclusive of Speech 7 and 8 and either 4 or 6; and 10 hours of English, exclusive of English 10a, 10b, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, 22, and inclusive of one course in English literature from the advanced group.

Minors: 20 hours, in any one or two of the following subjects: psychology, philosophy, Greek, Latin, French, German, history, political science, economics, law, or sociology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in English 10 and Rhetoric 1-2.

A. ENGLISH LANGUAGE AND LITERATURE

Courses for Undergraduates

Engl. 10a. An Introduction to Literature.—Forms of poetry, mainly narrative. *Prerequisite:* The minimum entrance requirement in English. (Credit is not given for Engl. 10a in addition to 20a and 20b.)

Credit	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	204a L.H.	KELSO
[1]Seniors will receive only 2 hours credit.	A2	8	MWF	211 U.H.	GOLDMAN
	B1	9	MWF	113 L.H.	PARRY
	B2	9	MWF	204a L.H.	RINAKER
	B3	9	MWF	219 L.H.	SECORD
	C1	10	MWF	128 L.H.	TUPPER
	C2	10	MWF	235 L.H.	RINAKER
	C3	10	MWF	204a L.H.	RAPP
	D1	11	MWF	235 L.H.	LANDIS
	D2	11	MWF	219 L.H.	FINNEY
	E	1	MWF	120 L.H.	WEIRICK
	E2	1	MWF	148 L.H.	BUSEY
	F1	2	MWF	105 L.H.	PARRY
	G1	3	MWF	211 L.H.	BUSEY

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Engl. 10b. An Introduction to Literature.—Forms of poetry, mainly lyrical. (Credit is not given for Engl. 10b in addition to 20a and 20b.) *Prerequisite:* Engl. 10a.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8	MWF	142 L.H.	SECORD
[1]Seniors will receive	B	9	MWF	204 U.H.	TEMPLEMAN
only 2 hours credit.	C	10	MWF	340 L.H.	ZEITLIN

Engl. 12. American Literature.—*Prerequisite:* Sophomore standing, or exemption from Rhetoric 2.

2	A	9	TT	103 New Agr.	PAUL
	B	3	TT	103 New Agr.	PAUL

Engl. 20a. Chief English Writers of the Nineteenth Century.—Intended for students in professional and technical courses such as law, medicine, commerce, engineering, etc. *Prerequisite:* One year of college work. (Credit is not given for Engl. 20a in addition to Engl. 10a and 10b.)

4	A1	8	MTWT	410 U.H.	TEMPLEMAN
	A2	8	MTWT	302 U.H.	GLENN
	B1	9	MTWT	203 U.H.	
	B2	9	MTWT	148 L.H.	TUPPER
	C1	10	MTWT	311 U.H.	TRELEASE
	C2	10	MTWT	227 L.H.	KELSO
	D1	11	MTWT	233 L.H.	WEIRICK
	D2	11	MTWT	148 L.H.	GRAHAM
	E1	1	MTWT	207 U.H.	FRENCH

Engl. 21. Literary Study of the Bible.—*Prerequisite:* Six hours of English literature. (3). 11 MWF; 103 New Agr. Professor E. C. BALDWIN.

Engl. 23. Introduction to Shakespeare.—*Prerequisite:* Sophomore standing, or exemption from Rhet. 2.

3	B	9	MWF	109 L.H.	LANDIS
	F	2	MWF	109 L.H.	HILLEBRAND

Engl. 42. The Teaching of English Composition.—*Prerequisite:* Nine hours of composition. (2). 2 TT; 204 L.H. Professor PAUL.

Courses for Advanced Undergraduates and Graduates

Prerequisite: Junior standing except as otherwise specified.

Engl. 8. Old English (Anglo-Saxon).—*Prerequisite:* Ten hours of English literature, or consent of instructor. (3). 11 MWF; 206 L.H. Professor FLOM.

Engl. 25. Chaucer.—(3). 9 MWF; 123 L.H. Professor JONES.

Engl. 29. English Literature from 1557 to 1688, Exclusive of the Drama.—(3). 9 MWF; 240 L.H. Professor E. C. BALDWIN.

Engl. 33. English Literature from 1789 to 1837.—(3). 9 MWF; 204 L.H. Professor ZEITLIN.

Engl. 34. Dr. Johnson and His Circle.—(3). 2 MWF; 123 L.H. Assistant Professor RINAKER.

Engl. 35. The English Drama (Previous to Shakespeare).—(3). 11 MWF; 204a L.H. Professor T. W. BALDWIN.

Engl. 39. Introduction to the Literature of the Middle Ages.—(3). 1 MWF; 104 L.H. Professor PARRY.

Engl. 45. The Development of the Modern Drama.—(3). 3 MWF; 109 L.H. Professor HILLEBRAND.

Engl. 54a. Introduction to Comparative Literature.—Introductory and comparative survey of the greatest Greek, Latin, Italian, Spanish, French, German, and English authors.

3	Lect.	10	WF	103 New Agr.	OLDFATHER, VAN HORNE, HAMILTON
	A Disc.	10	M	211 L.H.	LANDIS
	B Disc.	10	M	308 L.H.	VAN HORNE
	C Disc.	10	M	321 L.H.	PARRY

Engl. 55a. Survey of English Literature.—*Prerequisite:* Senior standing.

3	B	9	MWF	110 L.H.	FINNEY

Engl. 56. Tennyson and His Contemporaries.—(3). 10 MWF; 303 L.H. Professor GRAHAM.

Engl. 57. Great Foreign Novelists in Relation to the English Novel.—Goethe, Hugo, Manzoni, Balzac, Dumas, Flaubert, Zola, Turgenev, Dostoevski, Tolstoi. (3). 11 MW; 105 L.H. Professor BERNBAUM.

Engl. 60a. Thesis and Honors.—(Credit to be arranged). Professor JONES, Dr. TUPPER, and others.

Courses for Graduates

Engl. 101. Research in Special Topics.—(1 to 2 units).* Professors BERNBAUM, FLOM, PAUL, ZEITLIN, E. C. BALDWIN, T. W. BALDWIN, GRAHAM, JONES, HILLEBRAND, JEFFERSON; Associate Professors PARRY, FLETCHER; Assistant Professors RINAKER, SECORD, FINNEY.

Engl. 110. Old English (Anglo-Saxon) Poetry.—(1 unit). Arrange; 209 L.H. Professor FLOM.

Engl. 128. Literature of the Sixteenth Century.—(1 unit). 10 TT; 104 L.H. Professor JONES.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Engl. 130. Tragedy.—(1 unit). 1 TT; 204a L.H. Professor HILLEBRAND.

Engl. 135. Problems in American Literature.—American essayists. (1 unit). 8 TT; 113 L.H. Professor PAUL.

Engl. 137. Prose Writers of the Nineteenth Century.—(1 unit). 11 TT; 139 L.H. Professor ZEITLIN.

Engl. 138. The Romantic Movement.—(1 unit). 2 TT; 303a L.H. Professor BERNBAUM.

Engl. 140. Investigations in Modern English Literature.—(1 to 3 units).* Three hours once a week. Arrange; 220 L.H. Professor BERNBAUM.

Engl. 141. Literature of the Seventeenth Century.—(1 unit). 3 TT; 302 L.H. Professor E. C. BALDWIN.

Engl. 143. Seminar in the History and Theory of Prose Fiction.—(1 unit). Two hours a week. Arrange; 220 L.H. Professor BERNBAUM.

Engl. 145. Literature of the Eighteenth Century.—(1 unit). 2 MW; 113 L.H. Professor GRAHAM.

Engl. 147. Shakespeare and Elizabethan Drama.—(1 unit). 10 MW; 305 L.H. Professor T. W. BALDWIN.

Engl. 149. Development of Tudor Drama.—(1 unit). Arrange; 135 L.H. Professor T. W. BALDWIN.

Engl. 157. Seminar in Spenser.—(1 unit). Arrange; 419 L.H. Professor JONES.

B. RHETORIC

Courses for Undergraduates

Rhet. 1. Rhetoric and Composition.—*Prerequisite:* The minimum entrance requirements in English.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	403 U.H.	MOOD
	A2	8	MWF	404 U.H.	GETTMANN
[1]Seniors will receive only 2 hours credit.	A3	8	MWF	312 U.H.	DAVIDSON
	A4	8	MWF	413 U.H.	
	A5	8	MWF	406 U.H.	BLAIR
	A6	8	MWF	203 U.H.	JOHNSON
[2]Special sections.	A7	8	MWF	308 L.H.	WASHBURN
	[2]A8	8	MWF	407 U.H.	MARTIN
	[2]A9	8	MWF	213 U.H.	
	[2]A10	8	MWF	113 U.H.	
	B1	9	MWF	302 U.H.	GLENN
	B2	9	MWF	318 U.H.	PETERSON
	B3	9	MWF	413 U.H.	NOBLE
	B4	9	MWF	212 U.H.	FRENCH
	B5	9	MWF	211 U.H.	TRELEASE
	B6	9	MWF	412 U.H.	JOHNSON
	[2]B7	9	MWF	407 U.H.	MOOD
	[2]B8	9	MWF	406 U.H.	
	[2]B9	9	MWF	207 U.H.	HURLEY
	C1	10	MWF	203 U.H.	GETTMANN
	C2	10	MWF	212 U.H.	DAVIDSON
	C3	10	MWF	211 U.H.	FRENCH
	C4	10	MWF	207 U.H.	KELLEY
	C5	10	MWF	404 U.H.	JEFFERSON
	C6	10	MWF	413 U.H.	BRAWNER
	[2]C7	10	MWF	109 L.H.	HARRIS
	[2]C8	10	MWF	133 L.H.	STUTZMAN
	[2]C9	10	MWF	302 U.H.	NOBLE
	D1	11	MWF	311 U.H.	HARRIS
	D2	11	MWF	106 L.H.	SECORD
	D3	11	MWF	413 U.H.	GOLDMAN
	D4	11	MWF	139 L.H.	STUTZMAN
	D5	11	MWF	207 U.H.	RAPP
	D6	11	MWF	411 U.H.	PETERSON
	[2]D7	11	MWF	406 U.H.	FISHER
	[2]D8	11	MWF	212 U.H.	TEMPLEMAN
	[2]D9	11	MWF	204 U.H.	GETTMANN
	E1	1	MWF	213 U.H.	SANDIN
	E2	1	MWF	106 U.H.	HAMILTON
	E3	1	MWF	208 U.H.	BLOOM
	E4	1	MWF	302 U.H.	KELLEY
	E5	1	MWF	407 U.H.	OSENBURG
	E6	1	MWF	310 U.H.	
	[2]E7	1	MWF	406 U.H.	TRIMBLE
	[2]E8	1	MWF	203 U.H.	DOLK
	[2]E9	1	MWF	211 U.H.	
	F1	2	MWF	204 U.H.	ROBERTS
	F2	2	MWF	213 U.H.	TRIMBLE
	F3	2	MWF	203 U.H.	DOLK
	F4	2	MWF	207 U.H.	
	F5	2	MWF	404 U.H.	SANDIN

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Rhet. 1. Rhetoric and Composition (concluded)

Credit	Section	Hours	Days	Room	Instructor
3[1]	[2]F6	2	MWF	318 U.H.	Bloom
	[2]F7	2	MWF	302 U.H.	Wheeler
	[2]F8	2	MWF	211 U.H.	
[1]Seniors will receive	G1	3	MWF	406 U.H.	Sweney
only 2 hours credit.	G2	3	MWF	311 U.H.	Wheeler
	G3	3	MWF	208 U.H.	
[2]Special sections.	G4	3	MWF	212 U.H.	Haskell
	[2]G5	3	MWF	404 U.H.	Sandin
	[2]G6	3	MWF	211 U.H.	Osenburg
	H1	4	MWF	204 U.H.	Bloom
	H2	4	MWF	404 U.H.	Wheeler
	[2]H3	4	MWF	311 U.H.	Riebel
	K1	8	TTS	204 U.H.	Lowry
	K2	8	TTS	315 U.H.	Owen
	L1	9	TTS	311 U.H.	
	L2	9	TTS	302 U.H.	
	[2]L3	9	TTS	211 U.H.	
	M1	10	TTS	413 U.H.	Orlovich
	M2	10	TTS	212 U.H.	Shattuck
	N1	11	TTS	207 U.H.	
	N2	11	TTS	212 U.H.	

Rhet. 2. Rhetoric and Composition.—Frequent individual conferences, to be arranged. *Prerequisite:* Rhet. 1.

3[1]	A1	8	MWF	207 U.H.	
	A2	8	MWF	315 U.H.	Harris
[1]Seniors will receive	A3	8	MWF	310 U.H.	Peterson
only 2 hours credit.	A4	8	MWF	204 U.H.	
	B1	9	MWF	411 U.H.	Kelley
	B2	9	MWF	106 U.H.	Martin
	B3	9	MWF	107 U.H.	
	C1	10	MWF	412 U.H.	Blair
	C2	10	MWF	403 U.H.	Hurley
	D1	11	MWF	106 U.H.	Davidson
	D2	11	MWF	203 U.H.	Brawner
	E1	1	MWF	312 U.H.	Haskell
	E2	1	MWF	204 U.H.	Roberts
	F	2	MWF	202 U.H.	Hamilton
	G	3	MWF	204 U.H.	Roberts
	K	8	TTS	207 U.H.	Orlovich
	M	10	TTS	404 U.H.	Owen

Rhet. 3. Exposition.—Individual conferences, to be arranged. *Prerequisite:* Rhet. 1 and 2 and sophomore standing.

3	B	9	MWF	104 L.H.	Goldman
	D	11	MWF	104 L.H.	Kelso
	G	3	MWF	104 L.H.	Landis

Rhet. 4. Narration and Description.—Elements of narrative writing. Individual conferences, to be arranged. (Not a course in short-story writing.) *Prerequisite:* Rhet. 1 and 2 and sophomore standing.

3	B	9	MWF	308 L.H.	Rapp
	C	10	MWF	232 L.H.	Finney
	D	11	MWF	302 U.H.	Trelease
	F	2	MWF	232 L.H.	Busey

Rhet. 6. Advanced Narrative Composition.—*Prerequisite:* Two years of college work and consent of instructor. (3). 3 MWF; 204a L.H. Associate Professor Weirick.

Rhet. 8 (formerly 17). Advanced Composition.—Criticism, theory, and practice. *Prerequisite:* Junior standing. (3). 11 MWF; 211 L.H. Dr. Tupper.

Rhet. 10. Business Letter Writing.—*Prerequisite:* Rhet. 1 and 2.

2	B1 (Com.)	9	MW	306 Com.	Coleman
	B2 (Com.)	9	MW	305 Com.	Anderson
	B3 (Com.)	9	TT	306 Com.	Coleman
	C1 (Com.)	10	MW	123 Com.	Anderson
	C2 (Com.)	10	TT	305 Com.	Saunders
	C3 (Com.)	10	TT	122 Com.	Lang
	C4 (LAS, Agr., Ed.)	10	TT	123 L.H.	Coleman
	D1 (Eng.)	11	MW	104 P.L.	Coleman
	D2 (Com.)	11	TT	123 Com.	Anderson
	D3 (Com.)	11	TT	101 Com.	Lang
	E1 (Com.)	1	MW	305 Com.	Saunders
	E2 (LAS, Agr., Ed.)	1	TT	123 L.H.	
	F1 (Com.)	2	MW	305 Com.	Saunders
	F2 (Eng.)	2	TT	109 E.H.	Lang

Rhet. 21. Advanced Business Writing.—Sales letter campaigns and advertising copy. *Prerequisite:* Grade of "A" or "B" in Rhet. 10. (2). 11 TT; 305 Com. Associate Professor SAUNDERS.

Rhet. 22. Special Types of Business Writing.—Business magazine articles and business reports. *Prerequisite:* Rhet. 10. (2). 10 TT; 123 Com. Assistant Professor ANDERSON.

C. SPEECH

Courses for Undergraduates

Speech 1. Principles of Effective Speaking.—*Prerequisite:* Rhet. 2.

Credit	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	136 L.H.	SWANSON
	A2	8	MWF	202 Entom.	JUDSON
	B1	9	MWF	136 L.H.	NELSON
	B2	9	MWF	202 Entom.	JUDSON
	C1	10	MWF	136 L.H.	NELSON
	C2	10	MWF	202 Entom.	HADLEY
	D1	11	MWF	136 L.H.	HENDERSON
	D2	11	MWF	202 Entom.	HADLEY
	E1	1	MWF	136 L.H.	SIEDENBURG
	E2	1	MWF	202 Entom.	HUSTON
	F1	2	MWF	136 L.H.	SIEDENBURG
	F2	2	MWF	202 Entom.	HENDERSON
	G	3	MWF	136 L.H.	HENDERSON

Speech 2. Business and Professional Speaking.—*Prerequisite:* Speech 1.

2	B	9	TT	142 L.H.	HUSTON
	C	10	TT	142 L.H.	SIEDENBURG
	E	1	TT	142 L.H.	JUDSON

Speech 3. Elements of Debating.—*Prerequisite:* Speech 1.

3	B	9	MWF	142 L.H.	SIEDENBURG
	F	2	MWF	142 L.H.	HUSTON

Speech 10. Oral Interpretation of Literature.—*Prerequisite:* Speech 1.

2	C	10	TT	136 L.H.	HADLEY
	E	1	TT	136 L.H.	HENDERSON
	F	2	TT	136 L.H.	NELSON

Courses for Advanced Undergraduates

Speech 4. Advanced Debating.—*Prerequisite:* Speech 3; junior standing. (3). 10 MWF; 142 L.H. Mr. HUSTON.

Speech 6. Persuasion and the Forms of Public Address.—*Prerequisite:* Speech 2 or 3; junior standing. (3). 11 MWF; 142 L.H. Assistant Professor JUDSON.

Speech 8. Dramatization.—*Prerequisite:* Speech 10; junior standing. (3). 1 MWF; L.H. Theatre. Mr. SWANSON.

Speech 9. The Acting of Shakespearean Plays.—*Prerequisite:* Speech 10; junior standing. (2). 1 TT; L.H. Theatre. Miss NELSON.

Speech 11. Play Production.—*Prerequisite:* Speech 8; junior standing. (3). 2 MWF; L.H. Theatre. (Laboratory fee, $5.) Mr. SWANSON.

D. SCANDINAVIAN LANGUAGES AND LITERATURE

Courses for Undergraduates

Scand. 12. Norse Mythology.—Lectures. *Prerequisite:* Junior standing. (2). 9 TT; 211 L.H. Professor FLOM.

Scand. 22a. Elementary Swedish.—Grammar; conversation; reading. (3). 1 MWF; 211 L.H. Dr. JOHNSON.

Scand. 4. Intermediate Swedish.—*Prerequisite:* Scand. 22 or an equivalent knowledge of the language. (3). Arrange; 201 U.H. Dr. JOHNSON.

Courses for Graduates

Scand. 101. Old Norse (Old Icelandic).—(1 unit). Arrange; 209 L.H. Professor FLOM.

Scand. 150. Research.—Thesis. Conferences. (1 to 2 units).* Arrange; 209 L.H. Professor FLOM.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

ENTOMOLOGY

Note: Certain courses in this department require laboratory fees varying from $1.50 to $5.00.

Major: 20 hours exclusive of Entomology 1, 2, 31. At least five hours must be offered from the advanced group.

Minors: 20 hours in not more than two of the following, with not less than eight hours in either department, if two subjects are chosen: zoology, botany, chemistry, physiology, horticulture, and agronomy.

Entomology 1 is open to freshmen, and 2 and 31 to sophomores, without prerequisites. Either 1, or both 2 and 9, are prerequisite to all other courses in the department. Recommended sequences of courses are 1, 8, 20, and 31, for those desiring strictly practical or economic work; 2, 9, and 21 for those interested in the cultural or biological values of insect study. Students majoring in entomology should include some work in classification, morphology, and control and should plan all of their work with the advice of the department. Seniors receive reduced credit in Entomology 1.

Courses for Undergraduates

Entom. 1. Destructive and Useful Insects.—Two discussion periods and four hours laboratory a week.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8–10	MWF	309 Entom.	HAYES, MILUM, and HEISS
[1]Seniors will receive only 2 hours credit.	B	10–12	MWF	309 Entom.	METCALF, MILUM, and FAY
	C	1–3	MWF	309 Entom.	METCALF, MILUM, and MCCLURE

Entom. 2. Insects: Their Ways and Their Relations to Man.—A non-technical, cultural course of illustrated lectures with exhibits. *Prerequisite:* Sophomore standing. (Not open to students who have taken Entom. 1.)

2	A	11	TT	202 Entom.	BALDUF
	B	2	TT	202 Entom.	

Entom. 9. Collection and Classification of Insects.—*Prerequisite:* Entom. 1 or 2 or concurrent registration in 1 or 2. (3). Discussion, 2 W; field and laboratory work, 1-3 MF; 310 Entom. Assistant Professor BALDUF.

Entom. 22. Methods and Technic for the Study of Insects.—*Prerequisite:* Entom. 1 and sophomore standing. (3). 8-11 TT; 312 Entom. Associate Professor HAYES.

Entom. 31. Essentials of Beekeeping.—*Prerequisite:* Sophomore standing. (1 or 2).* Lect., 4 Tu; for 2 hours credit include lab., 3-5 Th; 104 Exp. Zool. Lab. Assistant Professor MILUM.

Courses for Advanced Undergraduates and Graduates

Entom. 6. Special Problems.—*Prerequisite:* Any of the following: Entom. 3, 7, 8, 10, 20, 21, 22, or 31; and senior standing. (2 to 5).* Saturday morning; additional hours to be arranged. Members of the department.

Entom. 10a. Morphology of Immature Insects.—*Prerequisite:* Entom. 7 and senior standing. (3). 10-12 MWF; 312 Entom. Associate Professor HAYES.

Entom. 20. Insect Control.—*Prerequisite:* Entom. 1 or 9 and senior standing. (4). 2-5 TT; 109 Entom. Professor METCALF.

Course for Graduates

Note: The prerequisite for graduate work in entomology is two years of undergraduate biology, including zoology and entomology.

Entom. 100. Research.—(½ to 4 units).* Arrange:

(a) **Morphology and Embryology of Insects.**—Associate Professor HAYES.
(b) **Economic Entomology.**—Professor METCALF.
(c) **Systematic Entomology.**—Professor METCALF, Assistant Professor BALDUF.
(d) **Biology and Ecology of Insects.**—Professor METCALF.

GENERAL ENGINEERING DRAWING

Note: All courses in this department require laboratory fees of $1.50.

Courses for Undergraduates

G.E.D. 1. Elements of Drawing.—*Prerequisite:* Plane geometry.

Credit	Section	Hours	Days	Room	Instructor
4	A	8–11	MF	To be assigned at registration	
		8–10	W		
	B	1–4	MF		
		1–3	W		
	C	8–11	TT		
		8–10	S		
	D	1–4	TT		
		10–12	S		

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

G.E.D. 2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry.

Credit	Section	Hours	Days	Room	Instructor
4	B	1–4	MF	201 T.B.	
		1–3	W		
	C	8–11	TT	204 T.B.	
		8–10	S		
	D	1–4	TT	105 T.B.	
		10–12	S		

G.E.D. 4. Advanced Drawing.—*Prerequisite:* At least three years of drawing in high school, or the equivalent in commercial practice, to be determined by the department at registration time.

4	A	8–11	MF	303 T.B.
		8–10	W	303 T.B.
	B	1–4	MF	303 T.B.
		1–3	W	303 T.B.

G.E.D. 6. Elements of Drawing.—*Prerequisite:* Plane geometry. (For students in chemical engineering.)

3	C	8–11	TT	316 T.B.
	D	1–4	TT	316 T.B.

G.E.D. 7. Architectural Projections.—*Prerequisite:* Plane and solid geometry.

2	A	8–11	MF	103 T.B.
	B	2–5	MF	103 T.B.
	C	8–11	TT	103 T.B.

G.E.D. 10. Pictorial Drawing.—*Prerequisite:* G.E.D. 2. (Required of students in the City Planning Option in Civil Engineering; and "approved elective" in all other curricula of the College of Engineering.)

4 or 3[1]	C	8–11	TT	316 T.B.	LENDRUM
		8–10	S		

[1]For "approved elective" group who will omit 8-10 S hours in registering.

GEOLOGY AND GEOGRAPHY

Note: Certain courses in this department require laboratory fees varying from $1.00 to $2.50.

A. GEOLOGY

Major: 20 hours in geology, exclusive of Geol. 1, 1a, 43, and 44, and inclusive of at least five hours of courses not open to freshmen or sophomores.

Minors: 20 hours chosen from one or two of the following subjects: astronomy, botany, chemistry, economics, geography, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology. At least eight hours must be offered in each subject, if two are chosen.

Note: Certain geology courses are offered only in alternate years: 4, 15, 16, 17, 24, 38, 95, 96, 122, 125, 142, 143, 151, 160, 161, 163.

Students desiring training which leads to executive positions with companies engaged in the development of various mineral industries should select appropriate courses in geology after consulting the head of the department, and also: Accountancy 1a, 1b; Economics 2, 3, and 35; B.O.O. 11; and Business Law 1a, 1b. A minimum of one year's work after graduation should be included in the student's program if possible.

Courses for Undergraduates

Geol. 1. General Geology.—Cultural course. Lectures; one or two field trips.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8	MWF	228 N.H.	SHEPARD
[1]Seniors receive only 2 hours credit; students who have credit for Geog. 1 receive only 1 hour credit for Geol. 1.	B	10	MWF	247 N.H.	QUIRKE
	C	2	MWF	247 N.H.	DEWOLF

Geol. 1a. General Geology Laboratory.—*Prerequisite:* Geol. 1 or concurrent registration in it. (Not open to students who received credit for Geol. 1 prior to September, 1932.)

2	Lab. 1	8–10	TT	251 N.H.	WANLESS
	Lab. 2	10–12	TT	251 N.H.	DEWOLF
	Lab. 3	1–3	TT	251 N.H.	SHEPARD
	Lab. 4	3–5	TT	251 N.H.	GRUBB
	Lab. 5	1–3	MF	251 N.H.	COHEE

Geol. 2a. Historical Geology.—*Prerequisite:* Geol. 1.

4[1]	10	TWTF	241 N.H	SUTTON

[1]Seniors receive only 3 hours credit.

Geol. 20. General Mineralogy.—*Prerequisite:* One semester of chemistry. (3). 10-12 TTS; 147 N.H. Professor QUIRKE.

Geol. 43. Engineering Geology.—*Prerequisite:* Sophomore standing in the College of Engineering. (3). Lect. and quiz, 9 MWF; 241 N.H. Lab., 10-12 F; 251 N.H. Associate Professor HOWARD.

Geol. 44. Agricultural Geology.—*Prerequisite:* Sophomore standing in the College of Agriculture.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	1	MW	247 N.H.	WANLESS
	A Quiz	10	Tu	247 N.H.	
	B Quiz	1	F	247 N.H.	
	Lab. 1	3–5	Th	147 N.H.	
	Lab. 2	10–12	F	147 N.H.	

Courses for Advanced Undergraduates and Graduates

Geol. 9. Invertebrate Paleontology.—*Prerequisite:* Geol. 2a and junior standing. (3). 8 MWF; 236 N.H. Laboratory hours to be arranged. Assistant Professor SUTTON.

Geol. 15. Structural Geology.—Discussion and one two-day field trip. *Prerequisite:* Geol. 2a and junior standing. (3). 10 MWF; 134 N.H. Associate Professor SHEPARD.

Geol. 38. Regional Geology of the United States.—*Prerequisite:* Geol. 2a. (3). 1 MWF; 134 N.H. Associate Professor HOWARD.

Geol. 60a. Introduction to Research.—Limited to seniors majoring in geology. (2). Members of the department.

Geol. 95. Economic Geology.—*Prerequisite:* Geol. 2a, or 43, and 20 or 48 or 49. (3). 9 MWF; 150 N.H. Professor DEWOLF.

Courses for Graduates

Geol. 102. Igneous Petrography.—(1 unit). Twice a week. Arrange; 253 N.H. Professor QUIRKE.

Geol. 134. Advanced Studies in Geology.—(½ to 2 units).* Arrange. Members of the department.

Geol. 135. Research.—(½ to 4 units).* Once a week. Arrange. Members of the department.

Geol. 142. Stratigraphic Paleontology: Paleozoic.—(1 unit). Arrange; 236 N.H. Assistant Professor SUTTON.

Geol. 152. Advanced Historical Geology.—(1 unit). Arrange; 150 N.H. Assistant Professor SUTTON.

Geol. 163. Geologic Development of the Continents.—(1 unit). Three times a week. Arrange Associate Professor HOWARD.

B. GEOGRAPHY

Major: 20 hours of courses in geography, exclusive of Geography 1, and including at least five hours of courses not open to freshmen.

Minors: 20 hours chosen from one or two of the following subjects: botany, economics, education, geology, history, and zoology. At least eight hours must be offered in each subject, if two are chosen.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, or 10 or 11, or 12 or 8 or 53.

Note: Certain geography courses are offered only in alternate years: 6, 9, 10, 14a.

Courses for Undergraduates

Geog. 1. Elements of Geography.—Lectures and discussions.

Credit	Section	Hours	Days	Room	Instructor
5[1]	A1	8	MTWTF	247 N.H.	PAGE
[1]Seniors receive only 4 hours credit; students who have credit for Geol. 1 receive only 3 credits for Geog. 1.	A2	8	MTWTF	422 N.H.	BURGY
	B1	9	MTWTF	247 N.H.	PAGE
	B2	9	MTWTF	422 N.H.	RANDALL
	C1	10	MTWTF	422 N.H.	BURGY
	C2	10	MTWTF	435 N.H.	RANDALL
	D	11	MTWTF	422 N.H.	COZZENS
	E1	1	MTWTF	422 N.H.	RANDALL
	E2	1	MTWTF	435 N.H.	COZZENS
	F	2	MTWTF	422 N.H.	COZZENS

Geog. 2. Economic Geography.—*Prerequisite:* Geog. 1. Lectures and discussion.

5[1]	A	8	MTWTF	434 N.H.	BLANCHARD
[1]Seniors will receive only 4 hours credit.	B	9	MTWTF	434 N.H.	POGGI
	C	11	MTWTF	434 N.H.	POGGI

Geog. 4a. Geography of Eastern North America.—*Prerequisite:* Geog. 2. (3). 2 MWF; 435 N.H. Assistant Professor BURGY.

Geog. 14. Weather and Climate.—*Prerequisite:* Geog. 1. (3). 11 MWF; 435 N.H. Assistant Professor PAGE.

Geog. 16. Geography of Illinois.—*Prerequisite:* Geog. 1. (2). 2 TT; 435 N.H. Dr. POGGI.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Geog. 8. Geography of Europe.—*Prerequisite:* Geog. 2 and senior standing. (3). 1 MWF; 434 N.H. Professor BLANCHARD.

Geog. 53a. Production of the Great World Staples.—*Prerequisite:* Geog. 2, one regional course, and senior standing. (3). 10 MWF; 434 N.H. Professor BLANCHARD.

Geog. 60a. Introduction to Research.—Limited to seniors majoring in geography. (2). Arrange. Members of the department.

Courses for Graduates

Geog. 134. Advanced Studies in Geography.—(½ to 2 units).* Arrange. Members of the department.

Geog. 135. Research.—(½ to 4 units).* Arrange. Members of the department.

GERMAN

Major: 20 hours in German, excluding courses 1 and 2, and including six hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list, with not less than eight hours in each subject: Education, English (excluding Rhetoric 1 and 2), French (excluding French 1a), Greek, History, Italian, Latin, Philosophy, Spanish (excluding 1a).

Elementary and Intermediate Courses

German 1. Elementary Course.—

Credit	Section	Hours	Days	Room	Instructor
4[1]	A1	8	MTWT	224 L.H.	ITTNER
[1]Seniors will receive only 3 hours credit.	A2	8	MTWT	238 L.H.	PLANITZ
	A3	8	MTWT	206 L.H.	ROBINSON
	A4	8	MTWT	340 L.H.	PALMER
	B1	9	MTWT	302 L.H.	BROOKS
	B2	9	MTWT	307 Adm.(E)	FEHLAU
	C1	10	MTWT	302 L.H.	ROBERTSON
	C2	10	MTWT	233 L.H.	KOLLER
	D1	11	MTWT	302 L.H.	ROBERTSON
	D2	11	MTWT	303a L.H.	MCQUOWN
	E1	1	MTWT	224 L.H.	ROBINSON
	E2	1	MTWT	233 L.H.	PLANITZ
	F1	2	MTWT	300 L.H.	JEHLE
	F2	2	MTWT	238 L.H.	SCHERER
	G	3	MTWT	206 L.H.	PALMER
	H1	4	MTWT	206 L.H.	VON WESTEN
	H2	4	MTWT	224 L.H.	STUBING

German 2. Elementary Course (continued).—*Prerequisite:* German 1 or one year of high school German.

4[1]	A	8	MTWT	233 L.H.	FEHLAU
	B	9	MTWT	227 L.H.	KRAUSS
[1]Seniors will receive only 3 hours credit.	C	11	MTWT	310 U.H.	JEHLE
	D	1	MTWT	206 L.H.	DUNNINGTON
	E	3	MTWT	224 L.H.	SCHERER

German 4. Intermediate Course.—*Prerequisite:* German 2, or two years of high school German, or equivalent.

4	A1	8	MTWT	232 L.H.	GEISSENDOERFER
	A2	8	MTWT	219 L.H.	ITTNER
	B1	9	MTWT	105 L.H.	JEHLE
	B2	9	MTWT	305 L.H.	DUNNINGTON
	C	10	MTWT	202 L.H.	ROBINSON
	D	11	MTWT	202 L.H.	SCHERER
	E	1	MTWT	105 L.H.	STUBING
	F	2	MTWT	204a L.H.	VON WESTEN
	G	4	MTWT	204a L.H.	KOLLER

German 5. Intermediate Course (continued).—Literary reading. *Prerequisite:* German 4, or three years of high school German, or equivalent.

4	A	8	MTWT	114 L.H.	KRAUSS
	B	9	MTWT	311 L.H.	GEISSENDOERFER
	C	3	MTWT	105 L.H.	KOLLER

Courses for Advanced Undergraduates

German 14. Introductory Schiller Course.—*Prerequisite:* German 5 or equivalent. (3). 11 MWF; 123 L.H. Professor ARON.

German 16a. Conversation and Writing.—*Prerequisite:* German 5 or equivalent. (2). 2 TT; 219 L.H. Assistant Professor KOLLER.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

German 24a. Nineteenth Century Drama.—*Prerequisite:* German 5 or equivalent. (2). 3 TT; 204a L.H. Assistant Professor GEISSENDOERFER.

German 28a. Lyrics and Ballads.—*Prerequisite:* German 5 or equivalent, and sophomore standing. (2). 9 TT; 204a L.H. Professor WILLIAMS.

German 29a. Advanced Conversation and Writing.—*Prerequisite:* German 16b or equivalent. (2). 2 TT; 211 L.H. Assistant Professor GEISSENDOERFER.

German 30a. Senior Thesis and Honors Course.—*Prerequisite:* Senior standing; three years of college German or equivalent. (2). Arrange. Professor ARON and others.

Courses for Advanced Undergraduates and Graduates

German 19a. Goethe's Faust I.—*Prerequisite:* Three years of college German or equivalent. (2). 11 TT; 425 Lib. Professor BROOKS.

German 26a. German Literature to 1800.—*Prerequisite:* Three years of college German or equivalent. (3). 9 MWF; 233 L.H. Professor ARON.

German 31. Middle High German.—*Prerequisite:* Senior or graduate standing; three years of college German or equivalent. (2). Arrange. Professor WILLIAMS.

German 54. Introduction to Comparative Literature.—See English 54.

Courses for Graduates

German 101. Seminar in Goethe and Schiller.—(1 unit). Twice a week. Arrange. Professor ARON.

German 102. Thesis.—(½ to 2 units).* Arrange. Professors ARON, BROOKS, WILLIAMS; Assistant Professor GEISSENDOERFER.

German 104. Gothic.—(1 unit). Twice a week. Arrange. Professor WILLIAMS.

German 113. German Literature of the Fifteenth and Sixteenth Centuries.—(1 unit). Twice a week. Arrange. Professor BROOKS.

HISTORY

Major: 20 hours, including (a) ten hours in courses having junior standing as a prerequisite, and (b) any other courses offered by the department (except courses taken in the freshman year).

Minors: 20 hours selected from one or two of the following subjects: economics, political science, geography, philosophy, law, sociology, and English and American literature (except such courses as are taken in the freshman year). Courses in one modern language (except such as are primarily designed for freshmen) will be accepted as one of two minor subjects.

Note: Seniors receive reduced credit in History 1 and 2.

Courses for Undergraduates

Hist. 1a. Continental European History.—

Credit	Section	Hours	Days	Room	Instructor
4[1]	[2]Lect. 1	10	TT	Morrow Hall	JONES
	A Disc.	11	TT	335 L.H.	SHAY
[1]Seniors will receive only 3 hours credit.	B Disc.	8	WF	334 L.H.	BONE
	C Disc.	9	WF	321 L.H.	BONE
	D Disc.	10	WF	211 L.H.	JONES
[2]Students in Lecture 1 must elect a discussion in the A-I group. Students in Lecture 2 must elect a discussion in the J-P group.	E Disc.	10	WF	308 L.H.	KING
	F Disc.	10	WF	335 L.H.	SHAY
	G Disc.	10	WF	321 L.H.	BONE
	H Disc.	10	WF	303a L.H.	
	I Disc.	1	WF	305 L.H.	SHAY
	[2]Lect. 2	2	MW	228 N.H.	RONALDS
	J Disc.	10	TT	329 L.H.	RONALDS
	K Disc.	11	TT	321 L.H.	RONALDS
	L Disc.	1	TT	305 L.H.	RONALDS
	M Disc.	2	TT	335 L.H.	SHAY
	N Disc.	2	TT	321 L.H.	KRENKEL
	O Disc.	2	TT	306 L.H.	KING
	P Disc.	2	TT	302 L.H.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hist. 2a. English History.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect. 1	11	M	L.H. Theatre	DIETZ
	Lect. 2	2	M	Morrow Hall	DIETZ
[1]Seniors will receive only 2 hours credit.	A Disc.	10	TT	321 L.H.	DIETZ
	B Disc.	11	WF	321 L.H.	SHAY
	C Disc.	11	WF	329 L.H.	CALDWELL
	D Disc.	11	WF	224 L.H.	LARSON
	E Disc.	11	WF	335 L.H.	CLAUSSEN
	F Disc.	11	WF	238 L.H.	
	G Disc.	1	WF	303a L.H.	ERICKSON
	H Disc.	2	WF	335 L.H.	ERICKSON
	I Disc.	2	WF	311 L.H.	
	J Disc.	2	WF	329 L.H.	SHAY
	K Disc.	2	TT	224 L.H.	ERICKSON
	L Disc.	2	TT	308 L.H.	
	M Disc.	3	TT	305 L.H.	

Hist. 3a. History of the United States to 1828.—*Prerequisite:* One year of college work.

3	[1]Lect. 1	8	MF	218 U.H.	WERNER
	A Disc.	8	Tu	305 L.H.	WERNER
[1]Students in Lecture 1 must elect a discussion in the A-E group. Students in Lecture 2 must elect a discussion in the F-I group. Students in Lecture 3 must elect a discussion in the J-N group.	B Disc.	8	W	305 L.H.	WERNER
	C Disc.	8	W	311 L.H.	KRENKEL
	D Disc.	8	W	303a L.H.	CALDWELL
	E Disc.	8	Th	305 L.H.	WERNER
	[1]Lect. 2	11	MF	Morrow Hall	DUNBAR
	F Disc.	11	Tu	305 L.H.	DUNBAR
	G Disc.	11	W	311 L.H.	DUNBAR
	H Disc.	11	W	300 L.H.	KING
	I Disc.	11	Th	300 L.H.	DUNBAR
	[1]Lect. 3	2	MF	218 U.H.	HANSEN
	J Disc.	2	Tu	235 L.H.	HANSEN
	K Disc.	2	W	321 L.H.	HANSEN
	L Disc.	2	W	304 L.H.	KING
	M Disc.	2	W	308 L.H.	LARSON
	N Disc.	2	Th	311 L.H.	HANSEN

Hist. 5a. The Ancient World.—*Prerequisite:* Sophomore standing.

3	Lect.	2	MF	303 L.H.	SWAIN
	A Disc.	2	Tu	240 L.H.	BONE
	B Disc.	2	W	240 L.H.	BONE
	C Disc.	2	W	211 L.H.	SWAIN
	D Disc.	2	Th	240 L.H.	BONE

Hist. 14. The American Colonies in the Seventeenth Century.—*Prerequisite:* Junior standing. (3). 11 MWF; 305 L.H. Assistant Professor WERNER.

Hist. 18. The Teaching of History.—*Prerequisite:* One year of college history and senior standing. (2). 3 TT; 303 L.H. Assistant Professor WERNER.

Hist. 23a. The Puritan Revolution in England and America, 1603-1542.—*Prerequisite:* Junior standing and one year of college history or political science. (2). 11 TT; 410 U.H. Professor PEASE.

Hist. 30. The Near East in Modern Times.—*Prerequisite:* One year of college history. (2). 8 TT 329 L.H. Professor LYBYER.

Hist. 34a. Development of Modern Europe: Absolutism and Colonial Expansion, 1648-1789.—*Prerequisite:* Junior standing and one year of college history. (3). 11 MWF; 109 L.H. Dr. ERICKSON.

Hist. 40. History of the British Empire.—*Prerequisite:* One year of college history. (2). 1 TT; 204 L.H. Dr. ERICKSON.

Hist. 41. The Middle Ages: Formation and the Development of the European States.—*Prerequisite:* Sophomore standing. (3). 2 MWF; 302 L.H. Professor LARSON.

Hist. 45a. History of England in the Later Seventeenth and the Eighteenth Century (1688-1760).—*Prerequisite:* Junior standing and one year of college history. (2). 2 TT; 303 L.H. Assistant Professor RONALDS.

Hist. 51a. Hebrew History: Origins to 586 B.C.—*Prerequisite:* Junior standing. (2). 2 TT; 305 L.H. Associate Professor SWAIN.

Hist. 90a. Thesis: Special Training in Historical Investigation.—*Prerequisite:* Senior standing. (2 to 4).* Arrange. Professor LYBYER.

Hist. 91a. Honors Course: Readings in Selected Fields in Consultation with the Instructor.—*Prerequisite:* Senior standing. (2 to 4).* Arrange. Professor LYBYER.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

(Open to seniors and juniors)

Hist. 16a. The Foundations of American Society: The Colonies in the Eighteenth Century (to 1763).—*Prerequisite:* One year of college history. (3). 10 MWF; 311 L.H. Assistant Professor DUNBAR.

Hist. 17a. Social and Economic Forces in the Nineteenth Century (to 1860).—*Prerequisite:* History 3b. (3). 9 MWF; 303 L.H. Professor HANSEN.

Hist. 19a. The History of American Immigration to the Civil War.—*Prerequisite:* History 3a-3b. (2). 9 TT; 204 L.H. Professor HANSEN.

Hist. 20a. The Old South.—*Prerequisite:* One year of college history. (2). 8 TT; 335 L.H. Professor RANDALL.

Hist. 21. The Recent History of the United States (1877-1934).—*Prerequisite:* History 3b. (3). 9 TT; 303 L.H. Professor ROBERTSON.

Hist. 22a. History of the West, 1634-1774.—*Prerequisite:* One year of college history. (2). 10 TT; 410 U.H. Professor PEASE.

Hist. 25. The Civil War and Reconstruction.—*Prerequisite:* History 3b. (3). 11 MWF; 204 L.H. Professor RANDALL.

Hist. 26. History of the Latin American Colonies.—*Prerequisite:* One year of college history. (3). 2 MWF; 305 L.H. Professor ROBERTSON.

Hist. 32a. Recent European History (1878-1914).—*Prerequisite:* One year of college history, economics, or political science. (3). 8 MWF; L.H. Theatre. Professor LYBYER.

Hist. 39a. Europe in the Renaissance (to 1500).—*Prerequisite:* One year of college history. (3). 9 MWF; 329 L.H. Professor JONES.

Hist. 44a. The Constitutional History of England.—*Prerequisite:* One year of college history or political science. (3). 3 MWF; 303 L.H. Professor LARSON.

Hist. 47a. History of England in the Later Middle Ages (1377-1485).—*Prerequisite:* One year of college history or economics. (3). 9 MWF; 335 L.H. Professor DIETZ.

Hist. 55. History of the Ancient Greek States.—*Prerequisite:* One year of college history. (3). 1 MWF; 202 L.H. Professor OLDFATHER.

Hist. 57a. Ancient Imperialism: Alexander the Great and His Successors.—*Prerequisite:* One year of college history. (3). 11 MWF; 128 L.H. Associate Professor SWAIN.

Hist. 62a. Political and Constitutional Development of the United States (to 1809).—*Prerequisite:* One year of college history or political science. (3). 10 MWF; 329 L.H. Professor RANDALL.

Courses for Graduates

Hist. 101a. Seminar in American History: Introduction to Research.—(1 unit). 4-6 Tu. Professor ROBERTSON.

Hist. 102a. Seminar in English History.—(1 unit). 4-6 Th. Professor DIETZ.

Hist. 103. Studies in Historical Method.—(1 unit). 3 TT. Professor RANDALL.

Hist. 104a. Seminar in European History.—(1 unit). 4-6 W. Professor LYBYER.

Hist. 105. Research in Special Topics (Thesis Course).—(1 to 2 units).* Professors LARSON, LYBYER, ROBERTSON, PEASE, JONES, RANDALL, HANSEN, DIETZ; Associate Professor SWAIN; Assistant Professors DUNBAR, RONALDS, WERNER.

Hist. 106a. Seminar in the History of the Later Middle Ages.—(1 unit). Arrange. Professor LARSON.

Hist. 122b. The Westward Movement, 1755-1761.—(1 unit). Two hours. 4 MTh. Professor PEASE.

Hist. 126. Spain in Europe and America, 1750-1870.—(1 unit). Arrange. Professor ROBERTSON.

Hist. 138a. History of France in the First Half of the Sixteenth Century, 1515-1547.—(1 unit). Arrange. Professor JONES.

Hist. 150a. Seminar in Ancient History.—(1 unit). 3-5 M. Associate Professor SWAIN.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

HOME ECONOMICS

Note: Certain courses in this department require laboratory fees varying from $1 to $16.

College of Agriculture

For Curriculum in General Home Economics, see "Directions for Registration," page 51.
For Curriculum in Nutrition and Dietetics, see "Directions for Registration," page 53.

College of Education

For Curriculum in Home Economics Education, see "Directions for Registration," page 56.
For Curriculum in Home Economics Education—Smith-Hughes, see "Directions for Registration," page 56.

College of Liberal Arts and Sciences

Major A.—General Home Economics: 20 hours from courses offered by the department, excluding Home Economics 7 and 58, and including Home Economics 2, 5, 10, 29, 59, and two or more of the following: Home Economics 14, 20, 28, 31, 33, 35, 41, 43a, 43b, 48, 55, 57a, 57b.

Major B.—Nutrition: 20 hours excluding Home Economics 58, and including Home Economics 5, 39a, 39b, 41, 59, and two or more of the following: Home Economics 20, 33, 35, 45, 47.

Minor A.—20 hours chosen from one or two of the following subjects: chemistry, bacteriology. At least eight hours must be offered in each subject, if two are chosen.

Minor B.—20 hours chosen from one or two of the following subjects: economics, sociology. At least eight hours must be offered in each subject, if two are chosen.

For All Colleges

Transfer Students.—To satisfy the requirements for graduation, students transferring home economics credits from other institutions must take five hours in residence from the following: Home Economics 20, 28, 31, 33, 35, 39a, 39b, 41, 43a, 43b, 47, 48, 50, 51, 55, 57a, 57b.

Electives.—In addition to the required subjects in each college, it is expected that students will choose electives in accord with their special interests, as follows:

1. Textiles, clothing, and costume design: Home Economics 19, 30, 31, 42, 43a, 43b, 50, 51.
2. Institution management and hospital dietetics: Home Economics 20, 33, 35, 46, 47, 48, 55.
3. Household management: Home Economics 14, 28, 57a, 57b, and additional courses in economics.
4. House planning and furnishing: Art 11, 12; Architecture 11, 12; Home Economics 3, 43a, 43b, and additional courses in art and history.
5. Nutrition: Chemistry 24, 50a; Zoology 1; Home Economics 20, 33, 35, 39a, 39b, 41, 45.
6. Teaching of home economics: Home Economics 11, 13, 45; Education 6, 10, 25.

Courses for Undergraduates NOT Majoring in Home Economics

Home Econ. 7. Textiles.—See sections listed under Home Econ. 7 on page 48.

Home Econ. 38. Elementary Nutrition.—*Prerequisite:* Sophomore standing.

Credit	Section	Hours	Days	Room	Instructor
2	E Lect. (for women)	2	MW	121 W.B.	Barto
	K Lect. (for men)	9	TT	231 W.B.	

Home Econ. 42. History of Costume.—See lecture listed under Home Econ. 42 on page 48.

Home Econ. 60. Food Problems of Student Groups.—(A course for commissaries.) Selection, buying, and managerial problems in the preparation and serving of food for student groups. *Prerequisite:* Sophomore standing and consent of instructor.

1	Lect.	2	Tu	117 W.B.	Smith, Barto

Home Econ. 70. Clothing Selection.—Economic, artistic, psychologic, and hygienic problems in the selection of clothing.

3	Lect.	9	Tu	121 W.B.	Whitlock, Eades
	Lab.	10–12	TT	203 W.B.	

Home Econ. 80. Home Management.—Problems of home management, emphasizing personal and family finance, apportionment of time and energy, and problems of the consumer. *Prerequisite:* Junior standing and consent of instructor.

2	Lect.	11	TT	121 W.B.	Nickell

Courses for Undergraduates Majoring in Home Economics

Home Econ. 2. Home Architecture.—*Prerequisite:* Art 1a or the equivalent. *Prerequisite or concurrent:* Art 1b.

3	Lect.	1	MW	117 W.B.	Foster, Weaver
	Quiz	1	F	117 W.B.	Weaver
	C Conf.	10	F	309 W.B.	
	D Conf.	11	F	309 W.B.	
	F1 Conf.	2	F	309 W.B.	
	F2 Conf.	2	M	325 W.B.	
	G Conf.	3	F	309 W.B.	
	M Conf.	11	S	309 W.B.	

Home Econ. 3. Home Decoration.—*Prerequisite:* Art 1a, 1b, or the equivalent.

3	Lect.	10	S	117 W.B.	Weaver
	L Lab.	10–12	TT	309 W.B.	
	N Lab.	1–3	TT	309 W.B.	
	P Lab.	3–5	TT	309 W.B.	

Home Econ. 5. Dietetics.—*Prerequisite:* Chem. 33; Home Econ. 58; Physiol. 1, 1a. *Prerequisite or concurrent:* Home Econ. 59.

Credit	Section	Hours	Days	Room	Instructor
4	Lect.	9	M	121 W.B.	Barto
	B1 Quiz	9	W	121 W.B.	Barto
	B2 Quiz	9	F	121 W.B.	Barto
	C Lab.	10–12	MW	229 W.B.	Barto
	L Lab.	10–12	TT	229 W.B.	Barto
	N Lab.	1–3	TT	229 W.B.	Janssen

Home Econ. 7. Textiles.—Students may register in either lecture section but are required to take the quiz and laboratory in some one section.

3[1]	A Lect.	10	M	117 W.B.	Jacobsen
	B Lect.	2	M	210 W.B.	Jacobsen
[1]Seniors will receive only 2 hours credit.	1 Quiz	10	W	117 W.B.	Beam
	Lab.	10–12	F	304 W.B.	Beam
	2 Quiz	10	Th	117 W.B.	Jacobsen
	Lab.	10–12	Tu	304 W.B.	Jacobsen
	3 Quiz	10	F	117 W.B.	Jacobsen
	Lab.	10–12	W	304 W.B.	Jacobsen
	4 Quiz	1	F	304 W.B.	Jacobsen
	Lab.	1–3	W	304 W.B.	Jacobsen
	5 Quiz	1	Th	117 W.B.	Jacobsen
	Lab.	1–3	Tu	304 W.B.	Jacobsen
	6 Quiz	11	F	117 W.B.	Beam
	Lab.	10–12	M	304 W.B.	Beam
	7 Quiz	9	F	117 W.B.	Jacobsen
	Lab.	3–5	Th	304 W.B.	Jacobsen

Home Econ. 10. Organization and Management of the Home.—*Prerequisite:* Econ. 1 or 2; Home Econ. 7. *Prerequisite or concurrent:* Home Econ. 59.

3	A Quiz	8	MWF	121 W.B.	Nickell
	E Quiz	1	MWF	121 W.B.	

Home Econ. 11. The Teaching of Home Economics.—*Prerequisite:* Home Econ. 59 and 29. *Prerequisite or concurrent:* Education 10; Home Econ. 5, 10, 19. One inspection trip (approximate cost, $3). Required of all who wish to be recommended to teach home economics. (3). Lect. and disc., 2 TT; 121 W.B. Miss Robinson.

Home Econ. 14. Home Management House.—Conferences and laboratory work in the home management apartment and laundry. The students reside in the home management apartment four weeks during the semester. This course is required of all students expecting to meet the Smith-Hughes requirements. *Prerequisite:* Home Econ. 5, 10 and consent of the instructor. (3). Conference, 4 Th, 117 W.B.; lab. to be arranged with instructor. Assistant Professor Nickell.

Home Econ. 19. Costume Design.—*Prerequisite:* Art 1a, 1b, or the equivalent.

3	Lect.	1	F	210 W.B.	Eades
	C Lab.	10–12	MW	309 W.B.	
	E Lab.	1–3	MW	309 W.B.	

Home Econ. 29. Clothing.—*Prerequisite:* Art 1a or 1b; Home Econ. 7.

4	Lect.	10	F	210 W.B.	Whitlock
	G Quiz	3	W	121 W.B.	Whitlock
	K Quiz	9	Th	121 W.B.	Whitlock
	C Lab.	10–12	MW	203 W.B.	Whitlock
	E Lab.	1–3	MW	327 W.B.	Beam
	N Lab.	1–3	TT	327 W.B.	Beam

Home Econ. 30. Clothing.—*Prerequisite:* Art 1a, 1b; Home Econ. 29. *Prerequisite or concurrent:* Home Econ. 19.

3	Lect.	2	F	121 W.B.	Whitlock
	E Lab.	1–3	MW	203 W.B.	
	N Lab.	1–3	TT	203 W.B.	

Home Econ. 42. History of Costume.—(2). Lect., 3 TT; 117 W.B. Miss Eades.

Home Econ. 46. Quantity Cookery.—*Prerequisite:* Home Econ. 59. (3). Quiz, 4 W, 117 W.B.; Lab., 8-11 two mornings a week, to be arranged with instructor; students advised not to have eleven o'clock classes as they are required to serve at noon at least two days a week. Assistant Professor Smith, Miss Underwood.

Home Econ. 47. Institution Management.—*Prerequisite:* Econ. 1 or 2 and senior standing. *Prerequisite or concurrent:* Home Econ. 46. (3). Lect. and disc., 2 MWF; 117 W.B. Assistant Professor Smith.

Home Econ. 58. Foods.—*Prerequisite:* Chemistry 1, 5.

5	Lect.	9	MW	210 W.B.	Woodruff
	B Quiz	9	F	208 W.B.	Woodruff, Pickens
	D Quiz	11	F	121 W.B.	Janssen
	C Lab.	10–12	MWF	235 W.B.	Pickens
	E Lab.	1–3	MWF	235 W.B.	Janssen
	1 Lab.	8–10	TTS	235 W.B.	Janssen
	N Lab.	1–3 10–12	TT S	235 W.B.	Pickens

Home Econ. 59. Food Economics.—*Prerequisite:* Home Econ. 58.

Credit	Section	Hours	Days	Room	Instructor
2	Lect.	11	Th	210 W.B.	WOODRUFF
	G Lab.	3–5	W	229 W.B.	PICKENS
	P1 Lab.	3–5	Tu	229 W.B.	PICKENS
	P2 Lab.	3–5	Th	229 W.B.	JANSSEN

Courses for Advanced Undergraduates and Graduates

Home Econ. 20. Physical Growth and Nutrition.—*Prerequisite:* Home Econ. 5, senior standing. (2). Lect. and disc., 1 MW; 210 W.B. Associate Professor OUTHOUSE.

Home Econ. 35. Problems in Foods.—*Prerequisite:* Home Econ. 5 and consent of instructor; (Chemistry 22 is advised).

3	Conf.	2	F	210 W.B.	WOODRUFF
	Lab.	2–5	MW	113 W.B.	

Home Econ. 39a. Readings in Foods and Nutrition.—*Prerequisite:* Home Econ. 5 and senior standing. *Prerequisite or concurrent:* One of the following: Chem. 50a; Home Econ. 20, 33, 35, 41, 55. (1). Seminar, 4-5:30 Th; 203-5 W.B. Professor WOODRUFF, Associate Professor OUTHOUSE, Assistant Professor BARTO.

Home Econ. 43a. Problems in Textiles and Clothing.—*Prerequisite:* Econ. 1 or 2; Home Econ. 30 or 51. Individual problems in some cases involve prerequisites of chemistry and physics. (3). Lect., 3 Tu; 304 W.B. Lab. to be arranged. Assistant Professors JACOBSEN and WHITLOCK; Miss EADES.

Home Econ. 55. Food and Nutrition.—*Prerequisite:* Home Econ. 5 and senior standing. (5). Lect., 1 TT, 121 W.B.; Lab., 2-5 Tu, 2-4 Th, and 8-11 S; 215 W.B. Associate Professor OUTHOUSE.

Home Econ. 57a. Problems in Home Management.—*Prerequisite:* Home Econ. 10 and consent of instructor. (3). Arrange; 313 W.B. Assistant Professor NICKELL.

Courses for Graduates

Home Econ. 101. Home Economics.—(1 unit). Professor WARDALL.

Home Econ. 102. Research in Nutrition.—(½ to 3 units).* Associate Professor OUTHOUSE.

Home Econ. 103. Seminar in Nutrition.—(½ unit). Once a week. Associate Professor OUTHOUSE.

Home Econ. 104. Research in Foods.—(½ to 3 units).* Professor WOODRUFF.

Home Econ. 105. Seminar in Foods.—(½ unit). Professor WOODRUFF.

HORTICULTURE

Note: Certain courses in this department require laboratory fees varying from $0.75 to $2.50.

Courses for Undergraduates

Hort. 1. Introductory Horticulture.—(No credit allowed to juniors and seniors.)

Credit	Section	Hours	Days	Room	Instructor
3	S Disc.	1	WF	127 New Agr.	COLBY, WEAVER, and MARSH
	Lab.	1–3	M	H.F.L.	
	J Disc.	8	TT	127 New Agr.	
	Lab.	8–10	S	H.F.L.	
	A Disc.	8	WF	118 New Agr.	
	Lab.	8–10	M	H.F.L.	
	V Disc.	8	MW	214 New Agr.	
	Lab.	8–10	F	H.F.L.	

Hort. 5. Plant Propagation.—(3). 1-3 MWF; F.G. Professor DORNER.

Hort. 8a. Orcharding.—*Prerequisite:* Hort. 1. (Inspection trip requirement waived for 1935-36.) (3). Lect., 10 Th; 118 New Agr. Lab., 10-12 TuS; 106 H.F.L. Mr. MCMUNN.

Hort. 15b. Commercial Floricultural Crops.—*Prerequisite:* Hort. 15a. (3). 10-12 MWF; F.G. Associate Professor HALL.

Hort. 22a-g. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; approval of head of department. (5). Arrange.

(a) **Pomology.**—Professors DORSEY, RUTH, COLBY, ANDERSON.
(c) **Olericulture.**—Professor LLOYD.
(e) **Floriculture.**—Professor DORNER, Associate Professor WEINARD.
(g) **Plant Breeding.**—Professor DORSEY.

Hort. 32a. Floral Decoration.—(For floriculture students). (3). 8-10 TTS; F.G. Professor DORNER.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hort. 33. Systematic Pomology.—*Prerequisite:* Junior standing. (2). 3-5 TT; H.F.L. Mr. McMunn.

Hort. 49. Systematic Vegetable Crops.—*Prerequisite:* Junior standing. (2). 3-5 TT; 203 V.G. Professor Lloyd, Mr. Weaver.

Courses for Advanced Undergraduates and Graduates

Hort. 43. Greenhouse Fertilizers.—*Prerequisite:* Botany 3; Agron. 28; Hort. 3 or 15a; senior standing. (3). 3 MWF; F.G. Associate Professor Weinard.

Hort. 44. Current Pomological Literature.—*Prerequisite:* Junior standing. (1). 11 Th; 118 New Agr. Professor Ruth.

Hort. 46. Marketing Horticultural Products.—See Agricultural Economics 36.

Hort. 47. Pomological Physiology.—*Prerequisite:* Chem. 32; Bot. 3, or concurrent registration in Bot. 3. (3). 1-3 MWF; 102 H.F.L. Professor Ruth.

Courses for Graduates

Hort. 103. Olericulture.—(1 to 2 units).* Arrange. Professor Lloyd.

Hort. 105. Marketing Fruits and Vegetables.—See Agricultural Economics 135.

Hort. 106. Olericulture Seminar.—(¼ unit). Arrange. Professor Lloyd.

Hort. 108. Pomology.—(1 to 4 units).* Arrange.

(a) **Pomological Problems.**—Professor Blair.
(b) **Pomology and Fruit Breeding.**—Professor Dorsey.
(c) **Pomological Physiology.**—Professor Ruth, Assistant Professor Kelley.
(d) **Small Fruits.**—Professor Colby.
(e) **Pomological Pathology.**—Professor Anderson.

Hort. 115. Floriculture.—(1 to 2 units).* Arrange.

(a) **Floricultural Problems.**—Professor Dorner.
(b) **Floricultural Physiology and Pathology.**—Associate Professor Weinard.

Hort. 120. Pomology Seminar.—(¼ unit). Arrange. Professors Dorsey, Ruth, Anderson.

Hort. 125. Fruit Development.—(1 unit). Arrange. Professor Dorsey.

Hort. 130. Physiology of Fruit Production.—(1 unit). Arrange. Professor Ruth.

Hort. 135. Fruit Disease Research.—(1 unit). Arrange. Professor Anderson.

HYGIENE

Courses for Undergraduates

Hygiene 2. Essentials of Hygiene and Sanitation.—Required of all undergraduate women during their first year of residence. Names beginning with the letters from A through L should register the first semester.

Credit	Section	Hours	Days	Room	Instructor
2	A1	8	TT	106 L.H.	Lynch
	A2	8	WF	106 L.H.	Lynch
	B1	9	TT	106 L.H.	Etheredge
	B2	9	MW	106 L.H.	Etheredge
	C1	10	TT	106 L.H.	Etheredge
	C2	10	WF	106 L.H.	Millbrook
	G1	3	TT	106 L.H.	Millbrook

Hygiene 5. Elementary Hygiene and Sanitation.—Required of all undergraduate men during their first year of residence. Students in the colleges of Agriculture and Liberal Arts and Sciences, except those taking the premedical course, should register in the first semester. All other students should register in the second semester. Those whose schedules will not permit registration in this order will, with the proper approval, be accepted in either semester.

2	A1	8	MW	128 New Agr.	Beard
	A2	8	TT	128 New Agr.	Judah
	A3	8	WF	127 New Agr.	Judah
	B1 (Agr.)	9	TT	128 New Agr.	Beard
	B2	9	WF	128 New Agr.	Beard
	B3	9	MW	118 New Agr.	Ross
	B4	9	TT	127 New Agr.	Lewis
	B5	9	WF	214 New Agr	Lewis
	B6	9	TT	214 New Agr.	Ross
	C1 (Agr.)	10	TT	128 New Agr.	Cain
	C2	10	WF	128 New Agr.	Cain
	C3 (Eng.)	10	MF	319 E.H.	Blackstone
	C4 (Eng.)	10	TT	319 E.H.	Blackstone
	D1	11	MW	128 New Agr.	Gebhart
	D3	11	TT	128 New Agr.	Gebhart

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hygiene 5. Elementary Hygiene and Sanitation (concluded)

Credit	Section	Hours	Days	Room	Instructor
2	F1 (Eng.)	2	TT	319 E.H.	JUDAH
	F2 (Agr.)	2	WF	127 New Agr.	ROSS
	F3	2	MW	128 New Agr.	LEWIS
	G1	3	TT	128 New Agr.	BLACKSTONE
	G3	3	MW	128 New Agr.	CAIN

Hygiene 10. Advanced Hygiene.—Especially suited to the needs of teachers, coaches, and social workers. *Prerequisite:* Hygiene 2 or 5.

2	F	3	MW	127 New Agr.	GEBHART

JOURNALISM

Note: Certain courses in this department require laboratory fees varying from $1 to $2.

Credit in journalism will be given for Rhetoric 6; English 45; Political Science 22, 27, 28; Law 2, 5; History 21.

Courses for Undergraduates

Journ. 1a. Supervised Publication Work.—For members of the *Daily Illini* reporting staff. Six hours of regular staff duty and one 15-minute faculty conference Thursday each week. *Prerequisite:* Sophomore standing in the University.

Credit	Section	Hours	Days	Room	Instructor
1	A	To be arranged		101 U.H.	———

Journ. 3. The Newspaper and the News.—A non-laboratory, critical course for beginners and students regarding journalism as a social problem. Not open to students with credit in Journ. 5, or to students registered in Journ. 5. *Prerequisite:* Freshman standing.

2	D	11	MW	410 U.H.	MURPHY

Journ. 4. Newspaper Reference Service.—Use of morgue and reference materials. *Prerequisite:* Freshman standing.

2	L	10	TT	203 U.H.	DICKINSON
	M	11	TT	203 U.H.	

Journ. 5. Reporting.—*Prerequisite:* Sophomore standing. (Students register for lecture and one laboratory section.)

3	Lect. M	11	Tu	213 U.H.	LEITER
	Lab. C	10–12	MW	118 U.H.	
	Lab. E	1–3	M	118 U.H.	
			W	311 U.H.	
	Lab. K	9–11	TT	118 U.H.	

Journ. 6. Reporting.—*Prerequisite:* Sophomore standing and Journ. 5.

3	Lect.	2	Th	311 U.H.	LEITER
	Lab.	3–5	TT	311 U.H.	

Journ. 7. Sports Writing.—(For students in Physical Education). *Prerequisite:* Sophomore standing.

3	E	1	MWF	318 U.H.	SCHOOLEY

Journ. 9a. History and Practice of Printing and Publishing.—*Prerequisite:* Sophomore standing.

2	Lect.	11	Tu	300 Math.	ALLEN
	Lab. E	1–3	Th	126 U.H.	
	Lab. G	3–5	Tu	126 U.H.	
	Lab. J	8–10	Tu	126 U.H.	
	Lab. K	8–10	Th	126 U.H.	
	Lab. M	10–12	Th	126 U.H.	
	Lab. N	1–3	Tu	126 U.H.	

Courses for Advanced Undergraduates

Journ. 10. Newspaper Advertising.—(Same as B.O.O. 10). (Offered first semester only). *Prerequisite:* Journ. 5 and 6.

3	B	9	MWF	310 Com.	RUSSELL
	D	11	MWF	310 Com.	

Journ. 12. Publicity Methods.—*Prerequisite:* Junior standing.

2	K	9	TT	113 U.H.	WRIGHT

Journ. 13. Copyreading.—*Prerequisite:* Journ. 5 and 9a or equivalent, and junior standing.

3	Lect. G	3	M	315 U.H.	SIEBERT
[1]Lab. G is for students	Lab. N	1–3	TT	118 U.H.	
with desk experience.	Lab. E	1–3	WF	118 U.H.	
Consult adviser before	Lab. P	3–5	TT	118 U.H.	
registering.	[1]Lab. G	3–5	WF	118 U.H.	

Journ. 15. Special and Feature Articles.—*Prerequisite:* Junior standing.

2	K	9	TT	204 U.H.	DICKINSON

Journ. 17. History of Journalism.—*Prerequisite:* Junior standing.

3	D	11	MWF	300 Math.	MURPHY

Journ. 21. Community and Country Journalism.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.-Disc.	10	MW	126 U.H.	ALLEN
	Lab.	Two hours to be arranged			

Journ. 25. Newspaper Advertising Copy.—*Prerequisite:* Junior standing. Not open to students registered in Journ. 5.

3	C	10	MWF	113 U.H.	DICKINSON

Journ. 29. Advanced Reporting.—General news and correspondence. *Prerequisite:* Journ. 5 and 6 or equivalent, and junior standing.

3	F	3	MWF	113 U.H.	————

Journ. 33. Newspaper Advertising Layout.—*Prerequisite:* Junior standing.

3	Lect.-Disc.	8–10	M	126 U.H.	ALLEN
	Lab.	8–10	W	126 U.H.	

Journ. 35. Contemporary Affairs.—*Prerequisite:* Junior standing and six hours of journalism.

2	M	11	TT	113 U.H.	SIEBERT

Journ. 39. Special Problems.—(For seniors not writing theses in journalism).

2	G	3	W	113 U.H.	DICKINSON and members of the staff

Journ. 60a. Thesis Course.—Open to seniors with consent of the Director.

2	To be arranged	MURPHY and members of the staff

LANDSCAPE ARCHITECTURE

Note: Certain courses in this department require laboratory fees varying from $0.50 to $2.00.

Courses for Undergraduates

L.A. 11. History of Landscape Architecture.—(3). 11 MWF; 214 New Agr. Assistant Professor PETERSON.

L.A. 31. Elementary Landscape Design.—*Prerequisite:* Arch. 32. (3). 8-11 MWF; 200 New Agr. Professor WHITE.

L.A. 33. Intermediate Landscape Design.—*Prerequisite:* L.A. 32. (3). 9-12 TTS; 200 New Agr. Professor WHITE.

L.A. 35. Advanced Landscape Design.—*Prerequisite:* L.A. 34. (5). 1-4 MWF, other hours to be arranged; 203 New Agr.

L.A. 37. Civic Design.—*Prerequisite:* Senior standing in the City Planning Option. (4). 1-3 M, 1-4 WF; 203 New Agr.

L.A. 43. Landscape Construction.—*Prerequisite:* C.E. 18. (3). Lect., 9 MF; 211 New Agr. Lab., 10-12 MF, 9-12 W; 200 New Agr. Professor SCHAFFER.

L.A. 51. Trees and Shrubs.—*Prerequisite:* Bot. 5. (Open only to students in Landscape Architecture and Floriculture). (3). Lect., 3 W; 214 New Agr. Lab., 3-5 MF; 211 New Agr. Assistant Professor ROBINSON.

L.A. 53. Planting Design.—*Prerequisite:* L.A. 34, 52, and Hort. 31. (3). Lect., 1 Tu; 211 New Agr. Lab., 2-5 Tu, 1-5 Th; 203 New Agr. Assistant Professor ROBINSON.

L.A. 55. Care of Plant Materials.—*Prerequisite:* L.A. 52. (2). 9 TT; 211 New Agr. Professor SCHAFFER.

L.A. 71. City Planning.—*Prerequisite:* 60 hours of university work. (2). 10 TT; 214 New Agr. Professor BARTHOLOMEW and others.

LAW

Note: Students other than those registered in the College of Law are required to pay fees at the rate of $1 per semester hour for courses in law.

First-Year Courses

Note: In addition to the program for which a first-year student registers, he is asked to hold open the one o'clock hour on Tuesday during the first semester for quizzes to be scheduled during the course of the semester in room 300 Law Building.

Introductory Lectures on Procedure.—Required of all first-year students. (No credit). 1 and 4 MTWTF; 300 Law. Professor MCCASKILL.

Law 1a. Contracts.—Costigan: *Cases on Contracts* (2d ed.).

Credit	Section	Hours	Days	Room	Instructor
3	A	2	MTW	103 Law	GOBLE
	B	3	MTW	103 Law	

Law 2a. Torts.—Bohlen: *Cases on Torts* (3d ed.).

4	A	8	TWTF	106 Law	WEISIGER
	B	9	TWTF	106 Law	

Law 3. Personal Property and Introduction to Law.—Bigelow, *Cases on Personal Property* (2d ed.).

3	A	9	MTT	103 Law	FERRALL
	B	10	MTT	103 Law	

Law 4. Actions.—McCaskill: *Cases on Actions and Suits.*

Credit	Section	Hours	Days	Room	Instructor
2	A	2	ThF	103 Law	McCaskill
	B	3	ThF	103 Law	

Law 5. Criminal Law.—Harno: *Cases on Criminal Law and Procedure.*

3	A	11	MWF	103 Law	Harno

Second-Year and Third-Year Courses

Note: In addition to the program for which a second- or third-year student registers, he is asked to hold open the one o'clock hour on Monday and Wednesday during the first semester for quizzes which may be scheduled during the course of the semester in room 300 Law Building.

Law 6a. International Law.—Law of Peace.

3	A	10	MWF	204 L.H.	Garner

Law 7. Persons.—McCurdy: *Cases on Domestic Relations* (2d ed.).

2	A	9	ThF	306 Law	Holt

Law 9. Sales.—Williston and McCurdy: *Cases on Sales.*

3	A	9	MTW	303 Law	Britton
	B	10	MTW	303 Law	

Law 14. Carriers and Warehousemen.—Green: *Cases on Carriers* (2d ed.).

2	A	11	TW	303 Law	Green

Law 16a. Trusts.—Scott: *Cases on Trusts* (2d ed.).

2	A	8	TW	306 Law	Schnebly
	B	9	TW	306 Law	

Law 17. Business Organizations I.—Crane and Magruder: *Cases on Partnership* (shorter selection).

2	A	3	WF	303 Law	Holt

Law 18. Wills and Administration.—Costigan: *Cases on Wills, Descent, and Administration* (2d ed.).

3	A	8	MThF	103 Law	Summers

Law 19a. Business Organizations II.—Richard: *Cases on Corporations* (3d ed.).

2	A	11	MTu	106 Law	Johnson

Law 21a. Credit Transactions I.—Accommodation contracts. Sturges: *Cases on Credit Transactions.*

2	A	1	ThF	106 Law	Ferrall

Law 22a. Constitutional Law.—Government and the individual. Rottschaefer: *Cases on Constitutional Law.*

3	A	2	WTF	106 Law	Green

Law 28b. Insurance.—Property insurance. Goble: *Cases on Insurance.*

2	A	4	TW	303 Law	Goble

Law 29. Real Property II.—Rights in land. Bigelow: *Cases on Rights in Land* (2d ed.).

3	A	10	MThF	306 Law	Summers
	B	11	MThF	306 Law	

Law 30. Equity II.—Cook: *Cases on Equity* (2d ed.; one-volume).

2	A	8	ThF	303 Law	Schnebly
	B	9	ThF	303 Law	

Law 31a. Conflict of Laws.—Lorenzen: *Cases on Conflict of Laws* (3d ed.).

2	A	10	ThF	303 Law	Holt

Law 35. Procedure III.—Trial practice. Hinton: *Cases on Trial Practice.*

3	A	10	MTW	106 Law	McCaskill

Law 39a. Thesis Course.—Open to students who are candidates for the J.D. degree during the academic year next preceding their graduation. Credit deferred until completion of Law 39b.

1	To be arranged	Members of the staff

Law 49. Industrial Relations I.—Trade regulation.

2	A	3–5	Th	306 Law	Weisiger

Law 54. Legal Problems I.—Comments on recent decisions. *Prerequisite:* One year of law work and at least an average grade of "B" (4.) in law courses.

1	To be arranged

Law 56. Legal Problems III.—Comments on recent decisions. *Prerequisite:* Legal Problems I or II, two years of law work, and at least an average grade of "B" (4.) in law courses.

1	To be arranged

Law 59. Banks and Banking.—A study of selected legal problems in the organization, operation, and liquidation of banks.

2	A	3	MTu	303 Law	Britton

Law 60. Public Utilities.—Robinson: *Cases on Public Utilities.*

2	A	2	MTu	106 Law	Green

LIBRARY SCIENCE

Course for Freshmen and Sophomores

Lib. Sci. 12. General Reference.—

Credit	Section	Hours	Days	Room	Instructor
2	A	9	TT	118 Lib.	Black
	B	10	TT	118 Lib.	Singleton
	C	11	TT	118 Lib.	Signor
	D	1	TT	118 Lib.	Wilson
	E	2	TT	118 Lib.	Phelps

Courses for First-Year Library School Students

Lib. Sci. 2a. Reference.—

3	A	11	MWF	314 Lib.	Singleton
	B	9	MWF	227 Lib.	Singleton

Lib. Sci. 3a. Selection of Books.—

2	A	9	TT	227 Lib.	Boyd
	B	10	TT	227 Lib.	Boyd

Lib. Sci. 31a. Cataloging.—

2	A Lect.	1	MTh	314 Lib.	Bond
	Lab.	2–4	MTh	306 Lib.	Bond
	B Lect.	2	TT	314 Lib.	Krieg
	Lab.	3–5	TT	306 Lib.	Krieg

Lib. Sci. 34. Library Administration and Extension.—

3	A	8	MWF	314 Lib.	Lyle
	B	10	MWF	314 Lib.	Lyle

Lib. Sci. 35. Order and Accessions.—

3	A	9	MWF	314 Lib.	Hostetter
	B	11	MWF	227 Lib.	Hostetter

Lib. Sci. 36. Classification.—

2	A	10	TT	314 Lib.	Bond
	B	9	TT	314 Lib.	Bond

Courses for Advanced Library School Students and Graduates

Lib. Sci. 13a. U. S. Government Publications.—*Prerequisite:* Lib. Sci. 2a-2b. (2 hours or ½ unit). 10 MW; 328 Lib. Miss Phelps.

Lib. Sci. 24a. Book Selection for Special Groups.—*Prerequisite:* Lib. Sci. 3a and 38. (2 hours or ½ unit). 11 TT; 328 Lib. Assistant Professor Hostetter.

Lib. Sci. 45. Library Buildings.—(2 hours or ½ unit). 9 TT; 328 Lib. Mr. Lyle.

Courses for Graduates

Lib. Sci. 101. Thesis.—(1 to 2 units). Professor Windsor and others.

Lib. Sci. 102. (a) Seminar. Reading Interests of Adults.—(1 unit). 3-5 M; 328 Lib. Assistant Professor Boyd.

(e) Individual Problems.—(½ to 1 unit). To be arranged. Professor Windsor and others.

Lib. Sci. 103a. Advanced Reference.—*Prerequisite:* Lib. Sci. 2a-2b. (½ unit). 10 TT; 328 Lib. Miss Phelps.

Lib. Sci. 104a. Advanced Cataloging and Classification.—*Prerequisite:* Lib. Sci. 31a, 36, and 37. (½ unit). 3-5 W; 328 Lib. Assistant Professor Bond.

MATHEMATICS

Major: 20 hours exclusive of Math. 2, 3, 4, 5, 6, 6a, 8a, 8b, and all courses taken during the freshman year, and inclusive of Mathematics 7 and 9, and two semesters of Math. 70, 71, 72.

Note: For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: first semester, Math. 2 (or 3) and 4 (or 5); second semester, Math. 6. Sophomore year: first semester, Math. 7; second semester, Math. 9 and 19. In certain courses Math. 6 may be replaced by Math. 6a, and Math. 7 and 9 by Math. 8a and 8b.

Minors: 20 hours exclusive of courses taken during the freshman year selected from one or two of the following subjects: astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), economics, accountancy, philosophy, theoretical and applied mechanics, surveying. If two subjects are chosen, at least eight hours must be offered in each.

Note: Seniors receive reduced credit in Mathematics 2, 3, 4, 5, 6, or 6a.

Mathematics 32, 35, 36, and 40 are suggested as desirable courses for students preparing to teach high school mathematics.

Courses for Undergraduates

Math. 2. College Algebra.—*Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit.

Credit	Section	Hours	Days	Room	Instructor
3[1]	[2]A1	8	MWF	156 Math.	Fryer
	[2]A2	8	MWF	202 U.H.	Kent
	R	8	MWF	105 Entom.	Welker
	[2]B1	9	MWF	202 U.H.	Bailey
	[2]B2	9	MWF	102 Entom.	Bristow
	S1	9	MWF	208 U.H.	Kent
	S2	9	MWF	103 Entom.	Shreve
	S3	9	MWF	155 Math.	
	T1	10	MWF	155 Math.	Lytle
	T2	10	TTS	154 Math.	Doob
	[2]D1	11	MWF	208 U.H.	Dennis
	[2]D2	11	MWF	102 Entom.	Welch
	U1	11	MWF	105 Entom.	Welker
	[3]U2	11	MWF	107 U.H.	Shreve
	U3	11	TTS	155 Math.	Doob
	[2]E	1	MWF	159 Math.	Gentry
	W1	1	MWF	206 U.H.	Rumsey
	[3]W2	1	MWF	154 Math.	Modesitt
	[2]F1	2	MWF	110 L.H.	Steimley
	[2]F2	2	MWF	156 Math.	Brown
	X1	2	MWF	158 Math.	Modesitt
	X2	2	MWF	206 U.H.	Rumsey
	[2]G1	3	MWF	156 Math.	Dobbie
	[2]G2	3	MWF	159 Math.	Burdette
	Y1	3	MWF	206 U.H.	Campbell
	Y2	3	MWF	102 Entom.	Heins
	[2]H	4	MWF	154 Math.	Campbell
	Z	4	MWF	159 Math.	Dobbie

[1]Seniors will receive only 2 hours credit.

[2]Sections A1, A2, B1, B2, D1, D2, E, F1, F2, G1, G2, and H are for freshman engineers.

[3]Sections U2 and W2 are for architects and architectural engineers.

Math. 3. Algebra.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit.

5[1]	R1	8	MTWTF	102 Entom.	Bristow
	R2	8	MTWTF	158 Math.	Moore
	S1	9	MTWTF	154 Math.	Ketchum
	S2	9	MTWTF	105 Entom.	Peters
	T1	10	MTWTF	159 Math.	Armstrong
	T2	10	MTWTF	110 L.H.	Bower
	[2]D	11	MTWTF	202 U.H.	Chanler
	U	11	MTWTF	158 Math.	Fryer
	W	1	MTWTF	156 Math.	Brown
	X1	2	MTWTF	155 Math.	Hoersch
	X2	2	MTWTF	159 Math.	Burdette
	Y1	3	MTWTF	202 U.H.	Wilson
	Y2	3	MTWTF	158 Math.	Gentry

[1]Students having 1½ entrance units in algebra will receive only 3 hours credit for this course. Seniors will receive only 4 hours credit.

[2]Section D is for freshman engineers.

Math. 4. Plane Trigonometry.—*Prerequisite:* Entrance algebra, 1½ units, or registration in Math. 3 plane geometry, 1 unit.

2[1]	[2]A1	8	TT	110 L.H.	Peters
	[2]A2	8	TT	103 Entom.	Bower
	R1	8	TT	156 Math.	
	[4]R2	8	TT	202 U.H.	Chanler
	[2]B	9	TT	158 Math.	Moore
	S1	9	TT	155 Math.	Hazlett
	[4]S2	9	TT	159 Math.	Brahana
	[2]C	10	TT	102 Entom.	Bristow
	T1	10	TT	206 U.H.	Emch
	T2	10	TT	155 Math.	Lytle
	[4]T3	10	TT	158 Math.	Levy
	[2]D1	11	TT	154 Math.	Crathorne
	[2]D2	11	TT	206 U.H.	Pepper
	U1	11	TT	103 Entom.	Bristow
	[3]U2	11	TT	159 Math.	Miles
	[4]U3	11	TT	107 U.H.	Welch
	[2]E	1	TT	159 Math.	Gentry
	W1	1	TT	206 U.H.	Rumsey
	[3]W2	1	TT	154 Math.	Dennis
	[2]F1	2	TT	154 Math.	Bourgin
	[2]F2	2	TT	202 U.H.	Wilson
	X1	2	TT	158 Math.	Modesitt
	[4]X2	2	TT	206 U.H.	Welker
	[2]G1	3	TT	155 Math.	Hoersch
	[2]G2	3	TT	159 Math.	Burdette
	Y1	3	TT	156 Math.	Brown
	Y2	3	TT	102 Entom.	Heins
	[4]Y3	3	TT	206 U.H.	Shreve

[1]Seniors will receive only 1 hour credit.

[2]Sections A1, A2, B, C, D1, D2, E, F1, F2, G1, and G2 are for freshman engineers.

[3]Sections U2 and W2 are for architects and architectural engineers.

[4]Sections R2, S2, T3, U3, X2, and Y3 are for premedical students.

Math. 5. Advanced Trigonometry.—Intended for students having entrance credit in trigonometry. The course will include such topics as trigonometric equations, De Moivre's theorem, complex numbers with applications to more complicated problems in plane trigonometry, and a brief introduction to spherical trigonometry. *Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit; solid geometry, ½ unit; entrance trigonometry, ½ unit (or Math. 4).

Credit	Section	Hours	Days	Room	Instructor
2[1]	A	8	TT	206 U.H.	Bailey
[1]Seniors will receive	D	11	TT	102 Entom.	Armstrong
only 1 hour credit.	E	1	TT	110 L.H.	Steimley

Math. 6. Analytic Geometry.—*Prerequisite:* Math. 2 (or 3) and Math. 4.

5[1]	R	8	MTWTF	208 U.H.	Miles
	[2]B	9	MTWTF	206 U.H.	Pepper
[1]Seniors will receive only	T	10	MTWTF	202 U.H.	Chanler
4 hours credit.	[2]D1	11	MTWTF	156 Math.	Peters
[2]Sections B, D1, D2, and	[2]D2	11	MTWTF	110 L.H.	Bower
E are for freshman engi-	[2]E	1	MTWTF	158 Math.	Moore
neers.	Y	3	MTWTF	154 Math.	Bourgin

Math. 7. Calculus.—First course for students of mathematics and engineering. *Prerequisite:* Math. 6 (or 6a).

5	A1	8	MTWTF	159 Math.	Armstrong
	A2	8	MTWTF	154 Math.	Ketchum
	A3	8	MTWTF	155 Math.	Emch
	B	9	MTWTF	156 Math.	Levy
	C1	10	MTWTF	208 U.H.	Brahana
	C2	10	MTWTF	156 Math.	Hazlett
	E1	1	MTWTF	155 Math.	Hoersch
	E2	1	MTWTF	202 U.H.	Wilson
	G	3	MTWTF	110 L.H.	Steimley

Math. 8a. Calculus.—For students of chemistry and chemical engineering, and insurance. *Prerequisite:* Math. 6a or 6.

3	A1	8	MWF	110 L.H.	Peters
	A2	8	MWF	103 Entom.	Bower
	C1	10	MWF	103 Entom.	Moore
	C2	10	MWF	102 Entom.	Bristow
	D1	11	MWF	206 U.H.	Pepper
	D2	11	MWF	103 Entom.	Miles

Math. 9. Calculus.—Second course for students of mathematics and engineering. *Prerequisite:* Math. 7.

3	B1	9	MWF	158 Math.	Trjitzinsky
	B2	9	TTS	202 U.H.	Chanler
	D	11	MWF	159 Math.	Armstrong
	F	2	MWF	154 Math.	Bourgin
	G	3	MWF	155 Math.	Hoersch
	H	4	MWF	202 U.H.	Wilson

Courses for Advanced Undergraduates and Graduates

Math. 16. Differential Equations and Advanced Calculus.—*Prerequisite:* Math. 7 and 9 (or 8a-8b).

3	A	8	MWF	206 U.H.	Bailey
	E	1	MWF	110 L.H.	Steimley

Math. 22. Statistics.—*Prerequisite:* Math. 2 or 3 and 6; junior standing.

3		11	MWF	154 Math.	Crathorne

Math. 30. Actuarial Theory.—*Prerequisite:* Math. 7 and 9 (or 8a-8b).

3		10	MWF	154 Math.	Crathorne

Math. 35. Teacher's Course.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9.

3		8	MWF	107 U.H.	Lytle

Math. 40a. Fundamental Concepts.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9.

3		10	MWF	206 U.H.	Pepper

Math. 52a. Differential Equations of Mathematics.—*Prerequisite:* Math. 16 and 17.

3		1	MWF	254 Math.	Bourgin

Math. 70a. Introduction to Higher Algebra.—*Prerequisite:* Math. 7 and 9.

3		9	MWF	159 Math.	Miles

Math. 71a. Introduction to Higher Analysis.—*Prerequisite:* Math. 7 and 9.

3		11	MWF	254 Math.	Coble

Math. 72a. Introduction to Higher Geometry.—*Prerequisite:* Math. 7 and 9.

3		10	MWF	158 Math.	Levy

Math. 90a. Undergraduate Thesis.—*Prerequisite:* 24 hours of college mathematics. (2). Arrange.

Courses for Graduates

Math. 100. Seminar and Thesis.—(1 to 2 units). Arrange.

Math. 101. Functions of Real Variables.—(1 unit). 9 TTS; 254 Math. Dr. Doob.

Math. 110. Elliptic Functions.—(1 unit). 11 MWF; 366 Math. Professor CARMICHAEL.

Math. 114. Partial Differential Equations.—(1 unit). 8 MWF; 254 Math. Assistant Professor TRJITZINSKY.

Math. 126. Theory of Groups.—(1 unit). 9 MWF; 254 Math. Associate Professor BRAHANA.

Math. 131. Algebraic Geometry.—(1 unit). 10 MWF; 254 Math. Professor COBLE.

Math. 170. Algebra.—(1 unit). 9 MWF; 366 Math. Associate Professor HAZLETT.

Math. 171. Analysis.—(1 unit). 11 MWF; 155 Math. Dr. KETCHUM.

Math. 172. Geometry.—(1 unit). 10 MWF; 366 Math. Professor EMCH.

MECHANICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.50 to $4.50.

Courses for Undergraduates

M.E. 1. Steam and Air Machinery.—*Prerequisite:* Math. 9; Physics 1 and 3.

Credit	Section	Hours	Days	Room	Instructor
3	G	1	MWF	217 M.E.L.	
	F	8	MWF	208 M.E.L.	
	EU	11	MWF	217 M.E.L.	

M.E. 3. Steam Engineering.—*Prerequisite:* M.E. 10; registration in M.E. 61.

3	KM	10	TTS	208 M.E.L.	
	JLNV	11	TTS	208 M.E.L.	

M.E. 7. Internal Combustion Engines.—*Prerequisite:* M.E. 6.

3	PQ	11	MWF	208 M.E.L.	

M.E. 10. Thermodynamics.—*Prerequisite:* Math. 9; Physics 1 and 3.

3	LM	8	MWF	217 M.E.L.	
	KN	2	MWF	217 M.E.L.	

M.E. 13. Thermodynamics.—*Prerequisite:* Math. 9; Physics 1 and 3.

3	PQ	2	TT	202 T.B.	
		3–5	W	218 Cer.	
	RSW	11	TT	202 T.B.	
		3–5	W	218 Cer.	

M.E. 17. Refrigeration Engineering.—*Prerequisite:* M.E. 16.

3	PQ	11	MW	202 T.B.	
		8–10	S	112 T.B.	

M.E. 21. Mechanical Equipment of Buildings (Laboratory).—*Prerequisite:* Registration in M.E. 23.

1	C	8–11	W	M.E.L.	

M.E. 23. Mechanical Equipment of Buildings.—*Prerequisite:* Senior standing.

4	C	11	MWFS	107 M.E.L.	

M.E. 25. Heating and Ventilation for Architects.—*Prerequisite:* Senior standing.

2	A	11	TT	107 M.E.L.	

M.E. 31. Mechanics of Machinery.—*Prerequisite:* Registration in T.A.M. 2.

5	PQ	8	MWF	216 T.B.	
		8–11	TT	201, 216 T.B.	
	RS	1	MWF	216 T.B.	
		1–4	TT	201, 216 T.B.	

M.E. 33. Aeronautical Engineering.—*Prerequisite:* Senior standing.

3	PQ	11	MWF	216 M.E.L.	

M.E. 35. Petroleum Production Engineering.—*Prerequisite:* Senior standing in Mechanical Engineering or approval of instructor.

3		11	MWF	204 T.B.	

M.E. 41 Mechanical Engineering Design.—*Prerequisite:* M.E. 40.

4	P	8–11	MWF	112, 114 T.B.	
	Q	1–4	MWF	112, 114 T.B.	

M.E. 61. Mechanical Engineering Laboratory.—*Prerequisite:* M.E. 1 or 2 or 3.

2	KCh1	2–5	MF	M.E.L.	
	LVCh2	2–5	W	M.E.L.	
		8–11	S	M.E.L.	
	M	8–11	MF	M.E.L.	

M.E. 65. Mechanical Engineering Laboratory.—*Prerequisite:* M.E. 64.

3	P	1–5	TT	M.E.L.	
	Q	8–12	TT	M.E.L.	

M.E. 85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing.

Credit	Section	Hours	Days	Room	Instructor
3	J2KP	8–11	TT	Pat. Lab.	
	LQ	8–11	MF	Pat. Lab.	
	MRT	1–4	TT	Pat. Lab.	
	J1NS	1–4	MF	Pat. Lab.	

M.E. 87. Machine Laboratory.—*Prerequisite:* Sophomore standing.

3	JKS	8–11	TT	Mach. Lab.
	LR	8–11	MF	Mach. Lab.
	MPXT	1–4	TT	Mach. Lab.
	NQVW	1–4	MF	Mach. Lab.

M.E. 89. Heat Treatment of Metals.—*Prerequisite:* Senior standing in Mechanical or Railway Mechanical Engineering.

3	P	2–4	MWF	Mach. Lab.
	QW	8–10	MWF	Mach. Lab.

M.E. 97. Thesis.—*Prerequisite:* Senior standing. (3). Arrange.

M.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. (No credit).

Courses for Graduates

Note: Entrance on graduate work in Mechanical Engineering presupposes the full undergraduate course in that subject.

M.E. 107. Thermodynamics.—Application of thermodynamics to the solution of physical and engineering problems. (1 unit). Twice a week. Arrange. Professor Goff.

M.E. 108. The Flow of Fluids and Heat Transfer.—The application of dimensional analysis and other rational formulas. Special problems. (1 unit). Twice a week. Arrange. Professor Macintire.

M.E. 109. Mechanical Engineering Design.—(a) Machine design; (b) power plant design; (c) dynamics of machinery. (1 unit). Twice a week. Arrange. Professors Leutwiler, Ham.

M.E. 110. Advanced Heating, Ventilating, and Air Conditioning.—Applications of various systems, notable developments, and results of research. Individual problems. (1 unit). Twice a week. Arrange. Professor Severns.

M.E. 112. Laboratory Investigations.—Special problems in: (a) combustion; (b) steam; (c) gas and oil engineering; (d) heating, ventilation, and air conditioning; (e) refrigeration; (f) flow of fluids; (g) heat transfer; (h) mechanical transmission of power. (1½ units). Three times a week. Arrange. Professors Polson, Kratz, Ham, Macintire, Goff.

M.E. 117. Advanced Refrigerating Engineering.—Advanced theory and special cycles. Design of comfort cooling and other special installations. (1 unit). Twice a week. Arrange. Professor Macintire.

MILITARY BANDS

Note: The following courses are open only to those who have passed the examination for admittance to one of the bands. All new students who play band instruments and who desire to try for places in the bands should make application at the Band Office, in the Band Building, at the earliest possible time. Those who are accepted for membership will be given a slip indicating the band to which they have been assigned, together with their rehearsal days and hours (twice a week). Assignments are made according to proficiency. Service in the bands takes the place of the required military courses. Director Harding, Assistant Director Hindsley, Mr. Overgard.

Mil. Bands 1. Freshman Band.—(1).

Mil. Bands 3. Sophomore Band.—(1).

Mil. Bands 5. Junior Band.—

Mil. Bands 7. Senior Band.—

MILITARY SCIENCE

Note: All military courses consist of two parts designated by the same number: a practical course lettered with "a" and a theoretical course lettered with "b". Students who have had training in a senior R.O.T.C. unit are permitted to register for work one year advanced for each year they have had in the senior unit. All students who register for junior and senior courses are required to sign a contract with the Government to take five hours of military per week during two years in the University and to attend one summer camp of six weeks.

Uniform is required for all practical instruction and is optional for classroom instruction.

INFANTRY

Mil. Sci. 1a. Freshman Infantry.—Practice.

Credit	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	W	Arm.	Tabachnik
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 1b. Freshman Infantry.—Theory.

Credit	Section	Hours	Days	Room	Instructor
½	1	10	M	150 Arm.	Stevens
	2	11	M	150 Arm.	
	3	1	Tu	150 Arm.	
	4	2	Tu	150 Arm.	
	5	10	Th	150 Arm.	
	6	9	F	150 Arm.	
	7	10	F	150 Arm.	

Mil. Sci. 3a. Sophomore Infantry.—Practice.

½	1st Bn.	3–5	W	Arm.	Lummis
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 3b. Sophomore Infantry.—Theory.

½	51	10	M	148 Arm.	Lummis
	52	11	M	148 Arm.	
	53	10	Tu	148 Arm.	
	54	11	Tu	148 Arm.	
	55	3	Th	148 Arm.	
	56	9	S	148 Arm.	

Mil. Sci. 5a. Junior Infantry.—Practice. *Prerequisite:* Mil. Sci. 4a.

½	Group I	10–12	W	Arm.	Milan
		4	F	Arm.	
	Group II	1–3	Th	Arm.	
		4	F	Arm.	

Mil. Sci. 5b. Junior Infantry.—Theory. *Prerequisite:* Mil. Sci. 4b.

1	81	1–3	Tu	148 Arm.	Milan
	82	10–12	F	148 Arm.	

Mil. Sci. 7a. Senior Infantry.—Practice. (Cadet Officers only.)

½	Co.'s A-M	(See 1a and 3a for hours.)			Stevens
		4	F	Arm.	

Mil. Sci. 7b. Senior Infantry.—Theory. (Cadet Officers only.)

1	91	9	TT	150 Arm.	Tabachnik
	92	2	WF	150 Arm.	

FIELD ARTILLERY

Mil. Sci. 11a. Freshman Field Artillery.—Practice.

½	1st Bn.	3–5	M	Arm.	Routheau
	2nd Bn.	10–12	Tu	Arm.	Marr
	3rd Bn.	1–3	Tu	Arm.	Clay
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	Th	Arm.	
	7th Bn.	1–3	F	Arm.	

Mil. Sci. 11b. Freshman Field Artillery.—Theory.

½	100	9	M	155 Arm.	Routheau
	101	10	M	155 Arm.	Marr
	102	11	M	155 Arm.	Clay
	103	2	M	155 Arm.	
	104	8	Tu	155 Arm.	
	105	9	Tu	155 Arm.	
	106	3	Tu	155 Arm.	
	107	8	W	155 Arm.	
	108	9	W	155 Arm.	
	109	10	W	155 Arm.	
	110	11	W	155 Arm.	
	111	3	W	155 Arm.	
	112	10	Th	155 Arm.	
	113	11	Th	155 Arm.	
	114	9	F	155 Arm.	
	115	10	F	155 Arm.	
	116	11	F	155 Arm.	

Mil. Sci. 13a. Sophomore Field Artillery.—Practice.

½	1st Bn.	3–5	M	Arm.	Cole
	2nd Bn.	10–12	Tu	Arm.	Quigley
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	Th	Arm.	
	6th Bn.	3–5	Th	Arm.	
	7th Bn.	1–3	F	Arm.	

Mil. Sci. 13b. Sophomore Field Artillery.—Theory.

Credit	Section	Hours	Days	Room	Instructor
½	130	9	M	154 Arm.	Cole
	131	10	M	154 Arm.	Quigley
	132	11	M	154 Arm.	
	133	8	Tu	154 Arm.	
	134	9	Tu	154 Arm.	
	135	8	W	154 Arm.	
	136	9	W	154 Arm.	
	137	10	W	154 Arm.	
	138	11	W	154 Arm.	
	139	10	Th	154 Arm.	
	140	11	Th	154 Arm.	
	141	9	F	154 Arm.	
	142	10	F	154 Arm.	
	143	11	F	154 Arm.	

Mil. Sci. 15a. Junior Field Artillery.—Practice. *Prerequisite:* Mil. Sci. 14a.

½	1st Bn.	3–5	M	Arm.	Dalferes
	2nd Bn.	10–12	Tu	Arm.	
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	Th	Arm.	
	7th Bn.	1–3	F	Arm.	

Mil. Sci. 15b. Junior Field Artillery.—Theory. *Prerequisite:* Mil. Sci. 14b.

1	160	9	M	152 Arm.	Dalferes
		9	W	152 Arm.	
		4	F	154 Arm.	
	161	10	M	152 Arm.	
		10	W	152 Arm.	
		4	F	154 Arm.	
	162	9	Tu	152 Arm.	
		9	Th	152 Arm.	
		4	F	154 Arm.	
	163	10	Tu	152 Arm.	
		10	Th	152 Arm.	
		4	F	154 Arm.	

Mil. Sci. 17a. Senior Field Artillery.—Practice. *Prerequisite:* Mil. Sci. 16a.

½	1st Bn.	3–5	M	Arm.	Burnell
	2nd Bn.	10–12	Tu	Arm.	
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	Th	Arm.	
	6th Bn.	3–5	Th	Arm.	
	7th Bn.	1–3	F	Arm.	

Mil. Sci. 17b. Senior Field Artillery.—Theory. *Prerequisite:* Mil. Sci. 16b.

1	190	10	M	153 Arm.	Burnell
		10	W	153 Arm.	
		4	F	153 Arm.	
	191	9	Tu	153 Arm.	
		9	Th	153 Arm.	
		4	F	153 Arm.	
	192	10	Tu	153 Arm.	
		10	Th	153 Arm.	
		4	F	153 Arm.	

CAVALRY

Mil. Sci. 21a. Freshman Cavalry.—Practice.

½	1A	10–12	M	Arm.	Grener
	1B	8–10	Tu	Arm.	
	1C	8–10	W	Arm.	
	1D	10–12	Th	Arm.	
	1E	10–12	F	Arm.	

Mil. Sci. 21b. Freshman Cavalry.—Theory.

½	201	9	M	146 Arm.	Bachelor
	202	3	M	146 Arm.	
	203	4	M	146 Arm.	
	204	10	Tu	146 Arm.	
	205	11	Tu	146 Arm.	
	206	8	Th	146 Arm.	
	207	9	Th	146 Arm.	
	208	1	F	146 Arm.	
	209	2	F	146 Arm.	

Mil. Sci. 23a. Sophomore Cavalry.—Practice.

½	2A	10–12	W	Arm.	Merrill
	2B	8–10	F	Arm.	Grener
	2C	8–10	S	Arm.	

Mil. Sci. 23b. Sophomore Cavalry.—Theory.

Credit	Section	Hours	Days	Room	Instructor
½	221	8	M	147 Arm.	MERRILL
	222	9	M	147 Arm.	
	223	2	Tu	147 Arm.	
	224	1	W	147 Arm.	
	225	2	W	147 Arm.	
	226	3	Th	147 Arm.	
	227	4	Th	147 Arm.	
	228	10	F	147 Arm.	

Mil. Sci. 25a. Junior Cavalry.—Practice. *Prerequisite:* Mil. Sci. 24a.

½	3A	8–10	Th	Arm.	BRYAN
	3B	8–10	S	Arm.	

Mil. Sci. 25b. Junior Cavalry.—Theory. *Prerequisite:* Mil. Sci. 24b.

1	241	1–3	M	146 Arm.	BRYAN
		4	F	146 Arm.	
	242	1–3	Tu	146 Arm.	
		4	F	146 Arm.	
	243	3–5	Th	146 Arm.	
		4	F	146 Arm.	

Mil. Sci. 27a. Senior Cavalry.—Practice. *Prerequisite:* Mil. Sci. 26a.

½	1A-1E incl. 2A-2C incl.	(See 21a and 23a for hours.)	FLINT

Mil. Sci. 27b. Senior Cavalry.—Theory. *Prerequisite:* Mil. Sci. 26b.

1	251	3–5	M	147 Arm.	FLINT
		4	F	147 Arm.	
	252	3–5	T	147 Arm.	
		4	F	147 Arm.	
	253	1–3	Th	147 Arm.	
		4	F	147 Arm.	

ENGINEERS

Prerequisite for all courses: Registration in College of Engineering or in Architecture.

Mil. Sci. 31a. Freshman Engineers.—Practice.

½	1st Bn.	3–5	W	Arm.	McDONOUGH
	2nd Bn.	3–5	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 31b. Freshman Engineers.—Theory.

½	301	11	Tu	144 Arm.	McDONOUGH
	302	1	Tu	144 Arm.	
	303	2	Tu	144 Arm.	
	304	3	Tu	144 Arm.	
	305	4	Tu	144 Arm.	
	306	8	W	144 Arm.	
	307	9	W	144 Arm.	
	308	10	W	144 Arm.	
	309	10	Th	144 Arm.	
	310	11	Th	144 Arm.	

Mil. Sci. 33a. Sophomore Engineers.—Practice.

½	1st Bn.	3–5	W	Arm.	MATTHEWS
	2nd Bn.	3–5	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 33b. Sophomore Engineers.—Theory.

½	321	1	Tu	145 Arm.	MATTHEWS
	322	2	Tu	145 Arm.	
	323	3	Tu	145 Arm.	
	324	8	W	145 Arm.	
	325	9	W	145 Arm.	
	326	10	W	145 Arm.	
	327	11	W	145 Arm.	

Mil. Sci. 35a. Junior Engineers.—Practice. *Prerequisite:* Mil. Sci. 34a.

½	1st-3rd Bn. incl.	(See 31a for hours.)	Arm.	MATTHEWS

Mil. Sci. 35b. Junior Engineers.—Theory. *Prerequisite:* Mil. Sci. 34b.

1	341	1–3	Th	145 Arm.	MATTHEWS
		4	F	145 Arm.	
	342	4	F	145 Arm.	
		10–12	S	145 Arm.	

Mil. Sci. 37a. Senior Engineers.—Practice. *Prerequisite:* Mil. Sci. 36a.

½	1st-3rd Bn. incl.	(See 31a for hours.)	Arm.	McDONOUGH

Mil. Sci. 37b. Senior Engineers.—Theory. *Prerequisite:* Mil. Sci. 36b.

Credit	Section	Hours	Days	Room	Instructor
1	351	8–10	Tu	144 Arm.	McDonough
		4	F	144 Arm.	
	352	4	F	144 Arm.	
		8–10	S	144 Arm.	

SIGNAL CORPS

Mil. Sci. 41a. Freshman Signal Corps.—Practice.

½	A	3–5	Tu	Arm.	James
	B	3–5	W	Arm.	Stice

Mil. Sci. 41b. Freshman Signal Corps.—Theory.

½	400	10	M	222 Arm.	Stice
	401	10	Tu	222 Arm.	
	402	1	W	222 Arm.	
	403	1	Th	222 Arm.	
	404	10	F	222 Arm.	

Mil. Sci. 43a. Sophomore Signal Corps.—Practice.

½	A-B	(See 41a for hours.)	James and Stice

Mil. Sci. 43b. Sophomore Signal Corps.—Theory.

½	410	9	Tu	222 Arm.	James
	411	11	Tu	222 Arm.	
	412	1	Tu	222 Arm.	
	413	9	W	222 Arm.	
	414	9	F	222 Arm.	
	415	11	F	222 Arm.	

Mil. Sci. 45a. Junior Signal Corps.—Practice. *Prerequisite:* Mil. Sci. 44a.

½	A-B	(See 41a for hours.)	James and Stice

Mil. Sci. 45b. Junior Signal Corps.—Theory. *Prerequisite:* Mil. Sci. 44b.

1	420	3–5	M	222 Arm.	Stice
		4	F	222 Arm.	

Mil. Sci. 47a. Senior Signal Corps.—Practice. *Prerequisite:* Mil. Sci. 46a.

½	A-B	(See 41a for hours.)	James and Stice

Mil. Sci. 47b. Senior Signal Corps.—Theory. *Prerequisite:* Mil. Sci. 46b.

1	430	Radio Engineering registration in E.E. 51.			Brown
	431	4	F	143 Arm.	Stice

COAST ARTILLERY (ANTI-AIRCRAFT)

Mil. Sci. 51a. Freshman Coast Artillery (AA).—Practice.

½	A	3–5	Tu	Arm.	Wortman
	B	1–3	Th	Arm.	
	C	8–10	S	Arm.	

Mil. Sci. 51b. Freshman Coast Artillery (AA).—Theory.

½	501	9	M	151 Arm.	Wortman
	502	10	M	151 Arm.	
	503	1	M	151 Arm.	
	504	10	Tu	151 Arm.	
	505	2	Tu	151 Arm.	
	506	9	Th	151 Arm.	
	507	11	Th	151 Arm.	
	508	4	Th	151 Arm.	
	509	11	F	151 Arm.	
	510	1	F	151 Arm.	

Mil. Sci. 53a. Sophomore Coast Artillery (AA).—Practice.

½	D	3–5	Tu	Arm.	Chapman
	E	1–3	Th	Arm.	Cary
	F	8–10	S	Arm.	

Mil. Sci. 53b. Sophomore Coast Artillery (AA).—Theory.

½	521	2	M	151 Arm.	Wortman
	522	9	Tu	151 Arm.	Cary
	523	10	W	151 Arm.	
	524	10	Th	151 Arm.	
	525	3	Th	151 Arm.	
	526	10	F	151 Arm.	
	527	2	F	151 Arm.	
	528	10	S	151 Arm.	

Mil. Sci. 55a. Junior Coast Artillery (AA).—Practice. *Prerequisite:* Mil. Sci. 54a.

Credit	Section	Hours	Days	Room	Instructor
½	Group I	1–3	Tu	152 Arm.	CARY
		4	F	152 Arm.	
	Group II	2–4	F	152 Arm.	
		4	F	152 Arm.	

Mil. Sci. 55b. Junior Coast Artillery (AA).—Theory. *Prerequisite:* Mil. Sci. 54b.

1	531	1–3	M	152 Arm.	CARY
	532	4	TT	152 Arm.	
	533	10–12	S	152 Arm.	

Mil. Sci. 57a. Senior Coast Artillery (AA).—Practice. *Prerequisite:* Mil. Sci. 56a.

½	Batteries A-F	(See 51a and 53a for hours.)			CHAPMAN
		4	F	151 Arm.	

Mil. Sci. 57b. Senior Coast Artillery (AA).—Theory. *Prerequisite:* Mil. Sci. 56b.

1	541	3–5	M	152 Arm.	CHAPMAN
	542	11	TT	152 Arm.	

MINING AND METALLURGICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.00 to $7.50.

A. MINING

Courses for Undergraduates

Mining 1. Elements of Mining.—(For students in Mining Engineering only.) *Prerequisite:* Physics 1b-3b. (3). 11 ThS, 10-12 Tu; 206 T.B. Mr. NICHOLSON.

Mining 2. Mining Principles.—(For students in courses other than mining.) *Prerequisite:* Math. 2; one year of college chemistry. (3). 9 MWF; 206 T.B. Assistant Professor MITCHELL.

Mining 6. Mechanical Engineering of Mines.—*Prerequisite:* Mining 4 and 10; M.E. 62; T.A.M. 2. (3). 11 MWF; 206 T.B. Professor CALLEN.

Mining 8. Mine Administration.—*Prerequisite:* Mining 4; Accy. 12. (3). 10 MWF; 207 T.B. Mr. NICHOLSON.

Mining 9. Preparation of Coal and Ores.—*Prerequisite:* Chemistry 22; Physics 1b-3b; Geol. 20 or equivalent. (3). 11 TT, 1-4 F; 207 T.B. and Mining Lab. Assistant Professor MITCHELL.

Mining 12. Mining Geology.—*Prerequisite:* Geol. 49; Mining 4. (3). 8 TT, 8-11 S; 206 T.B. and Mining Lab. Mr. NICHOLSON.

Mining 41. Mining Design.—*Prerequisite:* Senior standing in Mining Engineering. (3). 1-5 TT; 207 T.B. Assistant Professor MITCHELL.

Mining 61. Elementary Mine Surveying.—*Prerequisite:* G.E.D. 1 or 4; Math. 4. (3). 1 M, 1-4 WF; 207 T.B. Mr. NICHOLSON.

Mining 97. Thesis.—Hours arranged when thesis is permitted, in accordance with the regulations of the College of Engineering.

Mining 99. Inspection Trip.—*Prerequisite:* Senior standing. (No credit).

Courses for Graduates

Mining 101. Advanced Mining Practice.—(1 unit). Arrange. Professor CALLEN.

Mining 102. Advanced Preparation of Coal and Ores.—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 104.[1] Mining Reports.—(1 unit). Arrange. Professor CALLEN.

Mining 105.[1] Welfare Work and Education among Mine Employees.—(1 unit). Arrange. Professor CALLEN.

Mining 106.[1] Advanced Coal, Ore, and Metallurgical Plant Design.—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 107.[1] Advanced Non-Ferrous Metallurgical Projects.—(1 unit). Arrange. Assistant Professor MITCHELL.

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[1]Of courses 104 and 105, only one will be given, according to election of students; the same applies to courses 106 and 107.

B. METALLURGY

Courses for Undergraduates

Met. 1. Elements of Metallurgy.—Process metallurgy (iron and steel); principles of physical metallurgy. *Prerequisite:* Chem. 4, Physics 1b-3b; junior standing in College of Engineering. (3). 8 MWF; 206 T.B. Assistant Professor WILDER.

Met. 3. Fire Assaying.—*Prerequisite:* Chem. 22; Geol. 20. (2). 1-5 M, 11 S; Mining Lab. and 207 T.B. Assistant Professor MITCHELL.

Met. 4. Physical Metallurgy.—*Prerequisite:* Met. 2. (3). 10 TTS; 207 T.B. Assistant Professor WILDER.

Met. 7. Metallography.—*Prerequisite:* Met. 4; Chem. 40. (2). 1-4 MW; Mining Lab. and 206 T.B. Assistant Professor WILDER.

Met. 8. Non-Ferrous Metallurgy.—*Prerequisite:* Met. 6. (3). 9 TTS; 206 T.B. Assistant Professor MITCHELL.

Met. 9. Physical-Chemical Treatment.—*Prerequisite:* Registration in Met. 7. (3). 9 M, 9-12 WF; Mining Lab. Assistant Professor WILDER.

Met. 13. Utilization of Fuels.—*Prerequisite:* Chem. 22; junior standing in College of Engineering. (3). 9 MW, 1-4 W; 207 T.B. and Mining Lab. Professor CALLEN.

Met. 41. Metallurgical Design.—*Prerequisite:* Senior standing in Metallurgical Engineering. (3). 1-5 TT; 207 T.B. Assistant Professor MITCHELL.

Met. 97. Thesis.—Hours arranged when thesis is permitted, in accordance with the regulations of the College of Engineering.

Met. 99. Inspection Trip.—*Prerequisite:* Senior standing. (No credit).

MUSIC

Courses for Undergraduates

Music 1. History of Music.—*Prerequisite:* One year of university work. (2). 11 MWF; Lecture Room, 3rd floor, S.M.H. Professor SCHWARTZ.

Music 3. Theory of Music (Harmony).—*Prerequisite:* Music 8 or the consent of the instructor.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	106 S.M.H.	KESSLER
	B	1	MWF	103 S.M.H.	MILES

Music 5a. Theory of Music (Advanced Harmony).—*Prerequisite:* Music 4. (2). 3 TT; 103 S.M.H. Assistant Professor KESSLER.

Music 6a. Free Counterpoint.—*Prerequisite:* Music 5b. (2). 11 WF; 106 S.M.H. Associate Professor MILES.

Music 7. Strict Counterpoint.—*Prerequisite:* Consent of instructor.

3	A	10	MWF	103 S.M.H.	KESSLER
	B	2	MWF	103 S.M.H.	METCALF
	C	11	MWF	103 S.M.H.	KESSLER
	D	3 1	M TT	103 S.M.H.	METCALF

Music 9. Analysis, Musical Form.—*Prerequisite:* Music 5b.

2	A	9	MTh	103 S.M.H.	SCHWARTZ
	B	9	TT	103 S.M.H.	

Music 11a. Composition.—*Prerequisite:* Senior standing. (2). Arrange. Associate Professor MILES.

Music 12a. Advanced Composition.—*Prerequisite:* Senior standing. (4). Arrange. Associate Professor MILES.

Music 13. Music Appreciation.—

2	A	10	TT	Lecture Room, 3rd floor, S.M.H.	STIVEN
	B (P.S.M.)	3	TT	106 S.M.H.	KITCHELL

Music 15. Instrumentation.—*Prerequisite:* Junior standing. (1 or 2).* 2 TT; Band Building. Professor HARDING.

Music 17. Advanced Orchestration.—*Prerequisite:* Music 15 and 16. (4). Arrange. Professor HARDING.

Music 19a. Double Counterpoint, Canon, and Fugue.—*Prerequisite:* Music 5b. (3). 3 MWF; 106 S.M.H. Assistant Professor KESSLER.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Music 21. Ear Training and Sight Singing.—

Credit	Section	Hours	Days	Room	Instructor
1	A	9	MW	106 S.M.H.	PERCIVAL
	B	11	MTh	106 S.M.H.	
	C	8	TT	106 S.M.H.	

Music 23. Ear Training and Sight Singing.—*Prerequisite:* Music 22.

1	A	9	TT	106 S.M.H.	PERCIVAL
	B	10	MW	106 S.M.H.	
	C	10	TT	106 S.M.H.	

Music 25a. Elementary School Methods.—*Prerequisite:* Junior standing or consent of instructor. (3). 1 MWTF; 106 S.M.H. Mr. HOLMES.

Music 26a. High School Methods.—*Prerequisite:* Music 25a and 25b or consent of instructor. (2). 2 MWF; 106 S.M.H. Miss KITCHELL.

Music 27. Thesis.—(1). Arrange.

Music 30a. Ensemble.—*Prerequisite:* Junior standing or consent of instructor.

½-1*	A (Piano)	3	MTh	209 S.M.H.	WATT
	B (Vocal group)	4	MW	210 S.M.H.	HAMP
	C (Chorus)	7	Th	Recital Hall	MILES and DEMMING
			Arrange other hour		
	D (Opera)	3	TT	207 S.M.H.	SUTHERLIN
	E (Woman's Glee Club)	10	TT	Auditorium	DEMMING
	F (Orchestra)	4	TW	Orchestra Room	STIVEN
	G (Men's Glee Club)	11 or 1	TT	Auditorium	HAMP

Music 31a. Ensemble.—*Prerequisite:* Music 30b. Sections same as in Music 30a. Arrange.

Music 32. Advanced History of Music.—*Prerequisite:* Music 1 and 2.

2	A	9	WF	103 S.M.H.	SCHWARTZ
	B	10	TT	103 S.M.H.	

Music 35. Recital Course in Applied Music.—(Required of seniors in Instrumental major). (4). Arrange.

Music 36. Recital Course in Applied Music.—(Required of seniors in Voice major). (3). Arrange.

Music 37. Recital Course in Composition.—(Required of seniors in Theory major). (4). Arrange.

Music 38a. Conducting and Organization.—*Prerequisite:* Music 16. (2). 1-3 MWF; Band Building. Professor HARDING.

Music 68a. String Instruments.—(2). 8 MTWTF; Orchestra Room. Mr. COHEN.

Music 98a. Wind Instruments.—(2). 9 MTWTF; Band Building. Mr. HINDSLEY.

APPLIED MUSIC COURSES

Note: Students enrolled in the curricula in Music pay a flat fee of $25 per semester for one or more of the courses in Applied Music. Students enrolled in other curricula pay fees of $25 for each two hours of credit for which they register in courses in Applied Music.

Students in music curricula will receive 4 to 5 hours credit for their major subject in Applied Music. They will ordinarily receive 2½ hours credit for their minor subject. Students from other colleges will ordinarily receive 2 hours credit if in accordance with the regulations of their college.

Courses in Applied Music which require one 30-minute lesson per week of recitation and *one* hour daily of preparation receive 2 hours credit.

Courses in Applied Music which require two 20-minute lessons per week of recitation and *one* hour daily of preparation receive 2½ hours credit.

Courses in Applied Music which require two 30-minute lessons per week of recitation and *two* hours daily of preparation receive 4 hours credit.

Courses in Applied Music which require two 30-minute lessons per week of recitation and *three* hours daily of preparation receive 5 hours credit.

Music 42a, b to 47a, b. Piano.—(2 to 5).* Arrange. Professor VAN DEN BERG, Assistant Professors WATT, SCHOONMAKER, HILL; Mrs. SULLIVAN, Miss USRY, Mr. METCALF.

Music 52a-d to 57a-d. Voice.—(1 to 4).* Arrange. Mr. HAMP, Miss SUTHERLIN, Mr. FOOTE, Miss BOWEN, Mr. DEMMING. (Parts *a* and *b* in each course indicate individual instruction in Voice (2-3), and parts *c* and *d* indicate classes in Singing Diction (1), required of voice major students.)

Music 62a, b to 67a, b. Violin.—(2 to 5).* Arrange. Assistant Professor ROOSA, Mr. COHEN.

Music 72a, b to 77a, b. Violoncello.—(2 to 5).* Arrange. Mrs. SULLIVAN.

Music 82a, b to 87a, b. Organ.—(2 to 5).* Arrange. Associate Professor MILES, Mr. DEMMING.

Music 92a-d to 97a-d. Band and Orchestral Instruments.—(2 to 4).* All these courses are required for major work in this group. Parts *a* and *b* in each course are concerned with professional instruments, and parts *c* and *d* with supplementary instruments. Professor HARDING, Mr. HINDSLEY.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

PHILOSOPHY

Major: 20 hours from any courses offered by the department, including Phil. 1, 3, 4, 7. Six hours in psychology may be counted towards a major in philosophy.

Minors: 20 hours in (a) psychology (at least six additional hours if psychology is counted toward a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) astronomy, botany, chemistry, mathematics, physics, zoology, geology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Phil. 1. Introduction to Philosophy.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	117 L.H.	Kubitz
	B	9	MWF	117 L.H.	Morrow
	C	10	MWF	117 L.H.	Gotshalk
	D	10	MWF	123 L.H.	DeLargy
	E	11	MWF	117 L.H.	DeLargy
	F	1	MWF	117 L.H.	Kubitz
	G	2	MWF	117 L.H.	Kubitz

Phil. 7. Ethics.—*Prerequisite:* One year of university work.

3	Lect.	9	TT	202 L.H.	Morrow
	A Disc.	11	Tu	123 L.H.	Morrow
	B Disc.	11	Th	123 L.H.	Morrow
	C Disc.	2	Th	123 L.H.	Morrow

Phil. 20. Honors Course.—*Prerequisite:* Senior standing. (2). Arrange.

Courses for Advanced Undergraduates and Graduates

Phil. 3. History of Ancient and Mediaeval Philosophy.—*Prerequisite:* Junior standing.

4	Lect.	10	TT	300 Math.	Nicholson
	A Disc.	11	W	227 L.H.	Nicholson
	B Disc.	2	W	148 L.H.	Nicholson
	C Disc.	2	Th	117 L.H.	Nicholson
	D Disc.	3	Th	117 L.H.	Nicholson
	E Disc.	11	Th	117 L.H.	Kubitz
	F Disc.	1	Th	117 L.H.	DeLargy
	G Disc.	(Arrange—for graduate students)			Morrow

Phil. 8. Philosophy of the Recent Past.—*Prerequisite:* Philosophy 4. (3). 10 MWF; 114 L.H. Assistant Professor Nicholson.

Phil. 11a. Philosophy of Religion (Systematic).—*Prerequisite:* Three hours of philosophy. (3). 11 MWF; 113 L.H. Professor Tawney.

Phil. 12. Philosophy of Art.—*Prerequisite:* Three hours of philosophy. (3). 9 MWF; 133 L.H. Assistant Professor Gotshalk.

Phil. 21. Theory of Knowledge.—*Prerequisite:* Three hours of philosophy. (3). 2 MWF; 104 L.H. Dr. DeLargy.

Courses for Graduates

Phil. 105. Seventeenth Century Continental Thought.—(1 unit). Arrange. Assistant Professor Gotshalk.

Phil. 106. British and American Idealism.—(1 unit). Arrange. Professor Morrow.

Phil. 108. Plato.—(1 unit). Arrange. Professor Tawney.

Phil. 119. Seminar in Ancient Philosophy.—(1 unit). Arrange. Dean McClure.

PHYSICAL EDUCATION FOR MEN

Note: Each student registering for a course or courses in physical education is assessed a locker fee of $1 for the semester.

Freshmen and Sophomores: Men entering the University as freshmen are required to obtain credit for four semesters of work in physical education; those entering as sophomores, two semesters. They may obtain this credit by courses listed below or by proficiency examinations which are offered at times specified by the department.

Major: For Curriculum in Physical Education for Men, see "Directions for Registration."

For information, late registration, changing sections, call at Room 201, Men's Old Gymnasium.

Courses for Undergraduates

P.E. 20a, 20b, 20c, 20d. Adapted Activities.—Open only to students who fail to pass the health examinations. Students enrolling for the first time should register for P.E. 20a. Students enrolling for the second, third, or fourth time should register for P.E. 20b, 20c, and 20d, respectively.

Credit	Section	Hours	Days	Room	Instructor
1	B	9	MWF	New Gym.	
	C	10	MWF	New Gym.	Stafford
	D	11	MWF	New Gym.	Stafford

P.E. 20a, 20b, 20c, 20d. Adapted Activities (concluded)

Credit	Section	Hours	Days	Room	Instructor
1	F	2	MWF	New Gym.	Brown
	G	3	MWF	New Gym.	McCristal
	H	4	MWF	New Gym.	McCristal
	K	9	MWF	Old Gym.	Monsson
	L	10	MWF	Old Gym.	Monsson
	M	11	MWF	Old Gym.	Monsson
	O	2	MWF	Old Gym.	
	P	3	MWF	Old Gym.	
	Q	4	MWF	Old Gym.	

P.E. 21a, 21b, 21c, 21d. Special Activity.—Open only to students assigned by the Department of Health Service. Students assigned to this course meet twice a week in connection with P.E. 20a, 20b, 20c, and 20d, Adapted Activities. Students enrolling for the first time should register for P.E. 21a. Students enrolling for the second, third, or fourth time should register for P.E. 21b, 21c, and 21d, respectively.

½		To be arranged			Stafford
P.E. 23. Volley Ball.—					
½	J	8	TT	Old Gym.	Monsson
	K	9	TT	Old Gym.	Monsson
P.E. 24. Beginning Swimming.—					
½	C	10	MW	Old Pool	Kasch
	D	11	MW	Old Pool	Kasch
	F	2	MW	Old Pool	Kasch
	G	3	MW	Old Pool	Kasch
	L	10	TT	Old Pool	Treece
	M	11	TT	Old Pool	Treece
	O	2	TT	Old Pool	Treece
	P	3	TT	Old Pool	Treece
P.E. 25. Individual Tumbling Stunts.—					
½	B	9	MW	Old Gym.	Jennings
	C	10	MW	Old Gym.	Jennings
	D	11	MW	Old Gym.	Jennings
	F	2	MW	Old Gym.	Jennings
P.E. 26. Double Tumbling Stunts.—					
½	L	10	TT	Old Gym.	McCristal
	M	11	TT	Old Gym.	McCristal
P.E. 27. Apparatus Stunts.—					
½	O	2	TT	Old Gym.	McCristal
	P	3	TT	Old Gym.	McCristal
P.E. 28. Boxing.—					
½	C	10	MW	Old Gym.	Kenney
	E	1	MW	Old Gym.	Law
	L	10	TT	Old Gym.	Law
	M	11	TT	Old Gym.	Law
P.E. 29. Wrestling.—					
½	C	10	MW	Old Gym.	Law
	D	11	MW	Old Gym.	Kenney
	G	3	MW	Old Gym.	Law
	L	10	TT	Old Gym.	Kenney
	M	11	TT	Old Gym.	Kenney
	N	1	TT	Old Gym.	Kenney
	O	2	TT	Old Gym.	Kenney
	P	3	TT	Old Gym.	Law
P.E. 30. Fencing.—					
½	G	3	MW	Old Gym.	Craig
	H	4	MW	Old Gym.	Craig
	P	3	TT	Old Gym.	Craig
	Q	4	TT	Old Gym.	Craig
P.E. 31. Soccer.—					
½	F	2	MW	New Gym.	Monsson
	G	3	MW	New Gym.	Monsson
	L	10	TT	New Gym.	Monsson
	M	11	TT	New Gym.	Monsson
	O	2	TT	New Gym.	Palmer
	P	3	TT	New Gym.	Palmer
	Q	4	TT	New Gym.	Palmer
P.E. 32. Golf.—					
½	B	9	MW	New Gym.	Brown
	C	10	MW	New Gym.	Brown
	D	11	MW	New Gym.	Brown
	N	1	TT	New Gym.	Brown
	O	2	TT	New Gym.	Brown

P.E. 33. Tennis.—

Credit	Section	Hours	Days	Room	Instructor
½	E	1	MW	New Gym.	
	F	2	MW	New Gym.	
	G	3	MW	New Gym.	
	J	8	TT	New Gym.	
	K	9	TT	New Gym.	
	L	10	TT	New Gym.	
	M	11	TT	New Gym.	

P.E. 34. Softball and Skating.—Laboratory fee, $2.25.

½	B	9	MW	New Gym.	Paterson
	C	10	MW	New Gym.	Paterson
	D	11	MW	New Gym.	Paterson
	K	9	TT	New Gym.	Paterson
	L	10	TT	New Gym.	Paterson
	M	11	TT	New Gym.	Paterson

P.E. 35. Tap Dancing.—

½	E	1	MW	New Gym.	McCristal
	F	2	MW	New Gym.	McCristal
	J	8	TT	New Gym.	McCristal
	K	9	TT	New Gym.	McCristal

P.E. 36. Clog Dancing.—

½	L	10	TT	New Gym.	Brown
	M	11	TT	New Gym.	Brown

P.E. 37. Individual Athletics.—

½	K	9	TT	Old Gym.	Palmer
	L	10	TT	Old Gym.	Palmer
	M	11	TT	Old Gym.	Palmer

P.E. 38. Circus Stunts.—

½	H	4	MW	Old Gym.	Jennings
	Q	4	TT	Old Gym.	Jennings

P.E. 39. Advanced Circus Stunts.—

½	H	4	MW	Old Gym.	Jennings
	Q	4	TT	Old Gym.	Jennings

P.E. 40. Games, Contests, and Relays.—

½	F	2	MW	Old Gym.	Law
	G	3	MW	Old Gym.	Law

P.E. 41. Advanced Swimming.—Open only to students who can swim 100 yards.

½	F	2	MW	New Pool	Treece
	G	3	MW	New Pool	Treece
	L	10	TT	New Pool	Craig
	M	11	TT	New Pool	Craig
	O	2	TT	New Pool	Treece
	P	3	TT	New Pool	Treece

P.E. 42. Life Saving and Diving.—Open only to students who can swim 200 yards using two different strokes.

½	B	9	MW	New Pool	Craig
	C	10	MW	New Pool	Craig

P.E. 43. Water Polo and Ice Hockey.—Open only to students who can swim 100 yards and who can skate fairly well. Laboratory fee $2.25.

½	O	2	TT	New Pool	Paterson
	P	3	TT	New Pool	Paterson

P.E. 44. Handball.—

½	A	8	MW	New Gym.	Treece
	B	9	MW	New Gym.	Treece
	C	10	MW	New Gym.	Treece
	D	11	MW	New Gym.	Treece
	P	3	TT	New Gym.	Kasch
	Q	4	TT	New Gym.	Kasch

P.E. 45. Squash Racquets.—

½	N	1	TT	New Gym.	
	O	2	TT	New Gym.	

PROFESSIONAL COURSES

Note: Certain courses in this department require laboratory fees varying from $1 to $2.

First Year

P.E. 0. Introduction to Physical Education (Orientation Course).—

2	L	10	TT	209 New Gym.	Price

P.E. 1. Beginning Basketball.—(Second half of semester).

Credit	Section	Hours	Days	Room	Instructor
2	E	1–3	MTWTF	New Gym.	MILLS

P.E. 2. Tumbling and Calisthenics.—(First half of semester).

2	A	8–10	MTWTF	Old Gym.	PRICE

P.E. 4. Beginning Football.—(First half of semester).

2	E	1–3	MTWTF	Armory Field	MILLS

P.E. 10. Beginning Apparatus Stunts.—(Second half of semester).

2	A	8–10	MTWTF	Old Gym.	PRICE

SECOND YEAR

P.E. 5. Advanced Football.—(First half of semester).

2	A	8–10	MTWTF	Armory Field	WILSON

P.E. 6. Boxing and Wrestling.—(Second half of semester).

2	A	8–10	MTWTF	Wrestling Room	KENNEY and assistants

P.E. 11. Swimming.—

2	A	8	MTWTF	Old Pool	MANLEY

P.E. 12. Track and Field.—

2	B	9	MTWTF	Illinois Field and Armory	SEATON

THIRD YEAR

P.E. 8. Baseball.—(First half of semester).

2	E	1–3	MTWTF	Illinois Field	ROETTGER

P.E. 9. The School Program in Health.—

4	B	9	MTWTF	209 New Gym.	STAFFORD

P.E. 16. Advanced Apparatus Stunts.—(Second half of semester).

2	E	1–3	MTWTF	Old Gym.	PRICE

FOURTH YEAR

P.E. 3a. Theory of Sports.—

2	L	10–12	TT	207 New Gym.	MILLS

P.E. 7. Training and First Aid.—

2	K	9	TT	119-122 New Gym.	BULLOCK

P.E. 18. The Curriculum in Physical Education.—

5	E	1	MTWTF	209 New Gym.	STALEY

PHYSICAL EDUCATION FOR WOMEN

Note: Each student registering for a course or courses in physical education is assessed a locker fee of $1 for the semester.

Freshmen and Sophomores: Of the four required semesters in physical education, the department requires: one semester of gymnastics (P.E. 72) or rhythms (P.E. 51); one semester of swimming (P.E. 75, 76, 54); one semester of individual sports (P.E. 60) or seasonal sports (P.E. 73) or team games (P.E. 58); and one semester of an elective.

Proficiency examinations in any courses offered to freshmen and sophomores may be taken at times specified by the department. These will be given each semester.

Major: For Curriculum in Physical Education for Women, see "Directions for Registration."

Courses for Undergraduates

P.E. 51. Elementary Rhythms.—

Credit	Section	Hours	Days	Room	Instructor
1	B	9	MWF	South Room, W.Gym.	CUTHBERT
	D	11	MWF	South Room, W.Gym.	JOHNSON
	F	2	MWF	South Room, W.Gym.	JOHNSON

P.E. 52. Intermediate Rhythms.—

1		4	MW	South Room, W.Gym.	JOHNSON

P.E. 54. Diving and Swimming.—*Prerequisite:* P.E. 76 or equivalent.

1		11	TT	Pool, W.B.	RENSHAW, MOHN

P.E. 55. Life Saving.†—*Prerequisite:* P.E. 76 or equivalent.

1		3	TT	Pool, W.B.	RENSHAW, MOHN

†This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

P.E. 56. Individual Gymnastics.—

Credit	Section	Hours	Days	Room	Instructor
1	A	8	MWF	Corr. Room, W.Gym.	SCHNAUBER
	B	9	MWF	Corr. Room, W.Gym.	
	C	10	MWF	Corr. Room, W.Gym.	
	D	11	MWF	Corr. Room, W.Gym.	
	F	2	MTT	Corr. Room, W.Gym.	

P.E. 57. Modified Sports and Dancing.†—

1	10	TT	North Room, W.Gym.	HUELSTER

P.E. 58. Team Games.—

1					
Speedball and Volleyball	C	10	MWF	South Room, W.Gym.	HUELSTER
Soccer and Indoor Baseball	D	11	MWF	North Room, W.Gym.	HUELSTER
Hockey and Volleyball	F	2	MWF	North Room, W.Gym.	VAN VLEET

P.E. 60. Handball, Tenikoit, and Badminton.—

1	M	11	TT	South Room, W.Gym.	HUELSTER
	O†	2	TT	South Room, W.Gym.	HUELSTER

P.E. 62. Rhythms.†—For juniors in the School of Physical Education.

2	9	TT	North Room, W.Gym.	JOHNSON

P.E. 66. Elective Athletic Activities.—(Participation in W.A.A. sports; registration on recommendation of department).

1 Two 45-minute periods to be arranged.

P.E. 70a. Hockey and Gymnastics.—For freshmen intending to specialize in physical education. (Freshmen will also register for P.E. 75, 76, 54, or 55, on recommendation of adviser.)

2	3	MTWTF	W.Gym.	ROBERTSON, VAN VLEET

P.E. 71a. Hockey, Folk Dancing, Gymnastics.—For sophomores majoring in physical education.

2	3	MTWTF	W.Gym.	ROBERTSON, VAN VLEET

P.E. 72. Gymnastics.—

1	B	9	MWF	North Room, W.Gym.	VAN VLEET
	C	10	MWF	North Room, W.Gym.	VAN VLEET

P.E. 73. Seasonal Sports.—(For Skating, Sections B, C, and O, laboratory fee, $3.)

1					
Tennis and Skating	B	9	MWF	129 W.Gym.	ROBERTSON
Tennis and Skating	C	10	MWF	129 W.Gym.	ROBERTSON
Tennis and Skating	O†	2	TT	129 W.Gym.	ROBERTSON
Elementary Golf and Volleyball	G†	3	MW	South Room, W.Gym.	LAWSON
Advanced Golf and Indoor Baseball	H	4	MW	North Room, W.Gym.	LAWSON

P.E. 75. Elementary Swimming.—

1	B	9	MWF	Pool, W.B.	RENSHAW, MOHN
	D	11	MWF	Pool, W.B.	
	F	2	MWF	Pool, W.B.	

P.E. 76. Intermediate Swimming.—

1	C	10	MWF	Pool, W.B.	RENSHAW, MOHN
	G	3	MWF	Pool, W.B.	
(Sub-Int. & Int.)	Q†	4	TT	Pool, W.B.	

P.E. 77. Elementary Clog and Tap Dancing.—

1	F	2	MWF	Gym., W.B.	HUELSTER
	G	3	MWF	Gym., W.B.	CUTHBERT
	M	11	TT	Gym., W.B.	VAN VLEET

P.E. 78. Intermediate Clog and Tap Dancing.—

1	D	11	MWF	Gym., W.B.	VAN VLEET

P.E. 79. Elementary Folk Dancing.†—

1	L	10	TT	South Room, W.Gym.	JOHNSON
	O	2	TT	North Room, W.Gym.	JOHNSON
	P	3	TT	South Room, W.Gym.	ROBERTSON

THEORY COURSES

P.E. 84. Therapeutics and First Aid.—For juniors in the School of Physical Education.

3 or 2	8	TT	129 W.Gym.	SCHNAUBER

P.E. 85. Pageantry and Festivals.—For seniors in the School of Physical Education. Open to students of other colleges with consent of instructor.

2	1	TT	129 W.Gym.	JOHNSON

†This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

P.E. 90a. History and Principles of Physical Education.—For seniors in the School of Physical Education.

Credit	Section	Hours	Days	Room	Instructor
2		11	TT	129 W.Gym.	Freer

P.E. 95a. Methods of Teaching.—For juniors in the School of Physical Education.

4		1	MTWTF	128 W.Gym.	Robertson

P.E. 96a. Kinesiology.—For juniors in the School of Physical Education.

3		8	MWF	129 W.Gym.	Huelster

P.E. 97a. Educational Practice.—For seniors in the School of Physical Education.

3		1	MWF	129 W.Gym.	Lawson

PHYSICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $10.00.

Major: 20 hours from courses offered in the department. At least five hours must be offered from the group of courses for advanced undergraduates and graduates.

Minors: 20 hours in one or two of the following subjects, with not less than eight hours in each department if two subjects are chosen: mathematics (courses in calculus and beyond), astronomy, chemistry (except Chem. 1, 2, 3, 4, 5, 6, or 7), education, or engineering.

For undergraduate students taking advanced work or a major in physics, the following courses are suggested:

Freshman year: Trigonometry and analytic geometry.

Sophomore year: Physics 1a-1b, 3a-3b, and calculus.

Junior year: Physics 14, 23, 44, 60, 61.

Senior year: Physics 30, 62, 71, 72, 78, 80.

Physics 7a-7b and 8a-8b are recommended to students not specializing in physics, mathematics, chemistry, or engineering.

The general physics prerequisite for certain courses may be satisfied by either Physics 1a-1b and 3a-3b or by 7a-7b and 8a-8b. The calculus prerequisite may be satisfied either by Mathematics 7 and 9 or by Mathematics 8a-8b.

Introductory Courses for Undergraduates

Physics 1a. General Physics.—*Prerequisite:* Math. 2 and 4; registration in Physics 3a.

Credit	Section	Hours	Days	Room	Instructor
3	Lect. A	11	M	100 P.L.	Kruger, Almy,
	Lect. B	2	M	100 P.L.	Loomis, and others
	Quiz A	8	MWF	305, 306, 403, 406 P.L.	
	Quiz B	9	MWF	305, 403, 406 P.L.	
	Quiz D	11	MWF	305, 306 P.L.	
	Quiz E	1	MWF	305, 306, 406 P.L.	
	Quiz F	8	TTS	305, 306, 406 P.L.	
	Quiz J	11	TTS	208, 302, 305 P.L.	

Physics 3a. General Physics Laboratory.—*Prerequisite:* Physics 1a or registration therein.

2	A	9–12	M	306 P.L.	Kruger and others
	B	2–5	M	302, 306 P.L.	
	C	9–12	Tu	305, 302 P.L.	
	D	2–5	Tu	302, 305 P.L.	
	E	9–12	W	104, 108 P.L.	
	F	2–5	W	302, 306 P.L.	
	G	9–12	Th	305, 302 P.L.	
	H	1–4	Th	302, 306 P.L.	
	I	9–12	F	119, 306 P.L.	
	J	2–5	F	302, 306 P.L.	
	K	9–12	S	302, 305 P.L.	

Physics 1b. General Physics.—*Prerequisite:* Math. 2 and 4; Physics 1a and registration in Physics 3b.

3	Lect.	11	W	119 P.L.	Schulz and others
	Quiz	11	TTF	403, 406 P.L.	

Physics 3b. General Physics Laboratory.—*Prerequisite:* Physics 1b or registration therein.

2	D	2–5	Tu	306, 406 P.L.	Schulz and others
	F	2–5	W	406 P.L.	

Physics 7a. General Physics.—*Prerequisite:* Trigonometry; registration in Physics 8a. (The prerequisite of trigonometry may be waived by students who have passed Chemistry 1 or 2 with a grade of "C" or better.)

3	Lect.	11	TT	100 P.L.	Watson, Paton,
	Quiz A	8	WF	204, 208 P.L.	and others
	Quiz B	9	WF	208, 302 P.L.	
	Quiz C	10	WF	208, 302 P.L.	
	Quiz D	11	WF	208, 302 P.L.	

Physics 8a. General Physics Laboratory.—*Prerequisite:* Physics 7a or registration therein.

Credit	Section	Hours	Days	Room	Instructor
2	A	9–12	M	208, 302 P.L.	PATON and others
	B	1–4	M	204, 208 P.L.	
	D	2–5	Tu	204, 208 P.L.	
	F	1–4	W	204, 208 P.L.	
	J	1–4	F	204, 208 P.L.	

Intermediate Course for Undergraduates

Physics 17. Light.—*Prerequisite:* General physics.

3	Lect.	9	TT	208 P.L.	SCHULZ
	Lab.	1–4	Th	313 P.L.	

Courses for Advanced Undergraduates and Graduates

Physics 14a. Theoretical Mechanics.—*Prerequisite:* General physics and calculus.

3		9	TTS	306 P.L.	MOTT-SMITH

Physics 16. Heat.—*Prerequisite:* General physics.

3		8	TTS	204 P.L.	PATON

Physics 30. Introduction to Theoretical Electricity.—*Prerequisite:* General physics and calculus.

3		9	MWF	204 P.L.	WILLIAMS

Physics 44a. Electric and Magnetic Measurements.—*Prerequisite:* General physics and calculus.

3	A	8–11	MF	104, 108 P.L.	KNIPP, WILLIAMS, and others
	B	1–4	MF	104, 108 P.L.	
	C	8–11	TT	104, 108 P.L.	
	D	1–4	TT	104, 108 P.L.	

Physics 71a. Light.—*Prerequisite:* General physics and calculus.

2		11	TT	204 P.L.	ALMY

Physics 72a. Light Laboratory.—*Prerequisite:* Registration in Physics 71a.

2		2–5	MW	313 P.L.	ALMY

Courses for Graduates

Physics 122a. Dynamics.—(1 unit). 8 TTS; 302 P.L. Professor KUNZ.

Physics 123. Dynamical Theory of Sound.—(1 unit). 11 MWF; 204 P.L. Professor WATSON.

Physics 124. Conduction of Electricity Through Gases.—(1 unit). 9 TTS; 119 P.L. Professor KNIPP.

Physics 127. Relativity.—(1 unit). 11 TTS; 306 P.L. Assistant Professor MOTT-SMITH.

Physics 128. Problems and Methods in Theoretical Physics.—(1 unit). 8 MWF; 302 P.L. Professor KUNZ.

Physics 170. Light.—(1 to 2 units).* 11 TT, 204 P.L.; 2-5 MW, 313 P.L. Assistant Professor ALMY.

Physics 183. Nuclear Structure.—(1 unit). 9 TTS; 204 P.L. Assistant Professor BARTLETT.

Physics 184. Line Spectra and Atomic Structure.—(1 unit). 10 TTS; 202 P.L. Assistant Professor KRUGER.

Physics 190. Research.—(1 to 3 units).* Arrange. Professors in the department.

Physics 198. Seminar.—(1 to 2 units).* Arrange. Professors in the department.

Physics 199. Physics Colloquium.—(No credit). 4:45 Th; 119 P.L. Assistant Professor MOTT-SMITH.

PHYSIOLOGY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $3.50.

Major: 20 hours from courses offered in the department, exclusive of Physiology 1.

Minors: 20 hours in not more than two of the following: bacteriology, botany, chemistry, entomology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Physiol. 1. Mammalian Physiology.—A survey of the field of mammalian physiology.

Credit	Section	Hours	Days	Room	Instructor
3[1]	[2]Lect. A	10	TT	228 N.H.	BURGE
	Quiz A1	3	M	425 N.H.	WICKWIRE
	Quiz A2	9	Tu	425 N.H.	
	Quiz A3	1	Tu	425 N.H.	
	Quiz A4	9	Th	435 N.H.	

[1]Seniors will receive only 2 hours credit.
[2]Students in Lect. A must elect an A quiz.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Physiol. 1. Mammalian Physiology (concluded)

Credit	Section	Hours	Days	Room	Instructor
3[1]	[3]Lect. B	8	MW	Morrow Hall	STEGGERDA
	Quiz B1	8	Th	425 N.H.	STEGGERDA
	Quiz B2	8	F	425 N.H.	
[3]Students in Lect. B must elect a B quiz.	Quiz B3	11	F	425 N.H.	
	Quiz B4	1	Tu	423 N.H.	

Physiol. 1a. Mammalian Physiology Laboratory.—*Prerequisite:* Physiology 1, or registration therein.

2	[1]Lab. A	10–12	MW	413 N.H.	JONES, KNEER
[1]Recommended for Home Econ. students and for others above freshman standing.	[2]Lab. B	1–3	MW	413 N.H.	
	[2]Lab. C	10–12	TT	413 N.H.	
	[1]Lab. D	2–4	TT	413 N.H.	

[2]Recommended for freshmen.

Physiol. 3a. Physiological Anatomy.—(For Physical Education students).

5[1]	Lect.	11	MW	218 U.H.	ELHARDT
	Lab. A	8–10	MW	405 N.H.	ORTH, NEILD
[1]Seniors will receive only 4 hours credit.	Lab. B	1–3	MW	405 N.H.	
	Lab. C	8–10	TT	408 N.H.	
	[2]Lab. D	10–12	TT	405 N.H.	
[2]For women.	Lab. E	1–3	TT	408 N.H.	
	Quiz F	9	F	425 N.H.	
	Quiz G	10	F	425 N.H.	
	Quiz H	11	F	241 N.H.	
	Quiz I	2	F	425 N.H.	

Physiol. 5 (formerly 9). Physiology of the Special Senses and Nervous System.—(Recommended for the general student.) *Prerequisite:* Physiology 1 or 3.

5	Lect.	10	MW	423 N.H.	WICKWIRE
	Quiz	10	F	423 N.H.	
	Lab. 4 hours per week. Arrange. 415 N.H.				

Physiol. 8. Thesis.—*Prerequisite:* Senior standing and 15 hours of physiology. (3 to 5).* Time to be arranged before registration. Associate Professor BURGE.

Courses for Advanced Undergraduates and Graduates

Physiol. 6. Advanced Mammalian Physiology of Muscle, Nervous System, Circulation, and Blood.—(To be followed by Physiol. 7 in the second semester.) *Prerequisite:* Physiology 1 and 1a, one semester of general chemistry, or consent of instructor.

5	Lect.	9	TT	423 N.H.	STEGGERDA
	Quiz	11	F	247 N.H.	STEGGERDA
	Lab.	1–5	F	413 N.H.	

Courses for Graduates

Physiol. 101. Journal Club.—Review of literature. (¼ unit). Arrange. Members of the staff.

Physiol. 102. Research.—(1 to 2 units).* Arrange. Associate Professor BURGE.

Physiol. 103. Experimental Physiology.—(½ to 1 unit).* Arrange. Associate Professor BURGE and Dr. STEGGERDA.

POLITICAL SCIENCE

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 44 or 62).

Minors: 20 hours selected from one or two of the following subjects: history, economics, law, sociology, philosophy, and education. At least eight hours must be offered in each subject, if two are chosen.

Courses 1 and 3 give a general survey of national, state, and local government in the United States. Undergraduates beginning the study of political science are advised to take, first, course 1a-1b, or 16, and those planning for advanced work should take course 1a and either 1b or 16 in their sophomore year. Course 1b is offered the second semester.

Courses for Undergraduates

Pol. Sci. 1. American National Government.—*Prerequisite:* Open only to those who have had Pol. Sci. 3 or its equivalent.

Credit	Section	Hours	Days	Room	Instructor
3	B	9	MWF	300 L.H.	BERDAHL
	C	10	MWF	300 L.H.	JOBST
	G	3	MWF	300 L.H.	HILL

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Pol. Sci. 1a. American Government.—*Prerequisite:* Sophomore standing; not open to those who have had Pol. Sci. 1 or 3.

Credit	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	300 L.H.	Snider
	A2	8	MWF	204 L.H.	Isakoff
	B1	9	MWF	340 L.H.	Hyneman
	B2	9	MWF	238 L.H.	Jobst
	C1	10	MWF	238 L.H.	———
	C2	10	MWF	240 L.H.	Isakoff
	D1	11	MWF	340 L.H.	Hyneman
	D2	11	MWF	240 L.H.	Isakoff
	E1	1	MWF	340 L.H.	Snider
	E2	1	MWF	204 L.H.	Jobst
	F1	2	MWF	340 L.H.	Snider
	F2	2	MWF	204 L.H.	Powell
	G	3	MWF	204 L.H.	Powell
	L	10	TTS	204 L.H.	Snider

Pol. Sci. 16. Government of Illinois.—(Intended for students who do not take Pol. Sci. 3. Students taking Pol. Sci. 3 will receive only one hour credit for Pol. Sci. 16.) *Prerequisite:* Sophomore standing. (2). 3 TT; 304 L.H. Professor Mathews.

Pol. Sci. 36a. Thesis and Honors Course.—*Prerequisite:* Senior standing. (2 to 5).* Arrange. Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: Junior standing is required for admission to the following courses.

Pol. Sci. 4. Municipal Government.—*Prerequisite:* Junior standing.

3	Lect.	9	TT	L.H. Theatre	Kneier
	A Quiz	11	Th	303 L.H.	Kneier
	B Quiz	1	Th	303 L.H.	Hill
	C Quiz	2	Th	232 L.H.	Kneier
	D Quiz	3	Th	303a L.H.	Hill
	E Quiz	9	F	302 L.H.	Kneier
	F Quiz	10	F	302 L.H.	Kneier
	G Quiz	11	F	302 L.H.	Kneier
	H Quiz	1	F	233 L.H.	Kneier
	K Quiz	2	F	238 L.H.	Kneier

Pol. Sci. 5. American Constitutional System.—*Prerequisite:* Pol. Sci. 1; junior standing. (3). 3 MWF; 304 L.H. Professor Mathews.

Pol. Sci. 6a. International Law.—*Prerequisite:* Open to seniors, graduate students, and second-year law students. (3). 10 MWF; 204 L.H. Dr. Hill.

Pol. Sci. 7. American Foreign Relations.—*Prerequisite:* Junior standing with six hours of political science. (3). 10 MWF; 304 L.H. Professor Mathews.

Pol. Sci. 12. Public Administration.—*Prerequisite:* Pol. Sci. 1 or 3; junior standing. (3). 9 MWF; 304 L.H. Professor Fairlie.

Pol. Sci. 13. Government Regulation of Business.—*Prerequisite:* Senior standing, or junior standing with five hours of political science or of economics, or of both. (3). 10 MWF; 206 L.H. Assistant Professor Hyneman.

Pol. Sci. 14b. Political Parties: Party Organization and Methods.—*Prerequisite:* Junior standing. (3). 11 MWF; 303 L.H. Professor Berdahl.

Pol. Sci. 32. Principles of Political Science.—*Prerequisite:* Six hours of political science. (2). 2 TT; 304 L.H. Professor Fairlie.

Courses for Graduates

Pol. Sci. 102. The Nature of the State.—(1 unit). Twice a week. Arrange. Professor Fairlie.

Pol. Sci. 103. Seminar in Political Science and Public Law.—Once a week. Arrange. Members of the department.

Pol. Sci. 108. Problems of International Organization.—(1 unit). Twice a week. Arrange. Professor Berdahl.

Pol. Sci. 112. Special Topics in Public Administration.—(1 unit). Twice a week. Arrange. Professor Fairlie.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

PSYCHOLOGY

Note: Certain courses in this department require a laboratory fee of $1.

Major: 20 hours chosen from courses announced by the department, excepting Psych. 1. At least eight hours must be offered in the advanced group.

Minors: 20 hours chosen from not more than two of the following subjects: education, mathematics, philosophy, sociology, physiology, and zoology. At least eight hours must be offered in each, if two are chosen.

Courses for Undergraduates

Psych. 1. Introduction to Psychology.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
4	Lect. A	9	MW	218 U.H.	Culler
	Quiz A1	8	TT	406 U.H.	
	Quiz A2	9	TT	411 U.H.	
	Quiz A3	9	TT	403 U.H.	
	Quiz A4	10	TT	403 U.H.	
	Quiz A5	10	TT	406 U.H.	
	Quiz A6	11	TT	403 U.H.	
	Quiz A7	2	TT	403 U.H.	
	Quiz A8	3	TT	407 U.H.	
	Lect. B	9	TT	218 U.H.	Young
	Quiz B1	8	MW	411 U.H.	
	Quiz B2	9	MW	403 U.H.	
	Quiz B3	9	MW	404 U.H.	
	Quiz B4	10	MW	411 U.H.	
	Quiz B5	10	MW	406 U.H.	
	Quiz B6	11	MW	403 U.H.	
	Quiz B7	2	MW	403 U.H.	
	Quiz B8	3	MW	411 U.H.	
	Lect. C	11	TT	218 U.H.	Ruch
	Quiz C1	8	MW	412 U.H.	
	Quiz C2	9	MW	213 U.H.	
	Quiz C3	10	MW	107 U.H.	
	Quiz C4	10	MW	213 U.H.	
	Quiz C5	11	MW	404 U.H.	
	Quiz C6	11	MW	412 U.H.	
	Quiz C7	2	MW	406 U.H.	
	Quiz C8	3	MW	412 U.H.	

Psych. 2. General Psychology.—*Prerequisite:* Psych. 1 or junior standing.

4	Lect.	10	MW	410 U.H.	Higginson
	Quiz A	9	TT	407 U.H.	
	Quiz B	10	TT	211 U.H.	
	Quiz C	11	TT	407 U.H.	

Psych. 3. Laboratory Practice.—*Prerequisite:* Psych. 1.

2	Lab. A	2–4	MW	417 U.H.	Higginson
	Lab. B	10–12	TT	417 U.H.	

Psych. 27a. Thesis Course and Honors Course.—*Prerequisite:* Psych. 3 and consent of department. (2). Arrange; 419 U.H. Professor Woodrow.

Courses for Advanced Undergraduates and Graduates

Psych. 5. Comparative Psychology.—*Prerequisite:* Psych. 1 and either one other course in psychology or a course in zoology. (3). 10 MWF; 315 U.H. Dr. McAllister.

Psych. 8. Feeling and Emotion.—*Prerequisite:* Six hours of psychology. (2). 11 TT; 208 U.H. Professor Young.

Psych. 9. Physiological Psychology.—*Prerequisite:* Psych. 1 and one course in zoology or physiology. (2). 2 TT; 211 U.H. Associate Professor Culler.

Psych. 11. Learning and Comprehension.—*Prerequisite:* Psych. 1 and junior standing. (2). 10 TT; 315 U.H. Associate Professor Culler.

Psych. 16. Genetic Psychology.—*Prerequisite:* Psych. 1 and junior standing. (2). 9 TT; 318 U.H. Assistant Professor Ruch.

Psych. 21. Character and Personality.—*Prerequisite:* Psych. 1 and junior standing.

3	A	11	MWF	315 U.H.	Sears
	B	2	MWF	315 U.H.	

Psych. 34. Individual Differences.—*Prerequisite:* Psych. 1 and senior standing. (3). 9 MWF; 311 U.H. Professor Woodrow.

Courses for Graduates

Psych. 103. Research.—(½ to 2 units).* Arrange. Professors WOODROW and YOUNG, Associate Professors CULLER and HIGGINSON.

Psych. 105. Seminar.—(1 unit). 7:15-9:15 p.m. M; 419 U.H. Professor WOODROW.

RAILWAY ENGINEERING

Note: Certain courses in this department require a laboratory fee of $3.

Courses for Undergraduates

R.E. 2. Locomotive Design.—*Prerequisite:* M.E. 16, 64; R.E. 4. (3). Sec. W, 1-4 MWF; 104 T.B.

R.E. 5. Railway Laboratory.—*Prerequisite:* M.E. 16, 64; R.E. 4. (3). Sec. W, 1-4 TT, 11 Tu; 104 T.B.

R.E. 9. Seminar.—*Prerequisite:* Open to seniors in railway courses only. (1). Sec. W, 9 Tu; 117 T.B.

R.E. 25. Railway Development.—*Prerequisite:* Sophomore standing. (2). Sec. UVW, 10 TT; 105 T.B.

R.E. 32. Railway Construction.—*Prerequisite:* Registration in C.E. 61a. (3). Sec. U, 11 MF, 1-4 W; 117 T.B.

R.E. 59. Electric Railway Principles.—*Prerequisite:* Registration in E.E. 25 and 75. (2). Sec. V, 9 MW; 117 T.B.

R.E. 97. Thesis.—(1 or 2).* Arrange. *Prerequisite:* Senior standing in railway engineering.

R.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. (No credit).

Courses for Advanced Undergraduates and Graduates

R.E. 3. Locomotives.—*Prerequisite:* Junior standing in the College of Engineering. (2). Sec. W, 10 TT; 104 T.B.

R.E. 31. Railway Yards and Terminals.—*Prerequisite:* C.E. 3, or senior standing in R.E. (3). Sec. U, 11 TT, 9-12 S; 117 T.B.

R.E. 35. Railway Signaling.—*Prerequisite:* Senior standing in the College of Engineering. (2). Sec. UV, 10 TT; 105 T.B.

R.E. 62. Electric Railway Laboratory.—*Prerequisite:* R.E. 60. (2). Sec. V, 1-4 TT; 117 T.B.

R.E. 64. Electric Railway Practice.—*Prerequisite:* E.E. 26 and 76; R.E. 60. (3). Sec. V, 10 MWF; 117 T.B.

Courses for Graduates

R.E. 102. Locomotive Design.—(1 unit). Arrange. Professor YOUNG.

R.E. 106. Locomotive Operation.—(1 unit). Arrange. Professor SCHMIDT.

R.E. 110. Railway Location.—(1 unit). Arrange. Professor KING.

ROMANCE LANGUAGES AND LITERATURE

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, and 6b, and including at least five hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), German, Greek, history, Italian, Latin, philosophy, Spanish, provided that at least eight hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, and 2a, and including at least five hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), French, German, Greek, history, Italian, Latin, philosophy, provided that at least eight hours be taken in any subject chosen.

A. FRENCH

Courses for Undergraduates

French 1a. Elementary Course.—For students who have no credit in French.

Credit	Section	Hours	Days	Room	Instructor
4[1]	A1	8	TWTF	214 U.H.	BUSSARD
	A2	8	TWTF	212 U.H.	ALEXANDER
[1]Seniors will receive	A3	8	TWTF	148 L.H.	STULTS
only 3 hours credit.	A4	8	TWTF	211 L.H.	FAVREAU

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

French 1a. Elementary Course (concluded)

Credit	Section	Hours	Days	Room	Instructor
4[1]	B1	9	TWTF	315 U.H.	Ramsey
[1]Seniors will receive only 3 hours credit.	B2	9	TWTF	334 L.H.	Goggin
	C1	10	TWTF	204 U.H.	Carter
	C2	10	TWTF	214 U.H.	Allen
	C3	10	TWTF	407 U.H.	Hilton
	D1	11	TWTF	308 L.H.	Amiel
	D2	11	TWTF	116 New Agr.	Allen
	E1	1	MTWT	133 L.H.	Rowe
	E2	1	MTWT	212 U.H.	Alexander
	F1	2	MTWT	212 U.H.	Alexander
	F2	2	MTWT	139 L.H.	Stults
	G	3	MTWT	214 U.H.	Alexander

French 1b. Elementary Course (continued).—*Prerequisite:* French 1a, or one year of high school French.

4[1]	A	8	TWTF	235 L.H.	Ralph
	B	9	TWTF	312 U.H.	Bussard
[1]Seniors will receive only 3 hours credit.	C	10	TWTF	318 U.H.	Stuttle
	F1	2	MTWT	206 L.H.	Hilton
	F2	2	MTWT	208 U.H.	Klingner

French 2a. Modern French.—*Prerequisite:* French 1b, or two years of high school French.

4	[1]A1	8	TWTF	120 L.H.	Hilton
[1]Sections A1, B1, C1, D1, and E1 are primarily for students who expect to go beyond French 2b. More attention is paid to the speaking and hearing of French.	A2	8	TWTF	133 L.H.	Goggin
	A3	8	TWTF	116 New Agr.	Beadle
	[1]B1	9	TWTF	310 U.H.	Roche
	B2	9	TWTF	206 L.H.	Gullette
	[1]C1	10	TWTF	113 L.H.	Bussard
	C2	10	TWTF	123 New Agr.	Dismukes
	[1]D1	11	TWTF	122 New Agr.	Bussard
	D2	11	TWTF	123 New Agr.	Carter
	[1]E1	1	MTWT	214 U.H.	Pietrangeli
	E2	1	MTWT	116 New Agr.	Beadle
	F	2	MTWT	133 L.H.	Pietrangeli
	G	3	MTWT	139 L.H.	Amiel

French 2b. Modern French.—*Prerequisite:* French 2a, or three years of high school French.

4	A	8	TWTF	321 L.H.	Ramsey
	B	9	TWTF	123 New Agr.	Favreau
	C	10	TWTF	122 New Agr.	Ralph
	F	2	MTWT	214 U.H.	Rowe

French 3a. Introduction to French Literature.—*Prerequisite:* French 2b, or four years of high school French.

3	A	8	MWF	128 L.H.	Jacob
	B	9	MWF	224 L.H.	Will
	C	10	MWF	224 L.H.	Will
	D	11	MWF	232 L.H.	Oliver
(In French)	E	1	MWF	123 L.H.	Roche
	F	2	MWF	303a L.H.	Jacob

French 6a. Second-Year Composition and Conversation.—*Prerequisite:* French 1b, or two years of high school French.

2	K	9	TT	232 L.H.	Hilton
	N	1	TT	104 L.H.	Hilton

French 7a. Intermediate Composition and Conversation.—*Prerequisite:* French 2b or 6b, or the equivalent. (*Note:* Prospective teachers of French are strongly advised to take French 7a and 7b.)

2	J	8	TT	300 L.H.	Amiel
	K	9	TT	300 L.H.	Amiel
	L	10	TT	211 L.H.	Roche
	M	11	TT	113 L.H.	Roche
	O	2	TT	105 L.H.	Amiel

French 8a. Advanced Composition and Conversation.—*Prerequisite:* French 7b.

2	O	2	TT	128 L.H.	Roche

French 25. Methods of Teaching French.—Discussion and laboratory work in phonetics. *Prerequisite:* 20 hours in French, or 16 hours in French plus 20 in Spanish. Not open to students other than seniors except by permission of the instructor. *Note:* French 25 will be given only in first semester; Spanish 25 only in second semester. Laboratory fee, 50 cents.

3	F	2	MWF	310 U.H.	Gullette

French 28a. Senior Thesis.—For candidates for university honors in French. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in French have the following prerequisites: French 3b or the equivalent, and junior standing; or senior standing and consent of the instructor.

French 10a. Survey of French Literature.—

3	B	10	MWF	104 L.H.	Carnahan

French 17a. French Drama of the Nineteenth Century.—

Credit	Section	Hours	Days	Room	Instructor
2	K	9	TT	224 L.H.	Will
	N	1	TT	219 L.H.	Hamilton

French 24a. French Drama of the Seventeenth and Eighteenth Centuries.—

3	C	9	MWF	232 L.H.	Oliver

French 32a. French Novel of the Nineteenth Century.—

3	B	9	MWF	128 L.H.	Jacob

French 34a. Balzac et le roman social.—(In French).

2	M	11	TT	109 L.H.	Michaud

Courses for Graduates

French 101. Old French Literature.—(1 unit). Arrange. Professor Oliver.

French 102. Villon, Rabelais, Montaigne, La Pléiade.—(1 unit). 4 TT; 425a Lib. Assistant Professor Will.

French 103. Seventeenth Century Literature.—(1 unit). Arrange. Professor Oliver.

French 128. Origin and Development of the Novel in France.—(1 unit). 3 TT; 425a Lib. Professor Carnahan.

French 133. Victor Hugo, His Influence and His Critics.—(1 unit). 3 MW; 222 L.H. Professor Michaud.

French 145. Doctrines Littéraires et Courants d'Idées Contemporains.—(In French). (1 unit). 3-5 F; 120 L.H. Professor Michaud.

French 195. Seminar.—Research work in special topics. (1 to 2 units).* Members of the department.

B. ITALIAN

Courses for Undergraduates

Italian 1a. Elementary Course.—For students who have no credit in Italian.

4[1]	B	9	TWTF	303a L.H.	Dismukes
[1]Seniors will receive only 3 hours credit.	C	10	TWTF	312 U.H.	Pietrangeli

Italian 2a. Intermediate Italian.—*Prerequisite:* Italian 1b.

3	D	11	MWF	312 U.H.	Pietrangeli

Course for Advanced Undergraduates and Graduates

Italian 3a. Dante: The Divine Comedy.—*Prerequisite:* Italian 1b; junior standing.

2	P	3	TT	214 L.H.	Van Horne

Courses for Graduates

Italian 143. Italian Literature in the Renaissance.—(1 unit). 1 TT; 214 L.H. Professor Van Horne.

Italian 195. Seminar.—Research work in special topics. (1 to 2 units).* Professor Van Horne.

C. SPANISH

Courses for Undergraduates

Spanish 1a. Elementary Course.—For students who have no credit in Spanish.

4[1]	A1	8	TWTF	302 L.H.	Young
	A2	8	TWTF	311 U.H.	Hartsook
[1]Seniors will receive only 3 hours credit.	B1	9	TWTF	116 New Agr.	Hartsook
	B2	9	TWTF	122 New Agr.	Young
	C1	10	TWTF	310 U.H.	Utley
	C2	10	TWTF	105 L.H.	Gullette
	D1	11	TWTF	211 U.H.	Young
	D2	11	TWTF	214 U.H.	Kidder
	E	1	MTWT	139 L.H.	Lodge
	F	2	MTWT	312 U.H.	Kiler
	G	3	MTWT	148 L.H.	Williams
	H	4	MTWT	227 L.H.	Butterfield

Spanish 1b. Elementary Course (continued).—*Prerequisite:* Spanish 1a, or one year of high school Spanish.

4[1]	A	8	TWTF	318 U.H.	Kaar
	B	9	TWTF	214 U.H.	Kidder
[1]Seniors will receive only 3 hours credit.	C	10	TWTF	139 L.H.	Young
	F	2	MTWT	116 New Agr.	Lodge

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Spanish 2a. Modern Spanish.—*Prerequisite:* Spanish 1b, or two years of high school Spanish.

Credit	Section	Hours	Days	Room	Instructor
4	[1]A1	8	TWTF	139 L.H.	Bushart
	A2	8	TWTF	240 L.H.	Williams
	B	9	TWTF	139 L.H.	Utley
	C	10	TWTF	116 New Agr.	Adam
	D	11	TWTF	304 L.H.	Hamilton
	E	1	MTWT	227 L.H.	Utley
	F	2	MTWT	227 L.H.	Burner

[1]In Section A1, more attention is paid to the speaking and hearing of Spanish.

Spanish 2b. Modern Spanish.—*Prerequisite:* Spanish 2a, or three years of high school Spanish.

4	C	10	TWTF	106 U.H.	Bushart
	F	2	MTWT	233 L.H.	Adam

Spanish 3a. Introduction to Spanish Literature.—*Prerequisite:* Spanish 2b, or four years of high school Spanish.

3	B	9	MWF	235 L.H.	Adam
	D	11	MWF	133 L.H.	Burner

Spanish 5a. Commercial Spanish.—*Prerequisite:* Spanish 2b or the equivalent.

2	K	9	TT	133 L.H.	Burner

Spanish 7a. Intermediate Composition and Conversation.—*Prerequisite:* Spanish 2b or the equivalent. (*Note:* Prospective teachers of Spanish are strongly advised to take Spanish 7a and 7b.)

2	B	9	MW	211 L.H.	Kiler
	L	10	TT	204a L.H.	Kaar

Spanish 8a. Advanced Composition and Conversation.—*Prerequisite:* Spanish 7b.

2	M	11	TT	104 L.H.	Adam

Spanish 28a. Senior Thesis.—For candidates for University honors in Spanish. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in Spanish have the following prerequisites: Spanish 3b or the equivalent, and junior standing; or senior standing and consent of instructor.

Spanish 10a. Survey of Spanish Literature.—

3	C	10	MWF	148 L.H.	Burner

Spanish 11a. Cervantes: Don Quijote.—

2	M	11	TT	114 L.H.	Hamilton

Spanish 17a. Modern Spanish Drama.—

2	L	10	TT	303a L.H.	Hamilton

Courses for Graduates

Spanish 130. Spanish Literature in the Sixteenth Century.—(1 unit). Arrange; 425a Lib. Professor Van Horne.

Spanish 137. Spanish Literary Criticism.—(1 unit). Arrange; 216 L.H. Associate Professor Hamilton.

Spanish 185. Old Spanish Readings.—(1 unit). Arrange; 216 L.H. Associate Professor Hamilton.

Spanish 195. Seminar.—Research work in special topics. (1 to 2 units).* Members of the department.

SOCIOLOGY

Major: 20 hours from any courses in the department.

Minors: 20 hours from one or two of the following subjects: history, philosophy, psychology, economics, political science. At least eight hours must be offered in either minor subject, if two are chosen.

Courses for Undergraduates

Sociol. 1. Principles of Sociology.—*Prerequisite:* Junior standing, or sophomore standing with a course in either economics or psychology or history.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	304 L.H.	Hiller
	B	9	MWF	306 L.H.	Houghton
	C	9	MWF	326 L.H.	Hiller
	D	10	MWF	334 L.H.	Tylor
	E	11	MWF	306 L.H.	Albig
	F	1	MWF	326 L.H.	Tylor
	G	2	MWF	306 L.H.	Houghton
	H	3	MWF	326 L.H.	Houghton

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Sociol. 2. Social Factors in Personality.—*Prerequisite:* Sociol. 1.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	202 L.H.	AHRENS
	B	9	MWF	202 L.H.	

Sociol. 90b. Honors Course.—For majors in sociology and other seniors. Consent of instructor required.

2	To be arranged	Members of the department

Courses for Advanced Undergraduates and Graduates

Sociol. 3. Social Evolution.—*Prerequisite:* Sociol. 1 and junior standing.

3	A	11	MWF	326 L.H.	AHRENS

Sociol. 4. Social Control.—*Prerequisite:* Sociol. 1 and junior standing.

2	A	1	MW	334 L.H.	ALBIG

Sociol. 6. Urban Sociology.—*Prerequisite:* Sociol. 1 and junior standing.

3	A	8	MWF	326 L.H.	TYLOR

Sociol. 8. Charities.—*Prerequisite:* Sociol. 1 and junior standing.

3	Lect.	10	TT	303 L.H.	TIMMONS
	Quiz A	11	Th	326 L.H.	TIMMONS
	Quiz B	2	Th	340 L.H.	TIMMONS
	Quiz C	10	F	305 L.H.	TIMMONS
	Quiz D	1	F	334 L.H.	TIMMONS

Sociol. 9. Criminology.—*Prerequisite:* Sociol. 2 or senior standing. Open to pre-legal juniors by consent of instructor.

3	A	11	MWF	334 L.H.	TAFT
	B	2	MWF	334 L.H.	TAFT

Sociol. 17. Methods of Sociological Research.—*Prerequisite:* 8 hours credit in sociology. (3). 9 TT, and two hours of supervised research weekly at time to be arranged; 306 L.H. Professor HILLER.

Sociol. 42. Primitive Societies.—*Prerequisite:* Junior standing. (3). 10 MWF; 306 L.H. Assistant Professor ALBIG.

Courses for Graduates

Sociol. 100. General Sociology.—(1 unit). Twice a week. Arrange. Professor HILLER.

Sociol. 108. Social Effects of Poverty, Their Prevention and Treatment.—(1 unit). Twice a week. Arrange. Assistant Professor TIMMONS.

Sociol. 124. Advanced Penology.—(1 unit). Arrange. Professor TAFT.

Sociol. 150. Seminar.—Thesis. (1 to 2 units).* Twice a week. Arrange. Members of the department.

THEORETICAL AND APPLIED MECHANICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $2.50.

Courses for Undergraduates

T.A.M. 1. Analytical Mechanics (Statics).—*Prerequisite:* Math. 7; registration in Math. 9.

Credit	Section	Hours	Days	Room	Instructor
2	A	9	TT	310 M.T.L.	
	B	9	TT	202 E.H.	
	C	11	TT	202 E.H.	
	D	4	TT	305 M.T.L.	
	E	4	TT	202 E.H.	

T.A.M. 2. Analytical Mechanics (Dynamics).—*Prerequisite:* T.A.M. 1.

3	E	8	MWF	208 E.H.	
	S	8	MWF	316 M.T.L.	
	M	8	TTS	202 E.H.	
	X	8	TTS	305 M.T.L.	
	F	9	MWF	202 E.H.	
	R	9	MWF	316 M.T.L.	
	P	10	MWF	202 E.H.	
	G	11	MWF	310 M.T.L.	
	K	11	MWF	313 M.T.L.	
	L	11	MWF	316 M.T.L.	
	Q	11	MWF	202 E.H.	
	J	3	MWF	305 M.T.L.	
	N	3	MWF	310 M.T.L.	
	D	4	MWF	305 M.T.L.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

T.A.M. 3. Resistance of Materials.—*Prerequisite:* T.A.M. 1.

Credit	Section	Hours	Days	Room	Instructor
3	Ch1	8	MWF	202 E.H.	
	J	8	MWF	214 Cer.	
	R	8	MWF	310 M.T.L.	
	X	8	MWF	313 M.T.L.	
	C	9	MWF	310 M.T.L.	
	S	9	MWF	313 M.T.L.	
	G	10	MWF	305 M.T.L.	
	Ch2	11	MWF	305 M.T.L.	
	E	1	MWF	305 M.T.L.	
	P	1	MWF	310 M.T.L.	
	F	2	MWF	310 M.T.L.	
	Q	2	MWF	305 M.T.L.	

T.A.M. 4. Hydraulics.—*Prerequisite:* T.A.M. 1 and registration in T.A.M. 2.

2	M	9	TT	305 M.T.L.
	L	10	TT	305 M.T.L.
	K	2	TT	305 M.T.L.
	N	2	TT	310 M.T.L.

T.A.M. 17. Statics.—*Prerequisite:* Math. 6a.

3	A	{8–10	M	305 M.T.L.
		{8	WF	305 M.T.L.

T.A.M. 63. Resistance of Materials Laboratory.—*Prerequisite:* Registration in T.A.M. 3.

1	O	1–3	M	223 M.T.L.
	S	3–5	M	223 M.T.L.
	R	8–10	Tu	223 M.T.L.
	Ch1	10–12	Tu	223 M.T.L.
	Q	3–5	Tu	223 M.T.L.
	J	1–3	W	223 M.T.L.
	G	3–5	W	223 M.T.L.
	F	8–10	Th	223 M.T.L
	Ch2	10–12	Th	223 M.T.L.
	E	1–3	Th	223 M.T.L.
	P	3–5	Th	223 M.T.L.
	C	10–12	F	223 M.T.L.

T.A.M. 64. Hydraulics Laboratory.—*Prerequisite:* Registration in T.A.M. 4.

1	L	1–3	M	M.T.L.
	K	3–5	Tu	M.T.L.
	N	8–10	W	M.T.L.
	M	3–5	Th	M.T.L.

Courses for Advanced Undergraduates and Graduates

T.A.M. 41. Advanced Mechanics of Materials.—*Prerequisite:* T.A.M. 3 and 63. (3). Arrange. Professor SEELY and Mr. DOLAN.

T.A.M. 43. Laboratory Work in Hydraulics.—*Prerequisite:* T.A.M. 4 and 64. (3). Twice a week. Arrange. Professor ENGER and Mr. LANSFORD.

T.A.M. 44. Laboratory Work in Testing Materials.—*Prerequisite:* T.A.M. 3 and 63. (3 credits or ½ to 1 unit).* Arrange. Professors MOORE and PUTNAM.

Courses for Graduates

T.A.M. 101. The Development of Basic Ideas in Mechanics.—(1 unit). Twice a week. Arrange. Professor MOORE.

T.A.M. 103. Hydraulics.—(1 unit). Twice a week. Arrange. Professor ENGER.

T.A.M. 107. Laboratory Investigations in Strength of Materials.—(1 to 2 units).* Twice a week. Arrange. Professor MOORE.

T.A.M. 108. Laboratory Investigations in Hydraulics.—(1 to 2 units).* Twice a week. Arrange. Professor ENGER.

T.A.M. 109. Laboratory Investigations in Plain and Reinforced Concrete.—(1 to 2 units).* Twice a week. Arrange. Professor RICHART.

T.A.M. 110. Analytical Study of Experimental Work on Reinforced Concrete: Beams, Frames, and Footings.—(1 unit). Twice a week. Arrange. Professor RICHART.

T.A.M. 112. Structural Mechanics.—(1 unit). Three times a week. Arrange. Professor WESTERGAARD.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

T.A.M. 114. Theory of Elasticity with Applications to Engineering Problems.—(1 unit). Three times a week. Arrange. Professor WESTERGAARD.

T.A.M. 116. Resistance of Materials.—(1 unit). Three times a week. Arrange. Professor SEELY.

ZOOLOGY

Note: Certain courses in this department require laboratory fees varying from $1 to $4.50.

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9. At least five hours must be offered from the advanced groups.

Minors: 20 hours chosen from one or two of the following subjects: animal husbandry, bacteriology, botany, chemistry, entomology, geology, physics, physiology, psychology. At least eight hours must be offered in each subject, if two are chosen.

Note: Credit for seniors who take Zoology 1 or 2 will be reduced one hour.

Courses for Undergraduates

Zool. 1. General Zoology.—

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	9	MWF	228 N.H.	THOMAS, KUDO, LUCE, BROWN, HALL, and assistants
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	TTS	310 N.H.	
	B Lab. & Quiz	8–10	TTS	312 N.H.	
	C Lab. & Quiz	8–10	TTS	314 N.H.	
	D Lab. & Quiz	10–12	MWF	310 N.H.	
	E Lab. & Quiz	10–12	MWF	312 N.H.	
	F Lab. & Quiz	10–12	MWF	314 N.H.	
	G Lab. & Quiz	1–3	MWF	310 N.H.	
	H Lab. & Quiz	1–3	MWF	312 N.H.	
	I Lab. & Quiz	1–3	MWF	314 N.H.	
	K Lab. & Quiz	1–4	TT	310 N.H.	
	L Lab. & Quiz	1–4	TT	312 N.H.	
	M Lab. & Quiz	1–4	TT	314 N.H.	
	N Lab. & Quiz	10–12	TTS	310 N.H.	

Zool. 2. Vertebrate Zoology and Comparative Anatomy.—*Prerequisite:* Zool. 1.

5[1]	Lect.	10	MWF	228 N.H.	ADAMS and others
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	MWF	330 N.H.	
	B Lab. & Quiz	8–10	TTS	330 N.H.	
	C Lab. & Quiz	1–3	MWF	330 N.H.	

Zool. 3. Vertebrate Embryology.—*Prerequisite:* Zool. 1 and 2.

5	Lect.	1	TT	228 N.H.	SHUMWAY ADAMSTONE and assistants
	A Lab.	8–10	MWF	323 N.H.	
[1]Lab. section D and quiz section 4 will not be opened until others are filled.	B Lab.	10–12	MWF	323 N.H.	
	C Lab.	1–3	MWF	323 N.H.	
	[1]D Lab.	3–5	MWF	323 N.H.	
	1 Quiz	8	Tu	423 N.H	
	2 Quiz	10	Th	229 N.H.	
	3 Quiz	2	Tu	229 N.H.	
	[1]4 Quiz	2	Th	229 N.H.	

Zool. 7. Evolution.—With special reference to the biological processes in which man is involved. *Prerequisite:* Sophomore standing.

3	Lect.	9	MW	229 N.H.	ZELENY, LUCE, and others
	A Quiz	8	F	229 N.H.	
	B Quiz	2	F	229 N.H.	
	C Quiz	9	Th	425 N.H.	
	D Quiz	9	F	229 N.H.	

Zool. 15. Genetics.—(For students in the College of Agriculture.) *Prerequisite:* Two years of university work; Botany 1 or 5; and Zool. 1 or Entom. 1.

3	Lect.	11	MW	228 N.H.	LUCE and assistants
	A Disc.	9	Th	241 N.H.	
	B Disc.	11	F	423 N.H.	
	C Disc.	11	Th	423 N.H.	
	D Disc.	9	M	423 N.H.	

Courses for Advanced Undergraduates

Zool. 8a. Thesis Investigation.—*Prerequisite:* Two years of zoology.

3 to 5*	To be arranged	Members of the department

Zool. 11. Animal Ecology and Geography.—*Prerequisite:* One year of zoology; senior standing. Three hours credit requires the lectures and field all day September 21, September 28, and October 19, and one selected day; 4 and 5 hours credit requires additional field work, or the laboratory work, or both as arranged for the individual.

3 to 5*	Lect.	4	MWF	202 Exp. Zool. Lab.	SHELFORD
	Lab or Field	8–12	S		

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Zool. 17. Field Zoology.—*Prerequisite:* One year of zoology; senior standing.

Credit	Section	Hours	Days	Room	Instructor
3 to 5*		8–12	TT	420 N.H.	VAN CLEAVE

Zool. 18. Protozoology.—*Prerequisite:* One year of zoology; junior standing.

2		1–3	TT	418 N.H.	KUDO

Zool. 19a. Vertebrate Ecology.—*Prerequisite:* Zool. 1 and 2 (Zool. 9 or registration therein also recommended).

2 or 3*	Lect.	1	TT	229 N.H.
	Lab. and Field	To be arranged		

Zool. 20a. Current Investigation.—Required of all graduate students majoring in zoology; may be elected by seniors majoring in zoology, with consent of instructor.

1		3	F	425 N.H. Members of the department

Zool. 21a. Introduction to Zoological Research.—*Prerequisite:* One year of zoology; senior standing.

2 to 5*	To be arranged	Members of the department

Zool. 22. Comparative Anatomy of Vertebrates.—*Prerequisite:* Zool. 3.

2 to 4*	Lect.	4	Tu	419 N.H.	ADAMS
	Lab.	1–5	TT	419 N.H.	

Zool. 63. Comparative Vertebrate Embryology.—*Prerequisite:* One year of zoology; senior standing.

2 to 5*	10	MW	326 N.H. SHUMWAY
	Other hours to be arranged		

Courses for Graduates

Students entering on graduate study in the department of zoology should have had two years of undergraduate work in the subject. When chosen as a minor the courses listed for graduates and advanced undergraduates must be preceded by at least one full year of undergraduate work in zoology. Work done at other institutions will be evaluated on conference with the head of the department.

Zool. 102. Evolution of the Vertebrates.—(1 unit). Arrange. Associate Professor ADAMS.

Zool. 106. General Embryology.—Problems of development. (1 unit). 2 MW; 432 N.H. Professor SHUMWAY.

Zool. 111. Experimental and Field Ecology.—(½ to 2 units).* Arrange. Professor SHELFORD.

Zool. 115. Factors of Individual and Racial Development.—(1 unit). 3 MW; 340 N.H. Professor ZELENY.

Zool. 131. Helminthology.—(½ to 1 unit).* 2-5 TT; 420 N.H. Professor VAN CLEAVE, Assistant Professor THOMAS.

Individual Research Courses

Zool. 121. Invertebrate Zoology and Parasitology.—(1 to 2 units).* Arrange. Professor VAN CLEAVE, Assistant Professor THOMAS.

Zool. 122. Vertebrate Morphology.—(1 to 2 units).* Arrange. Associate Professor ADAMS.

Zool. 124. Experimental Zoology and Genetics.—(1 to 2 units).* Arrange. Professor ZELENY.

Zool. 125. Animal Ecology and Behavior.—(1 to 2 units).* Arrange. Professor SHELFORD.

Zool. 126. Vertebrate Embryology and Cytology.—(1 to 2 units).* Arrange. 432 N.H. Professor SHUMWAY.

Zool. 128. Protozoology.—(1 to 2 units).* Arrange. Assistant Professor KUDO.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

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UNIVERSITY OF ILLINOIS BULLETIN

Vol. XXXIII January 28, 1936 No. 22

TIME TABLE

SECOND SEMESTER
1935-1936

THE LIBRARY OF THE
JAN 29 1936
UNIVERSITY OF ILLINOIS

This Time Table is issued early, for the convenience of faculty members and students. Preserve your copy for use during the period of registration, as there will not be a supply for general distribution at that time.

PUBLISHED WEEKLY BY THE UNIVERSITY OF ILLINOIS

[Entered as second-class matter December 11, 1912, at the post office at Urbana, Illinois, under the Act of August 24, 1912. Acceptance for mailing at the special rate of postage provided for in section 1103, Act of October 3, 1917, authorized July 31, 1918]

REGISTRATION CALENDAR

SECOND SEMESTER, 1935-36

1936

Jan. 29-Feb. 1, Wed.-Sat.... Entrance examinations.

Jan. 31-Feb. 1, Fri.-Sat..... Registration for graduate students.

Feb. 3-4, Mon.-Tues..... Registration for undergraduate students.

Feb. 5, Wed., 8 a.m..... Instruction begun.

Feb. 10, Mon., 8 a.m..... Earliest date for special examinations.

Feb. 10, Mon., 12 m..... Latest date for change of study-lists without fee.

Feb. 15, Sat., 12 m..... Latest date for rebates in full.

Apr. 4, Sat., 12 m..... Latest date for rebates of one-half fees, and latest date for seniors to make substitutions in courses or to remove failures of the first semester.

Apr. 9, Thurs., 12 m..... Easter recess begun.

Apr. 14, Tues., 1 p.m..... Instruction resumed.

May 1, Fri..... Honors Day.

May 11, Mon..... Latest date for special examinations.

May 21, Thurs..... Military Day.

May 22, Fri..... Semester examinations begun.

June 1, Mon..... Semester examinations ended.

June 8, Mon..... Sixty-fifth Annual Commencement.

SUMMER SESSION, 1936

June 15, Mon..... Registration day.

June 16, Tues..... Instruction begun.

Aug. 7-8, Fri.-Sat..... Final examinations.

FIRST SEMESTER, 1936-37

Sept. 17-19, Thurs.-Sat..... Freshman Week program.

Sept. 18-19, Fri.-Sat..... Registration for graduate students.

Sept. 19, Sat..... Registration for freshmen.

Sept. 21-22, Mon.-Tues..... Registration for upperclassmen.

Sept. 23, Wed., 8 a.m..... Instruction begun.

KEY TO NAMES OF DEPARTMENTS AND DIVISIONS

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EXPLANATION OF LISTING OF COURSES

The arrangement of subjects in the following Time Table is alphabetical by names of departments. The connections of allied departments and divisions are indicated by cross references. (See page 3 for key to names of departments and divisions.)

The courses offered by each department or division are listed, in numerical order, in groups with headings that indicate the students for whom they are designed. Groups of general, elementary, and introductory courses are listed as "Courses for Undergraduates." Intermediate and advanced groups are listed as "Courses for Advanced Undergraduates and Graduates." Courses with numbers beginning at 100 are listed as "Courses for Graduates" and are not open to undergraduates.

Following the title of each course of instruction will be found the requirements, if any, for admission to that particular course. The sequence indicated by these prerequisites must be followed. For example, on page 12, in Art 35a-35b, Commercial Art, the prerequisites given are Art 28 and Architecture 72; these two courses must be completed before Art 35a-35b may be taken.

If a course not required for graduation is selected by fewer than five students it may be withdrawn for the semester.

Credit

Credit for undergraduate students is reckoned in *semester hours*, or simply *hours*. An *hour* is one class period a week for one semester or the equivalent in laboratory, shop, or drafting room. The number of hours for which each course counts is shown in parentheses in the description of the course, thus, (2), except where the credits, sections, etc., are tabulated.

Credit for first-year graduate students, candidates for the master's degree, is counted in *units*. A *unit* course is one which requires ten hours of time per week through one semester, irrespective of the distribution of that time in class work, laboratory work, and private study. Four such courses or their equivalent constitute a full minimum program for one semester. The unit values of graduate courses (numbered 100 and upwards) are indicated in parentheses following the titles of these courses. Courses of the intermediate groups "for graduates and advanced undergraduates" generally are evaluated for graduate credit as follows: (a) courses open only to students having at least senior standing, 1 unit for a 4-hour or a 5-hour course, ½ unit for a 1-hour, 2-hour, or 3-hour course; (b) courses open to juniors, ½ unit for a 4-hour or 5-hour course, ¼ unit for a 1-hour, 2-hour, or 3-hour course.

Buildings

University buildings are designated by the following abbreviations:

Administration Building (East)	Adm.(E)
Agriculture Building (Old)	Agr.
Agricultural Engineering Building	Agr.Eng.
Animal Pathology Laboratory	An.Path.L.
Architecture Building	Arch.
Armory	Arm.
Ceramics Building	Cer.
Chemistry Annex	Chem.A.
Chemistry Building	Chem.
Civil Engineering Surveying Building	C.E.S.B.
Commerce Building	Com.
Dairy Manufactures Building	D.Mfrs.
Electrical Engineering Annex	E.E.A.
Electrical Engineering Laboratory	E.E.L.
Engineering Hall	E.H.
Entomology Building	Entom.
Floriculture Greenhouses	F.G.
Genetics Building	Gen.Bldg.
Highway Laboratory	H.L.
Horticultural Field Laboratory	H.F.L.
Law Building	Law
Library	Lib.
Lincoln Hall	L.H.
Materials Testing Laboratory	M.T.L.
Mathematics Building	Math.
Mechanical Engineering Laboratory	M.E.L.
Men's New Gymnasium	New Gym.
Men's Old Gymnasium	Old Gym.
Mining Engineering Laboratory	Min.L.
Natural History Building	N.H.
New Agriculture Building	New Agr.
Physics Laboratory	P.L.
Smith Memorial Music Hall	S.M.H.
Stock Judging Pavilion	S.P.
Transportation Building	T.B.
University Hall	U.H.
University High School	U.H.S.
Vegetable Greenhouse	V.G.
Woman's Building	W.B.
Woman's Gymnasium	W.Gym.

TIME TABLE FOR COURSES OF INSTRUCTION
SECOND SEMESTER, 1935-1936

AGRICULTURAL COLLEGE ADMINISTRATION

Course for Undergraduates

Agr. Coll. Adm. 6. Agricultural Extension.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
2	A	10	TT	118 New Agr.	HUDELSON and others

AGRICULTURAL ECONOMICS

Courses for Undergraduates

Agr. Econ. 11. Agricultural Prices and Statistics.—*Prerequisite:* Econ. 1 or 2; junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	A	10	MWF	313 New Agr.	WORKING

Agr. Econ. 20. Farm Management.—*Prerequisite:* Sophomore standing. Local field trips will be arranged; estimated cost, $2.

3	Lect. and Disc.	10	TT	316 New Agr.	CASE
	S Lab.	1–3	Th	331 New Agr.	WILCOX
	T Lab.	1–3	F	331 New Agr.	ROSS

Agr. Econ. 40. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange.

(b) **Agricultural Marketing.**—Members of the department.
(d) **Agricultural Prices and Statistics.**—Associate Professor WORKING.
(f) **Farm Management.**—Professor CASE.
(h) **Land Economics.**—Professor STEWART.

Agr. Econ. 41. Problems in Agricultural Economics.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Arrange.

(a) **Agricultural Marketing.**—Members of the department.
(b) **Agricultural Prices and Statistics.**—Associate Professor WORKING.
(c) **Farm Management.**—Professor CASE.
(d) **Land Economics.**—Professor STEWART.

Courses for Advanced Undergraduates and Graduates

Agr. Econ. 14. Cooperation in Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing.

2	A	11	TT	313 New Agr.	BARTLETT

Agr. Econ. 15. Financing Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	A	11	MWF	313 New Agr.	JORDAN

Agr. Econ. 18. Land Economics.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	A	9	MWF	313 New Agr.	STEWART

Agr. Econ. 23. Farm Business Analysis.—*Prerequisite:* Agr. Econ. 20 and Accountancy 1a. Lectures and quiz. Local field trips will be arranged; estimated cost, $5.

3	A	1	MWF	316 New Agr.	WILLS

Agr. Econ. 25. Farm Organization.—*Prerequisite:* Agr. Econ. 20. Local field trips will be arranged; estimated cost, $5.

3	A	2	MWF	313 New Agr.	WILCOX, ACKERMAN

Agr. Econ. 34. Marketing Dairy Products.—*Prerequisite:* Junior standing. (Inspection trip requirement waived for 1935-36).

2	A	3–5	Tu	313 New Agr.	BARTLETT

Agr. Econ. 37. Marketing Live Stock.—*Prerequisite:* Senior standing. (Inspection trip requirement waived for 1935-36).

2	A	9	TT	316 New Agr.	ASHBY

Agr. Econ. 42. Farm Appraisals.—Valuation of farm real estate and other agricultural property. Factors studied include soils, crops, farm management, buildings, drainage, livestock, fruit, land titles, prices and taxes in relation to value. *Prerequisite:* Agron. 28, Agr. Econ. 20, or their equivalents; approval of Dean as supervisor. Local field trips to be arranged; estimated cost, $5.

5	A	8	MWF	313 New Agr.	Members of the departments involved
		8–12	S	313 New Agr.	

Courses for Graduates

Agr. Econ. 109. Seminar. Thesis Course.—All graduate students majoring in Agricultural Economics must register in Agr. Econ. 109, but only those students writing theses acceptable for the degree of Master of Science will be given credit. (1 to 2 units).* Once a week. Arrange. Members of the department.

Agr. Econ. 110. Theory of Agricultural Economics.—(1 unit). Arrange. Professor STEWART.

Agr. Econ. 111. Agricultural Prices and Statistics.—(1 unit). Arrange. Assistant Professor BARTLETT, Associate Professor WORKING.

Agr. Econ. 112. Agricultural Economics Research.—Only those who write acceptable reports of successful investigation will receive credit. (1 to 2 units).* Arrange. Members of the department.

Agr. Econ. 120. Farm Management Principles and Investigational Methods.—(1 unit). Twice a week. Arrange. Professor CASE.

Agr. Econ. 135. Marketing Fruits and Vegetables.—(1 to 2 units).* Arrange. Professor LLOYD.

AGRICULTURAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $8.

Courses for Undergraduates

Agr. Eng. 1. Introduction to Agricultural Engineering.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	8	WF	201 Agr. Eng.	YOUNG
	B Disc.	9	W		
[1]Seniors will receive only 2 hours credit.	J Disc.	8	Tu		
	K Disc.	9	Tu		
	S Disc.	9	F		
	A Lab.	8–10	M		
	J Lab.	8–10	Th		
	N Lab.	1–3	Th		
	O Lab.	1–3	Tu		

Agr. Eng. 3. Gas Engines and Tractors.—*Prerequisite:* Agr. Eng. 1.

3	Lect.	11	TT	201 Agr. Eng.	SHAWL
	K Quiz	9	Tu	204 Agr. Eng.	
	O Quiz	2	Th	201 Agr. Eng.	
	O Lab.	2–4	Tu		
	K Lab.	9–11	S		

Agr. Eng. 4. Farm Buildings.—*Prerequisite:* Agr. Eng. 1 or consent of instructor.

3	Lect.	1	MF	204 Agr. Eng.	FOSTER
	Lab.	To be arranged			

Agr. Eng. 11. Dairy Machinery and Equipment.—(Given 1935-36 and alternate years.) *Prerequisite:* Agr. Eng. 1.

2	Lect.	10	Th	205 Agr. Eng.	YOUNG
	Lab.	10–12	Tu	205 Agr. Eng.	

Agr. Eng. 12. Home Equipment and Rural Electrification.—*Prerequisite:* Agr. Eng. 1 or junior standing.

3	Lect.	2	MW	205 Agr. Eng.	LEHMANN
	Lab.	2–4	F	205 Agr. Eng.	

Agr. Eng. 18b. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange. Professor LEHMANN, Assistant Professor SHAWL.

Agr. Eng. 21. Farm Shop Work.—*Prerequisite:* Agr. Eng. 1.

2	Lab.	3–5	MW	201 Agr. Eng.	YOUNG

Courses for Advanced Undergraduates and Graduates

Agr. Eng. 17. Harvesting Machinery.—*Prerequisite:* Agr. Eng. 2.

3	Lect.	11	MW	201 Agr. Eng.	SHAWL
	Lab.	2–5	W	201 Agr. Eng.	

Agr. Eng. 51. Special Power and Field Machinery.—*Prerequisite:* Agr. Eng. 17 or 28. Consult instructor before registering. (3). Arrange. Professor LEHMANN, Assistant Professor SHAWL.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

AGRONOMY

Note: Certain courses in this department require laboratory fees varying from $2 to $4.

Courses for Undergraduates

Agron. 8. Forage Crops.—*Prerequisite:* Agron. 25; Bot. 5.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	11	MW	316 New Agr.	PIEPER
	Quiz	11	F	316 New Agr.	

Agron. 18. Investigation with Thesis.—*Prerequisite:* Senior standing; not less than 20 hours pertinent to thesis problem; and the approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange.

Soils.—Professors BAUER, DETURK, R. S. SMITH; Associate Professor SEARS.

Crops.—Professors BURLISON, WOODWORTH; Associate Professor DUNGAN.

Agron. 25. Farm Crops.—

3	Lect.	2	MW	103 New Agr.	PIEPER, BONNETT, and MUMM
	Lab. A	1–3	Tu	600 Agr.	
	Lab. B	1–3	Th	600 Agr.	
	Quiz F1	2	F	116 New Agr.	
	Quiz F2	2	F	302 Agr.	
	Quiz F3	2	F	118 New Agr.	
	Quiz F4	2	F	128 New Agr.	

Agron. 28. Soils.—*Prerequisite:* Chem. 5; Geol. 44. (Local field trip, cost not to exceed $1.)

5	Lect.	8	MWF	302 Agr.	WIMER and CRANE
	Quiz	8	TT	302 Agr. 553 Agr.	
	A Lab.	1–4	Th	650 Agr.	
	C Lab.	8–11	S	650 Agr.	

Agron. 34. Crop Materials.—*Prerequisite:* Bot. 5.

3	Lab.	3–5	MW	600 Agr.	DUNGAN and MUMM
	Lect. Quiz	3	F	302 Agr.	

Courses for Advanced Undergraduates and Graduates

Agron. 10. Genesis, Morphology, Classification, and Geography of Soils.—*Prerequisite:* Agron. 28, junior standing.

3	Lect.	1	MWF	302 Agr.	R. S. SMITH

Agron. 13. Soil Productivity, its Variation, Modification, and Maintenance.—*Prerequisite:* Agron. 28, senior standing.

3	Lect. and Quiz	9	MWF	302 Agr.	BAUER

Agron. 22. Improvement of Farm Crops by Breeding.—*Prerequisite:* Zool. 15, junior standing.

3	Lect.	10	MWF	302 Agr.	WOODWORTH, BONNETT

Agron. 30. Metabolism of Soil Microorganisms.—(Given in 1935-36 and in alternate years). *Prerequisite:* Bact. 5a and 5b (or 20); Chem. 32; junior standing.

3	Lect. and Disc.	11	MWF	302 Agr.	SEARS

Agron. 35. Farm Appraisals.—(See Agricultural Economics 42.)

Courses for Graduates

Agron. 104. Seminar.—(¼ unit). Once a week. Arrange. Graduate staff.

Agron. 114. Principles Underlying the Production of Crops.—(1 unit). Twice a week. Arrange. Professor BURLISON, Associate Professor DUNGAN.

Agron. 118. Research.—(½ to 4 units).* Arrange.

Soils.—Professors BAUER, DETURK, R. S. SMITH.

Crops.—Professors BURLISON, WOODWORTH; Associate Professor DUNGAN.

Agron. 119. Personnel Relationships in Teaching, Research, and Extension Work.—(See Animal Husbandry 103). Professor MUMFORD.

ANIMAL HUSBANDRY

Courses for Undergraduates

An. Husb. 1. Introduction to Animal Husbandry.—Required of students not having had livestock judging in high school. (No credit in this course allowed to juniors and seniors.)

Credit	Section	Hours	Days	Room	Instructor
2	A	3–5	TT	S.P.	CRAWFORD and GARRIGUS

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

An. Husb. 6. Livestock Management.—*Prerequisite:* An. Husb. 21.

Credit	Section	Hours	Days	Room	Instructor
5	A	10	MTWTF	S.P.	EDMONDS

An. Husb. 9b-t. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem, and approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange.

(b) **Beef Cattle.**—Professor RUSK, Associate Professor SNAPP.
(d) **Horses.**—Professor EDMONDS.
(f) **Sheep.**—Associate Professor KAMMLADE.
(h) **Swine.**—Professor CARROLL.
(k) **Poultry.**—Professor CARD.
(m) **Animal Nutrition.**—Professor MITCHELL.
(p) **Animal Genetics.**—Professor ROBERTS.
(r) **Animal Pathology.**—Professor GRAHAM.
(t) **Meats.**—Associate Professor BULL.

An. Husb. 10. Farm Meats.—An inspection trip will be made to the Chicago Stock Yards and packing plants. The cost of the trip will be approximately $8.

3	A	1–4	TT	403 Agr.	BULL

An. Husb. 12. Special Problems.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Arrange. Members of the department.

An. Husb. 21. Principles of Feeding.—*Prerequisite:* Chem. 1 or 2.

3	Lect.	2	W	553 Agr.	BULL and CARROLL
	A Quiz	2	MF	553 Agr.	
	B Quiz	11	TT	553 Agr.	

An. Husb. 35. Animal Hygiene, Sanitation, Contagious Diseases of Farm Animals.—*Prerequisite:* An. Husb. 34; Bact. 5a.

2	A	3	TT	An.Path.Lab.	GRAHAM

An. Husb. 37. Poultry Management.—*Prerequisite:* An. Husb. 21.

3	A	9	MWF	316 New Agr.	CARD and SLOAN
	B	9	MWF	331 New Agr.	
1	Lab.	3–5	Th	Poultry Farm	SLOAN

Note: Students may register for this course either with or without the laboratory. Those taking the laboratory should register in Section B.

An. Husb. 42. Poultry Diseases.—*Prerequisite:* An. Husb. 37. Lectures and demonstrations on parasitic, bacterial, filterable virus, protozoan, fungus, and nutritional diseases of domestic fowl.

2	A	3 3–5	M W	An.Path.Lab.	GRAHAM

Courses for Advanced Undergraduates and Graduates

An. Husb. 27. Sheep Husbandry.—*Prerequisite:* An. Husb. 6.

3	A	11	MWF	111 S.P.	KAMMLADE

An. Husb. 28. History of Breeds of Live Stock.—*Prerequisite:* An. Husb. 3. It is recommended that this course precede An. Husb. 22.

3	A	3	MWF	316 New Agr.	Heads of divisions

An. Husb. 31. Advanced Course in Animal Nutrition.—*Prerequisite:* Senior standing, including An. Husb. 7. (3). Arrange. Professor MITCHELL.

An. Husb. 33. Horse Production.—*Prerequisite:* An. Husb. 3 and 6.

3	A	1	MWF	S.P.	EDMONDS

An. Husb. 39. Poultry Production.—*Prerequisite:* An. Husb. 37.

3	A	1	MWF	313 New Agr.	CARD

An. Husb. 41. Animal Genetics.—*Prerequisite:* Zool. 15.

3	A	2	MWF	Gen. Bldg.	ROBERTS

Courses for Graduates

An. Husb. 103. Personnel Relationships in Teaching, Research, and Extension Work.—Once a week. (½ unit). Arrange. Professor MUMFORD.

An. Husb. 112a-f. Research.—One to three times a week. (½ to 2 units).*

(a) **Economic Factors in Meat Production.**—Professor RUSK.
(b) **Systems of Live Stock Farming.**—Professor CASE.
(d) **Animal Nutrition.**—Professor MITCHELL.
(e) **Animal Genetics.**—Professor ROBERTS.
(f) **Poultry Husbandry.**—Professor CARD.

These courses may be taken during the summer by special permission.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

An. Husb. 117. Animal Genetics.—Two to five times a week. (1 unit). Professor ROBERTS.

An. Husb. 118. Animal Nutrition Seminar.—Two hours a week. (½ unit). Professor MITCHELL.

An. Husb. 119. Laboratory Methods in Animal Nutrition.—Two to five times a week. (½ to 1 unit).* Laboratory fee, $5. Professor MITCHELL.

An. Husb. 120. Laboratory Methods in the Diagnosis of Animal Diseases.—Two to five times a week. (½ to 1 unit).* Professor GRAHAM.

An. Husb. 121. Laboratory Methods in Animal Genetics.—Two to five times a week. (½ to 1 unit).* Arrange. Professor ROBERTS.

ARCHITECTURE

Courses for Undergraduates

Arch. 12. History of Architecture.—*Prerequisite:* Arch. 11 or consent of instructor. Not open to students expecting a degree in Architecture.

Credit	Section	Hours	Days	Room	Instructor
3	A	3	MWF	117 L.H.	

Arch. 14. History of Architecture.—*Prerequisite:* Arch. 13.

2	A	11	MW	120 Arch.	

Arch. 16. History of Architecture.—*Prerequisite:* Arch. 15.

2	A	11	TT	120 Arch.	

Arch. 18. History of Architecture.—*Prerequisite:* Arch. 17.

2	A	8	WF	120 Arch.	

Arch. 32. Architectural Design.—*Prerequisite:* Arch. 31.

3	Lect.	10	W	120 Arch.	
	A	1–4	TT	210 Arch.	
	B	8–11	MF	210 Arch.	
	C	8–11	TT	210 Arch.	

Arch. 33. Architectural Design.—*Prerequisite:* Arch. 32.

3	(See Arch. 34 for sections.)				

Arch. 34. Architectural Design.—*Prerequisite:* Arch. 33.

3	A	1–4	MW	210 Arch.	
		8–11	S	210 Arch.	
	B	1–4	WF	210 Arch.	
		8–11	S	210 Arch.	

Arch. 35. Architectural Design.—*Prerequisite:* Arch. 34.

5	(See Arch. 36 for sections.)				

Arch. 36. Architectural Design.—*Prerequisite:* Arch. 35 and registration in Arch. 66.

5	A	9–12	M	200 Arch.	
		1–5	MWF	200 Arch.	

Arch. 37. Architectural Design.—*Prerequisite:* Arch. 36 and senior standing in Architecture.

7	A	8–11	S	200 Arch.	
		1–5	MTWTF	200 Arch.	

Arch. 38. Architectural Design.—*Prerequisite:* Arch. 37 and senior standing in Architecture.

7	A	8–11	S	200 Arch.	
		1–5	MTWTF	200 Arch.	

Arch. 44. Technology of Materials.—*Prerequisite:* Arch. 43.

3	Lect.	11	F	302 Arch.	
	A	1–4	TT	310 Arch.	
	Lect.	11	W	302 Arch.	
	B	1–4	MW	310 Arch.	

Arch. 46. Graphic Statics.—*Prerequisite:* Arch. 45.

3	Lect.	9	Tu	302 Arch.	
	A	9–12	WF	310 Arch.	
	Lect.	11	M	302 Arch.	
	B	1–4	TT	310 Arch.	

Arch. 48. Steel Construction.—*Prerequisite:* Arch. 47 and registration in Arch. 58.

5	B	9	TT	301 Arch.	
		1–4	MWF	300 Arch.	

Arch. 55. Building Sanitation.—*Prerequisite:* Physics 8a-8b; Arch. 44.

1	A	10	TT	301 Arch.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Arch. 56. Building Sanitation.—*Prerequisite:* Senior standing in Architecture.

Credit	Section	Hours	Days	Room	Instructor
2	A	10	MW	302 Arch.	

Arch. 58. Reinforced Concrete Design.—*Prerequisite:* Arch. 57 and registration in Arch. 48.

3	B	10	F	302 Arch.
		1–4	TT	300 Arch.

Arch. 60. Reinforced Concrete.—*Prerequisite:* Senior standing in Architecture.

2	A	11	TT	302 Arch.

Arch. 66. Theory of Architecture.—*Prerequisite:* Arch. 65 and registration in Arch. 36.

1	A	9	Th	302 Arch.

Arch. 68. Specifications.—*Prerequisite:* Senior standing in Architecture.

3	A	11	MWF	301 Arch.

Arch. 72. Architectural Design.—*Prerequisite:* Arch. 71. Not open to students expecting a degree in Architecture.

3	A	1–4	TWT	210 Arch.
	B	9–12	TT	310 Arch.
		2–5	W	310 Arch.

Arch. 76. Masonry Construction Details.—*Prerequisite:* Arch. 75. Not open to students expecting a degree in Architecture.

2	A	1–4	TT	310 Arch.

Courses for Graduates

Arch. 101. Architectural Construction.—Theory and design. (½ to 2 units).* Professor PALMER.

Arch. 103. Architectural Construction.—Special problems. (½ to 2 units.)* Professor MORGAN.

Arch. 104. Architectural Design.—(1 to 3 units).* Professor DEAM.

Arch. 105. Architectural Practice.—(¼ to ½ unit).* Professor PROVINE.

Arch. 106. Architectural History.—(½ to 2 units).* Dean NEWCOMB.

ART

Note: Certain courses in this department require laboratory fees varying from $1.25 to $6.25.

Courses for Undergraduates

Art 1a. Design.—

Credit	Section	Hours	Days	Room	Instructor
2	A	3–5	MW	342 L.H.	ANDERSON, GOUGLER

Art 1b. Design.—*Prerequisite:* Art 1a.

2	A	8–10	WF	342 L.H.	GOUGLER
	B	10–12	WF	342 L.H.	ANDERSON, GOUGLER
	C	1–3	MW	342 L.H.	ANDERSON
	D	3–5	TT	342 L.H.	GOUGLER

Art. 2a-2b. Water Color.—*Prerequisite:* Art 25b.

2	A	1–4	TT	401a Arch.	DONOVAN

Art 3a-3b. Water Color.—*Prerequisite:* Art 2b.

2	A	1–4	TT	401a Arch.	DONOVAN

Art 4a-4b. Interior Design.—*Prerequisite:* Art 32a concurrently or Art 1b.

2	A	1–3	TT	342 L.H.	ANDERSON

Art 9. Applied Art Methods.—*Prerequisite:* Art 32b.

3	Lect.	9	Th	342 L.H.	ANDERSON
	Dem.	10	Th	342 L.H.	ANDERSON
	Quiz	11	Th	342 L.H.	ANDERSON

Art 10b. Course for Teachers.—*Prerequisite:* Art 32b or junior standing.

3	Lect.	9	M	342 L.H.	ANDERSON
	Dem.	10	M	342 L.H.	ANDERSON
	Quiz	11	M	342 L.H.	ANDERSON

Art 12. History of Fine Arts.—*Prerequisite:* Sophomore standing.

2	A	8	TT	120 Arch.	LAKE

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Art 14. Art Appreciation.—*Prerequisite:* Art 12 or junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	A	4	MWF	120 Arch.	NICHOLSON

Art 16. History of Modern Painting.—(Primarily for students in colleges other than Fine and Applied Arts). *Prerequisite:* Junior standing.

3	A	9	MWF	120 Arch.	NICHOLSON

Art 18. History of Medieval Art.—(Primarily for students in colleges other than Fine and Applied Arts). *Prerequisite:* Junior standing.

3	A	1	MWF	120 Arch.	NICHOLSON

Art 21a-21b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture).

2	A	8–11	TT	406 E.H.	KENNEDY
	B	2–5	MF	406 E.H.	RAUSHENBERGER
	C	9–12	MF	406 E.H.	HOGAN

Art 22a-22b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture). *Prerequisite:* Art 21b.

2	A	8–11	TT	Hall of Casts	WOODROOFE
	B	1–4	TT	410b Arch.	KENNEDY

Art 23a-23b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture). *Prerequisite:* Art 22b.

2	A	1–4	TT	Hall of Casts	WOODROOFE

Art 24a-24b. Freehand Drawing.—(Primarily for students in Architecture). *Prerequisite:* Art 23b.

2	A	8–11	M	10 Arch.	BAILEY
		9–12	W	10 Arch.	BAILEY

Art 25a-25b. Drawing and Anatomy.—

4	A	9–12	TT	410a Arch.	DONOVAN
		1–4	F	410a Arch.	DONOVAN
		9–12	S	403a Arch.	HOGAN
	B	9–12	MWF	410a Arch.	RAUSHENBERGER
		9–12	S	403b Arch.	KENNEDY
	C[1]	9–12	MWF	410a Arch.	RAUSHENBERGER

[1]Section C, for students other than Painting curriculum, 3 hours credit.

Art 26a-26b. Anatomy and Sketch.—*Prerequisite:* Art 25a.

2	A	9–12	S	403a Arch.	HOGAN
	B	9–12	S	403b Arch.	KENNEDY

Art 27. Life Drawing.—*Prerequisite:* Art 25b.

5	A	1–4	MTWTF	10 Arch.	BAILEY, HOGAN, WOODROOFE
	B	1–4	MWF	10 Arch.	HOGAN, WOODROOFE
		9–12	TT	10 Arch.	BAILEY

Art 27a-27b. Life Drawing.—*Prerequisite:* Art 26a.

3	A	1–4	TWT	10 Arch.	WOODROOFE
	B	9–12	TT	10 Arch.	BAILEY
		1–4	W	10 Arch.	WOODROOFE

Art 28. Life Drawing.—*Prerequisite:* Art 27.

5	A	1–4	MTWTF	10 Arch.	BAILEY, HOGAN, WOODROOFE
	B	1–4	MWF	10 Arch.	HOGAN, WOODROOFE
		9–12	TT	10 Arch.	BAILEY

Art 28a-28b. Portrait.—*Prerequisite:* Art 27a.

2	A	1–4	MF	403a Arch.	HOGAN

Art 29. Life Drawing and Sketch.—*Prerequisite:* Art 28.

4	A	9–12	MWF	403a Arch.	BRADBURY
		1–4	M	403b Arch.	BRADBURY

Art 30. Life Drawing and Sketch.—*Prerequisite:* Art 29.

4	A	9–12	MWF	403a Arch.	BRADBURY
		1–4	M	403b Arch.	BRADBURY

Art 32a-32b. Composition.—*Prerequisite:* Sophomore standing in Art.

2	A	8	WF	302 Arch.	WOODROOFE

Art 33a-33b. Composition and Illustration.—*Prerequisite:* Art 32b.

2	A	1	WF	302 Arch.	KENNEDY

Art 34a-34b. Composition (Mural).—*Prerequisite:* Art 33b.

3	A	1–4	W	407 E.H.	BRADBURY

Art 35a-35b. Commercial Art.—*Prerequisite:* Art 28 and Arch. 72.

Credit	Section	Hours	Days	Room	Instructor
2	A	8	TT	301 Arch.	Donovan
		9–12	S	310 Arch.	Donovan

Art 36a-36b. Commercial Art.—*Prerequisite:* Art 35b.

2	A	8	TT	301 Arch.	Donovan
		9–12	S	310 Arch.	Donovan

Art 41a-41b. Still Life.—*Prerequisite:* Art 25a.

2	A	9–12	MW	410b Arch.	Kennedy
	B	1–4	TT	410a Arch.	Donovan

Art 42a-42b. Landscape.—*Prerequisite:* Art 41b.

2	A	1–4	TT	410a Arch.	Donovan

Art 43a-43b. Landscape.—*Prerequisite:* Art 42b.

2	A	1–4	TT	410a Arch.	Donovan

Art 44a-44b. Portrait.—*Prerequisite:* Art 28.

2	A	9–12	TT	403a Arch.	Hogan

Art 46a-46b. Sketch.—*Prerequisite:* Art 30.

1	A	1–4	M	403b Arch.	Bradbury

Art 47. Life Painting.—*Prerequisite:* Art 30 and Art 44b.

5	A	9–12	MTWTF	403b Arch.	Bradbury

Art 48. Life Painting.—*Prerequisite:* Art 47.

5	A	9–12	MTWTF	403b Arch.	Bradbury

Art 50. Modeling.—*Prerequisite:* Art 25a.

2	A (Art)	10–12	MWF	20 Arch.	Lake
	B (Art)	2–5	TT	20 Arch.	Lake
	C (Arch.)	8–11	TT	20 Arch.	Bailey, Lake

Art 51a-51b. Modeling.—*Prerequisite:* Art 50.

2	A	1–4	TT	20 Arch.	Lake

Art 52a-52b. Modeling.—*Prerequisite:* Art 51b.

2	A	1–4	TT	20 Arch.	Lake

Art 90a-90b. Original Project.—*Prerequisite:* Senior standing in Art.

2	A	1–4	W	407 E.H.	Bradbury

ASTRONOMY

Course for Undergraduates

Astron. 2. Descriptive Astronomy.—Continuation of Astron. 1. *Prerequisite:* Astron. 1.

Credit	Section	Hours	Days	Room	Instructor
3	A	11	MWF	229 N.H.	Baker
		One hour Wednesday evening		Observatory	

Course for Advanced Undergraduates and Graduates

Astron. 7. Celestial Mechanics.—*Prerequisite:* Math. 9.

3	A	10	MWF	Observatory	Baker

Course for Graduates

Astron. 101. Seminar.—(1 unit). 1 MWF; Observatory. Professor Baker.

BACTERIOLOGY

Note: Certain courses in this department require laboratory fees varying from $4 to $5.

Major: 20 hours chosen from the courses offered by this department. Dairy Husbandry 10 (Advanced Dairy Bacteriology) may be offered in partial satisfaction of this requirement. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: agronomy, botany, chemistry, entomology, physiology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Bact. 5a. Introductory Bacteriology and Sanitary Science.—*Prerequisite:* Sophomore standing or consent of instructor.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	8	TT	100 Chem.	TANNER
	A Quiz	8	S	300 Chem.	BEAMER
	B Quiz	2	Tu	213 U.H.	CLARK
	C Quiz	3	Tu	303 Chem.	WALLACE
	D Quiz	2	Th	300 Chem.	BEAMER
	E Quiz	3	Th	300 Chem.	WALLACE
	F Quiz	2	W	300 Chem.	PARK
	G Quiz	3	W	303 Chem.	WALLACE
	H Quiz	10	M	300 Chem.	TANNER
	I Quiz	10	W	300 Chem.	WALLACE
	J Quiz	10	F	300 Chem.	BEAMER

Bact. 5b. Introductory Bacteriology, Laboratory.—*Prerequisite:* Bact. 5a or concurrent registration in it.

2	Lab. A	1–3	MW	367 Chem.	WALLACE, PARK
	Lab. B	10–12	MW	367 Chem.	CLARK, BEAMER
	Lab. C	1–3	TT	367 Chem.	WALLACE, PARK
	Lab. D	10–12	TT	367 Chem.	CLARK, BEAMER

Bact. 7b. Research and Special Problems for Undergraduates.—*Prerequisite:* 10 hours of bacteriology or consent of instructor. (3 to 5).* Arrange. Professor TANNER, Assistant Professor WALLACE.

Courses for Advanced Undergraduates and Graduates

Bact. 8. Food and Applied Bacteriology.—*Prerequisite:* Bact. 5a and 5b; junior standing; consent of instructor.

5	Lect.	8	MW	229 N.H.	TANNER
	Lab.	8–10	TTS	367 Chem.	CLARK, PARK

Bact. 10. Epidemiology.—*Prerequisite:* Bact. 5a, or 20; junior standing; consent of instructor.

2	Lect.	11	TT	204 Chem.	WALLACE

Courses for Graduates

Bact. 107. Research.—(½ to 4 units).* Arrange. Professor TANNER.

Bact. 118b. Current Literature.—Required of all graduate students majoring in general bacteriology. *Prerequisite:* 10 hours of bacteriology; consent of instructor. (¼ unit). 9 M; 366 Chem. Professor TANNER.

BOTANY

Note: Certain courses in this department require laboratory fees varying from $1 to $3.

Major: 20 hours of botany exclusive of Bot. 1 and 5, and inclusive of Bot. 2 or 12, 3, and at least five hours in courses listed for advanced undergraduates and graduates.

Minors: 20 hours in one or two departments chosen in consultation with the head of the department from the following list: agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least eight hours must be offered in each department, if two are chosen.

Courses for Undergraduates

Bot. 1a. Introductory Botany (Cultural Course).—The relation of the plant world to the physical and animal worlds. The progressive development of the plant world and its evolutional significance; its part in the formation of soils, the production of food, and the maintenance of life. Lectures, demonstrational quiz, one or two field trips. Designed to accompany Bot. 1b, but may be elected without it.

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	9	TT	228 N.H.	HOTTES, N. E.
	Discussion sections for students taking Bot. 1a only.				STEVENS, VESTAL, FULLER, and others
[1]Seniors will receive only 2 hours credit.	Disc. 1	8	Tu	258 N.H.	
	Disc. 2	10	Tu	258 N.H.	
	Disc. 4	1	Tu	258 N.H.	
	Discussion sections for students taking both Bot. 1a and 1b.				
	Disc. 3	11	Tu	258 N.H.	
	Disc. 5	1	Tu	349 N.H.	
	Disc. 6	2	Tu	258 N.H.	
	Disc. 7	8	Th	258 N.H.	
	Disc. 8	10	Th	258 N.H.	

Bot. 1b. Introductory Botany (Laboratory).—Morphology, physiology, and ecology of representative groups of the plant world. *Prerequisite:* Bot. 1a or concurrent registration therein.

2	A Lab.	8–10	MW	258 N.H.	FULLER and assistants
	B Lab.	10–12	MW	258 N.H.	
	C Lab.	1–3	MW	258 N.H.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Bot. 5. Botany for Students in Agriculture.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	8	Th	228 N.H.	HOTTES, N.E.
[1]Seniors will receive only 2 hours credit.	A Lab.	10–12	TT	259 N.H.	STEVENS, VESTAL, FULLER, and assistants
	B Lab.	1–3	TT	259 N.H.	

Bot. 6. Introductory Systematic Botany.—Classification and identification of flowering plants, with special reference to local flora, and needs of high school teachers. Occasional field trips required. *Prerequisite:* Bot. 1a and 1b, or 5.

3	Lect.	10	Th	229 N.H.	FULLER and assistants
	A Lab.	10–12	Tu	350 N.H.	
		11–12	Th	350 N.H.	
	B Lab.	1–3	Tu	350 N.H.	
		1–2	Th	350 N.H.	

Bot. 8. Forest Ecology.—*Prerequisite:* Bot. 1a and 1b, or 5. (3). 1-3 TT and two additional hours to be arranged; 216 N.H. Associate Professor VESTAL.

Bot. 12. Morphology of Vascular Plants.—*Prerequisite:* Bot. 1a and 1b, or 5.

3	A	1–3	MWF	204 Entom.	HAGUE

Bot. 13. Plant Physiology: Growth and Response.—*Prerequisite:* Bot. 1a and 1b, or 5.

3	Lect.	10	W	229 N.H.	FULLER and assistant
	Lab.	10–12	MF	153 N.H.	

Courses for Advanced Undergraduates

Bot. 14. Botany for Teachers.—*Prerequisite:* 15 hours of botany. (3). 11 TT and one additional hour to be arranged; 216 N.H. Associate Professor VESTAL.

Bot. 90b. Thesis Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

Bot. 91b. Honors Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

Courses for Advanced Undergraduates and Graduates

Bot. 20. Cytology.—Structure and life history of the plant cell, with special reference to theories of heredity and evolution. *Prerequisite:* 1 year of botany inclusive of Bot. 45, and junior standing. (3 or 5).* Arrange. Professor HOTTES.

Bot. 34. Physiology.—*Prerequisite:* One year of botany inclusive of Bot. 3, and junior standing.

3 or 5*	A	1–3	MWF	155 N.H.	HOTTES and assistant

Bot. 41. Cryptogamic Botany: Algae, Fungi, and Bryophytes.—(Students registering for 5 hours will choose the additional work in algae, fungi, or bryophytes respectively.) *Prerequisite:* Bot. 1a and 1b, and junior standing.

3 or 5*	A	10–12	MWF	304 N.H.	N. E. STEVENS, HAGUE

Bot. 77. Taxonomy of Pathogenic Fungi.—*Prerequisite:* One year of botany inclusive of Bot. 7, and junior standing.

3 or 5*	Lect.	9	Tu	304 N.H.	N. E. STEVENS
	Lab.	8	Tu	304 N.H.	
		8–10	Th		
		Additional hour to be arranged			

Bot. 88. Ecology: Plant Communities and Environment.—*Prerequisite:* One year of botany inclusive of Bot. 8 or 81, and junior standing.

3 or 5*	A	10–12	MWF	216 N.H.	VESTAL
		Field study on two or three Saturdays.			

Courses for Graduates

Bot. 110. Botanical Discussion.—(No credit). Required of all graduate students in botany and members of the instructional staff. 4 Tu; 258 N.H.

Bot. 112. Discussions in Plant Morphology.—(¼ unit). 4 F; 205 Entom. Dr. HAGUE.

Bot. 113. Discussions in Physiology.—(¼ unit). 4 Th; 155 N.H. Professor HOTTES.

Bot. 117. Discussions in Pathology and Mycology.—(¼ unit). 4 W; 304 N.H. Professor N. E. STEVENS.

Bot. 118. Discussions in Ecology.—(¼ unit). 4 M; 204 N.H. Associate Professor VESTAL.

Research Courses

Bot. 120. Morphology.—(½ to 2 units).* (Botany 112 to be taken concurrently.) One hour on either W or F, from 1 to 3, the rest to be arranged; 201 Entom. Dr. HAGUE.

Bot. 130. Physiology.—(½ to 2 units).* (Botany 113 to be taken concurrently.) One hour on M, W, or F, from 1 to 3, the rest to be arranged; Botany Annex. Professor HOTTES.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Bot. 170. Pathology or Mycology.—(½ to 2 units).* (Botany 117 to be taken concurrently.) One hour on either M or W, from 2 to 4; the rest to be arranged; 304 N.H. Professor N. E. STEVENS.

Bot. 180. Plant Ecology or Geography.—(½ to 2 units).* (Botany 118 to be taken concurrently.) Conf. 1 M or 10 Tu, the rest to be arranged; 204 N.H. Associate Professor VESTAL.

BUSINESS ORGANIZATION AND OPERATION

(Including Accountancy and Business Law)

A. ACCOUNTANCY

Courses for Undergraduates

Accy. 1a. Principles of Accounting.—Beginners' course. (Students who present one unit of bookkeeping for entrance will not be allowed credit in Accy. 1a and should register in Accy. 1e.)

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8	MWF	317 Com.	McMahan
[1]Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above. Seniors will receive only 2 hours credit.	J	8	TTS	223 Com.	Moyer
	B	9	MWF	317 Com.	McMahan
	K	9	TTS	115 Com.	Higginbotham
	L1	10	TTS	223 Com.	Moyer
	L2	10	TTS	115 Com.	Higginbotham
	D	11	MWF	223 Com.	McMahan
	M	11	TTS	223 Com.	Moyer
	E	2	MWF	115 Com.	Slater
	F	3	MWF	115 Com.	Slater

Accy. 1b. Accounting Procedure.—A continuation of Accy. 1a. (Credit is given for Accy. 1a without Accy. 1b.) *Prerequisite:* Accy. 1a or 1e.

3[1]	A	8	MWF	125 Com.	Baily
[1]Seniors will receive only 2 hours credit.	J1	8	TTS	126 Com.	Rutherford
	J2	8	TTS	312 Com.	McDonald
	J3	8	TTS	326 Com.	Griffith
	B1	9	MWF	122 Com.	Higginbotham
	B2	9	MWF	125 Com.	Baily
	K1	9	TTS	125 Com.	Kessler
	K2	9	TTS	312 Com.	McDonald
	K3	9	TTS	126 Com.	Rutherford
	C1	10	MWF	115 Com.	Higginbotham
	C2	10	MWF	125 Com.	Breen
	L	10	TTS	125 Com.	Karrenbrock
	D1	11	MWF	122 Com.	Baily
	D2	11	MWF	125 Com.	Breen
	M	11	TTS	125 Com.	Kessler
	F	2	MWF	312 Com.	Gaa
	G	3	MWF	312 Com.	Gaa

Accy. 1e. Principles of Accounting.—Similar to Accy. 1a. (Students who have one unit entrance credit in bookkeeping must take this course rather than Accy. 1a.) *Prerequisite:* One unit of entrance credit in bookkeeping.

2[1]	J	8	TT	122 Com.	Hackett
[1]Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above. Seniors will receive only 1 hour credit.	K	9	TT	122 Com.	Hackett
	L	10	TT	123 Com.	Newcomer
	M	11	TT	123 Com.	Newcomer

Accy. 2a. Elementary Cost Accounting.—*Prerequisite:* Accy. 1b; registration or credit in Econ. 1.

3	A	8	MWF	113 Com.	Newcomer
	B	9	MWF	113 Com.	Newcomer
	C	10	MWF	222 Com.	Schlatter
	D	11	MWF	222 Com.	Littleton

Accy. 2b. Intermediate Accounting.—*Prerequisite:* Accy. 2a.

3	A	8	MWF	119 Com.	Karrenbrock
	J	8	TTS	305 Com.	McMahan
	B	9	MWF	119 Com.	Karrenbrock
	K	9	TTS	305 Com.	McMahan
	C1	10	MWF	106 Com.	Theiss
	C2	10	MWF	119 Com.	Hackett
	D1	11	MWF	119 Com.	Hackett
	D2	11	MWF	106 Com.	Theiss
	F	2	MWF	305 Com.	Moyer
	G	3	MWF	305 Com.	Moyer

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Accy. 12. Fundamentals of Accounting.—A survey course for non-commerce students only. *Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	D	11	MWF	212 U.H.	KARRENBROCK

Accy. 90b. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis as part of the requirement. (2 to 4).* Arrange. Professor LITTLETON and others.

Accy. 91b. Independent Study.—Seniors registered in the College of Commerce who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this Department or sixteen semester hours if divided between this Department and any other department. This course may be elected by candidates for high honors in lieu of a thesis. (3 to 5).* Arrange. Professor LITTLETON and others.

Courses for Advanced Undergraduates and Graduates

Accy. 3a. Advanced Accounting.—*Prerequisite:* Accy. 2a-2b; Econ. 3; an average of "C" or better in Accy. 1 and 2.

3	D	11	MWF	113 Com.	NEWCOMER

Accy. 3b. Auditing.—*Prerequisite:* Accy. 3a.

3	B	9	MWF	115 Com.	FILBEY
	D	11	MWF	115 Com.	FILBEY

Accy. 4a. Cost Accounting.—*Prerequisite:* Accy. 2a.

2	K	9	TT	222 Com.	SCHLATTER
	L	10	TT	222 Com.	SCHLATTER

Accy. 4b. Accounting Systems.—*Prerequisite:* Accy. 2a-2b; Econ. 3. (Credit is given for either 4a or 4b separately.)

2	J	8	TT	113 Com.	BAILY
	K	9	TT	113 Com.	BAILY

Accy. 5b. C.P.A. Problems.—*Prerequisite:* Accy. 5a.

3	C	10	MWF	317 Com.	SCOVILL
	D	11	MWF	317 Com.	SCOVILL

Accy. 13. Governmental Accounting.—*Prerequisite:* Accy. 3a.

2	O	2	TT	122 Com.	HACKETT

Accy. 20. Income Tax Procedure.—*Prerequisite:* Senior standing; registration or credit in Accy. 3b.

2	L	10	TT	317 Com.	FILBEY
	M	11	TT	317 Com.	FILBEY

Accy. 30. Budgets and Accounting Control.—*Prerequisite:* Accy. 2b.

3	F	2	MWF	119 Com.	THEISS

Courses for Graduates

Accy. 103. Advanced Theory.—(1 unit). 3-5 Tu; 209 Com. Professor LITTLETON.

Accy. 104. Accounting Systems.—(1 unit). 3-5 Th; 209 Com. Professor SCOVILL.

Accy. 113. Governmental Accounting.—(1 unit). Arrange. Professor MOREY.

Accy. 129. Thesis.—(1 unit). 4-6 W; 420 Com. Professor LITTLETON and members of the staff.

B. BUSINESS ORGANIZATION AND OPERATION

Courses for Undergraduates

B.O.O. 1. Industrial Organization and Management.—*Prerequisite:* Econ. 1 or 2; 45 credit hours. Junior and senior engineering students admitted with consent of instructor.

3	A	8	MWF	307 Com.	MANDEVILLE
	J	8	TTS	224 Com.	HUEGY
	B	9	MWF	307 Com.	MANDEVILLE
	K1	9	TTS	307 Com.	MANDEVILLE
	K2	9	TTS	224 Com.	HUEGY
	C1	10	MWF	310 Com.	ANDERSON
	C2	10	MWF	307 Com.	HUEGY
	L	10	TTS	307 Com.	MANDEVILLE
	D	11	MWF	310 Com.	ANDERSON
	F1	2	MWF	222 Com.	JONES
	F2	2	MWF	310 Com.	ANDERSON
	G	3	MWF	222 Com.	JONES

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

B.O.O. 2. Marketing Organization and Operation.—*Prerequisite:* Econ. 1 or 2; junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	219 Com.	Heslip
	B	9	MWF	306 Com.	Jones
	C	10	MWF	305 Com.	Converse
	D	11	MWF	305 Com.	Converse
	F	2	MWF	307 Com.	Converse

B.O.O. 12b. Typewriting.—A continuation of B.O.O. 12a, being a course for beginners who intend to apply their knowledge later in teaching the subject. Required of all students in the Curriculum in Commercial Teaching in the College of Commerce and Business Administration. To be taken concurrently with B.O.O. 13b. *Prerequisite:* Junior standing; satisfactory completion of B.O.O. 12a; credit or concurrent registration in Education 10 and 25. (No University credit allowed.) 204 U.H.S. Mrs. Hagan.

B.O.O. 13b. Shorthand.—A continuation of B.O.O. 13a, being a course for beginners who intend to apply their knowledge later in teaching the subject. Required of all students in the Curriculum in Commercial Teaching in the College of Commerce and Business Administration. To be taken concurrently with B.O.O. 12b. *Prerequisite:* Junior standing; satisfactory completion of B.O.O. 13a; credit or concurrent registration in Education 10 and 25. (No University credit allowed.) 214 U.H.S. Mrs. Hagan.

B.O.O. 24. Purchasing.—Organization and operation of the purchasing department, basic materials, substitutes, imitations, sources of supply, catalogs, terms and discounts, relation to salesmen. *Prerequisite:* B.O.O. 1 and junior standing.

2	J	8	TT	206 Adm.(E)	Edwards

B.O.O. 90b. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis as part of the requirement. (2 to 4).* Arrange. Professor Russell and others.

B.O.O. 91b. Independent Study.—Seniors registered in the College of Commerce who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this Department or sixteen semester hours if divided between this Department and any other department. This course may be elected by candidates for high honors in lieu of a thesis. (3 to 5).* Arrange. Professor Russell and others.

Courses for Advanced Undergraduates and Graduates

B.O.O. 3. Retail and Chain Store Organization and Operation.—*Prerequisite:* B.O.O. 2.

3	A	8	MWF	123 Com.	Whitlo
	C	10	MWF	123 Com.	Whitlo

B.O.O. 7. Salesmanship.—*Prerequisite:* B.O.O. 2.

2	K	9	TT	326 Com.	Whitlo
	N	1	TT	326 Com.	Jones
	O	2	TT	326 Com.	Jones

B.O.O. 8. Advertising.—*Prerequisite:* B.O.O. 2.

3	B	9	MWF	310 Com.	Russell
	C	10	MWF	325 Com.	Heslip
	D	11	MWF	307 Com.	Heslip

B.O.O. 9. Trade Associations and Commercial Organizations.—*Prerequisite:* B.O.O. 2 and senior standing.

2	M	11	TT	219 Com.	Bruce

B.O.O. 14. The Technique of Executive Control.—*Prerequisite:* B.O.O. 1.

3	A	8	MWF	310 Com.	Anderson

B.O.O. 17. Problems in Sales Administration.—*Prerequisite:* B.O.O. 7.

2	M	11	TT	306 Com.	Heslip

B.O.O. 18. Advertising Campaigns.—*Prerequisite:* B.O.O. 8.

3	J	8–10	TT	317 Com.	Russell, Heslip

B.O.O. 20. Credits and Collections.—*Prerequisite:* B.O.O. 2 and junior standing.

3	D	11	MWF	224 Com.	Huegy
	F	2	MWF	224 Com.	Huegy

B.O.O. 22. Marketing Research and Policies.—*Prerequisite:* B.O.O. 2.

3	A	8	MWF	325 Com.	Converse

Courses for Graduates

B.O.O. 102. Marketing Research and Policies.—(1 unit). Arrange. Professor Converse.

B.O.O. 104. Scientific Management.—(1 unit). Arrange. Professor Anderson.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

B.O.O. 107. Sales Campaigns.—(1 unit). Arrange. Professor RUSSELL.

B.O.O. 129. Thesis.—(1 unit). Arrange. Professor RUSSELL and others.

C. BUSINESS LAW

Courses for Undergraduates

Bus. Law 1a. General Principles of Business Law.—*Prerequisite:* 60 hours of university credit, including Accy. 1b and Econ. 1.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	224 Com.	ROBERTS
	B	9	MWF	224 Com.	ROBERTS
	D	11	MWF	108 Com.	ROBERTS

Bus. Law 1b. General Principles of Business Law.—*Prerequisite:* Bus. Law 1a.

3	A	8	MWF	106 Com.	CURTIS
	B	9	MWF	106 Com.	CURTIS
	K	9	TTS	106 Com.	JEANBLANC
	L	10	TTS	106 Com.	JEANBLANC
	D	11	MWF	322 Com.	DILLAVOU
	E	1	MWF	106 Com.	CURTIS
	F	2	MWF	106 Com.	DILLAVOU

Bus. Law 2. Elementary Law of Business.—This course is offered exclusively for non-commerce students. *Prerequisite:* Junior standing.

3	C	10	MWF	326 Com.	CURTIS

Bus. Law 3. Law for Engineering Students.—*Prerequisite:* Junior standing in the College of Engineering or courses in Architecture.

3	F	2	MWF	108 Com.	ROBERTS

Courses for Advanced Undergraduates and Graduates

Bus. Law 10. Law of Security Relations and Banking.—*Prerequisite:* Senior standing and registration or credit in Bus. Law 1b.

3	A	8	MWF	223 Com.	DILLAVOU
	B	9	MWF	223 Com.	DILLAVOU

D. BUSINESS ENGLISH

(See Rhetoric 10, 21, and 22 under English Department.)

CERAMIC ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2.00 to $7.50.

Courses for Undergraduates

Cer.E. 4. Ceramic Materials.—*Prerequisite:* Cer. 1.

Credit	Section	Hours	Days	Room	Instructor
3	A	1	W	218 Cer.	
		1–4	MF	113 Cer.	
	B	2	M	218 Cer.	
		10–12	MWF	113 Cer.	

Cer.E. 8. Glass Technology.—*Prerequisite:* Chem. 40 and Cer. 14.

2	A	4	TT	218 Cer.

Cer.E. 10. Cements.—*Prerequisite:* Chem. 40 and registration in Cer. 28.

2	A	11	TT	214 Cer.

Cer.E. 11. Drying Clay Products.—*Prerequisite:* Physics 1a-1b, 3a-3b; Cer. 1.

3	A	11	MWF	218 Cer.

Cer.E. 14. Glasses and Glazes.—*Prerequisite:* Cer. 5 and registration in Chem. 40.

3	AB	11	TT	218 Cer.
	A	8–11	TT	113, 114 Cer.
	B	2–5	TT	113, 114 Cer.

Cer.E. 16a. Enamels.—*Prerequisite:* Registration in Cer.E. 14.

3	A	4	MWF	218 Cer.

Cer.E. 20. Refractory Materials.—*Prerequisite:* Chem. 40.

2	A	9	MW	218 Cer.

Cer.E. 24. Ceramic Engineering Design.—*Prerequisite:* Cer. 23; T.A.M. 3.

3	A	2–5	MWF	214 Cer.

Cer.E. 28. Pyrochemical Problems.—*Prerequisite:* Cer. 14; Chem. 40.

Credit	Section	Hours	Days	Room	Instructor
2	A	3	TT	218 Cer.	

Cer.E. 98. Thesis.—(1 to 3).* Arrange.

Courses for Graduates

Cer.E. 101. Chemistry of the Compounds of Silicon.—*Prerequisite:* Elementary courses in organic and physical chemistry. (1 unit). Arrange.

Cer.E. 102. General Technology of the Clay Industries.—*Prerequisite:* The elements of mineralogy and of physical chemistry. Lectures; seminar; laboratory. (1 or 2 units).* Arrange.

Cer.E. 104. Technology of Glass.—Lectures and laboratory. (1 or 2 units).* Arrange.

Cer.E. 105. Methods of Ceramic Research.—Lectures. (1 unit). Arrange.

Cer.E. 106. Research.—Arrange.

CHEMISTRY

(Including Chemical Engineering)

Note: Certain courses in this department require laboratory fees varying from $2.50 to $18.00.

Students in the curricula of chemistry and chemical engineering, majors in chemistry, and all others who desire a thorough training in the fundamentals of chemistry and their applications to modern life, should select courses from the following, and usually in the sequence given: Chemistry 1 or 2, 6, 10, 24, 34a, 36b, 37b, 40, 41, 42, 43, 50a, and courses in chemical engineering, sanitary chemistry, and miscellaneous groups. Students in engineering should register for Chemistry 3 or 2, 4, 24. Students who are compelled to meet chemical requirements briefly may register for the following sequence: Chemistry 1 or 2, 5, 24, 32 or 33.

Students who find it impossible to take more than one semester's work are requested to register in Chemistry 1 or 2 in the second semester rather than in the first.

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, 6, 7, 93a, and inclusive of courses in qualitative, quantitative, and organic chemistry. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from not more than two of the following: bacteriology, botany, entomology, geology, mathematics, philosophy, physiology, physics, psychology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in Chemistry 1, 2, 3, 4, 5, 6, and 7.

Courses for Undergraduates

Chem. 7. General Chemistry.—Not open to students who have earned credit in high school chemistry. This course may be applied toward the science group requirements. After completing Chem. 7, a student is permitted to register in Chem. 2; or by securing special permission he may register in Chem. 4, 5, or 6.

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	10	TT	112 Chem.A.	Hopkins
	70 Quiz	8	MW	210 Chem.A.	
[1]Seniors will receive 3 hours credit.	Lab.	8–10	TT	1 Chem.A.	
	71 Quiz	10	MW	103, 163 Chem.	
	Lab.	1–3	TT	1 Chem.A.	
	72 Quiz	11	TT	308 Chem.A.	
	Lab.	10–12	MW	1 Chem.A.	

Chem. 1. Inorganic Chemistry.—*Prerequisite:* One unit of entrance credit in physics, or 2½ units of entrance credit in mathematics, or registration in Math. 1a or 2 or 3. Students may register in either lecture section but are required to take the quiz and laboratory in some one section.

5[1]	A Lect.	11	TT	112 Chem.A.	Audrieth
[1]Students who have received entrance credit for high school chemistry are given only 3 hours credit for Chem. 1. Seniors will receive only 3 hours credit.	B Lect.	9	TT	112 Chem.A.	Reed
	1 Quiz	8	TT	111, 163 Chem.	
	Lab.	8–10	MWF	1 Chem.A.	
	2 Quiz	10	TT	8, 9, 210 Chem.A.	
	Lab.	10–12	MWF	1 Chem.A.	
	3 Quiz	11	MW	8 Chem.A.	
	Lab.	2–5	TT	201 Chem.A.	
	4 Quiz	1	TT	9 Chem.A., 103, 301 Chem.	
	Lab.	1–3	MWF	101 Chem.A.	
	5 Quiz	2	TT	8 Chem.A.	
	Lab.	10–12	MWF	101 Chem.A.	
	6 Quiz	9	MW	163 Chem., 105 Entom.	
	Lab.	3–5	MWF	101 Chem.A.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 2. Inorganic Chemistry.—(For all students who have had one year of high school chemistry.) *Prerequisite:* One unit of entrance credit in chemistry. *Note:* Students whose preparation in Chemistry is inadequate are advised to register for Chem. 1 or Chem. 3, rather than Chem. 2.

Credit	Section	Hours	Days	Room	Instructor
3[1]	C Lect.	9	W	112 Chem.A.	BAILAR
[1]Students who have received credit in Chem. 7 and seniors will receive only 2 hours credit in Chem. 2. Students below the rank of senior receive 5 hours credit, provided their high school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.	D Lect.	11	W	112 Chem.A.	NICHOLSON
	20 Quiz	3	MW	9 Chem.A.	
	Lab.	3–5	F	101 Chem.A.	
	21 Quiz	8	TT	303 Chem.	
	Lab.	8–10	S	212 Chem.A.	
	22 Quiz	9	TT	300, 301 Chem.	
	Lab.	8–10	F	1 Chem.A.	
	23 Quiz	2	TT	210, 9 Chem.A.	
	Lab.	3–5	Tu	212 Chem.A.	
	24 Quiz	10	MW	8 Chem.A., 204 Chem.	
	Lab.	10–12	Th	1 Chem.A.	
	25 Quiz	10	TT	204, 111 Chem.	
	Lab.	10–12	M	212 Chem.A.	
	26 Quiz	11	MF	301 Chem.	
	Lab.	3–5	W	212 Chem.A.	
	27 Quiz	11	TT	8 Chem.A., 103 Chem.	
	Lab.	10–12	F	212 Chem.A.	

Chem. 3. Inorganic Chemistry.—(For engineering students who have had no chemistry.) *Note:* Students who have credit for high school chemistry should register for Chem. 2.

4[1]	A Lect.	11	TT	112 Chem.A.	AUDRIETH
[1]Students who have used their high school chemistry for entrance credit are given only 3 hours credit for Chem. 3. Seniors will receive only 3 hours credit.	B Lect.	9	TT	112 Chem.A.	REED
	81 Quiz	10	TT	308 Chem.A.	
	Lab.	3–5	MF	101 Chem.A.	

Chem. 4. Chemistry of the Metallic Elements.—(Limited to students in the engineering curricula.) *Prerequisite:* Chem. 1, 2, or 3.

4[1]	E Lect.	10	MF	100 Chem.	AUDRIETH
	F Lect.	11	MF	100 Chem.	NICHOLSON
[1]Seniors will receive only 3 hours credit.	90 Quiz	8	MW	9 Chem.A.	
	Lab.	1–3	MF	1 Chem.A.	
	91 Quiz	9	MW	103 Chem.	
	Lab.	1–3	TT	1 Chem.A.	
	92 Quiz	10	TT	103, 163 Chem.	
	Lab.	8–10	TT	1 Chem.A.	
	93 Quiz	9	TT	9 Chem.A.	
	Lab.	1–3	TT	1 Chem.A.	
	94 Quiz	11	TT	303 Chem.	
	Lab.	8–10	MW	1 Chem.A.	
	95 Quiz	8	TT	201 Chem.	
	Lab.	10–12	TT	1 Chem.A.	
	96 Quiz	11	MW	103 Chem.	
	Lab.	1–3	MF	1 Chem.A.	
	97 Quiz	8	MW	8 Chem.A., 300 Chem.	
	Lab.	3–5	MF	1 Chem.A.	
	98 Quiz	1	TT	303 Chem.	
	Lab.	3–5	MF	1 Chem.A.	
	99 Quiz	2	MW	210 Chem.A.	
	Lab.	3–5	TT	1 Chem.A.	

Chem. 5. Inorganic Chemistry and Qualitative Analysis.—(For all second semester students who are not eligible for Chem. 4 or Chem. 6.) *Prerequisite:* Chem. 1, 2, or 3.

5[1]	G Lect.	9	TT	100 Chem.	COPLEY
	H Lect.	11	TT	100 Chem.	COPLEY
[1]Seniors will receive only 3 hours credit.	50 Quiz	2	MW	301 Chem.	
	Lab.	3–5	TT	201 Chem.A.	
		9–11	S	201 Chem.A.	
	51 Quiz	3	TT	8, 210 Chem.A.	
	Lab.	3–5	MWF	201 Chem.A.	
	52 Quiz	2	MW	8, 9 Chem.A.	
	Lab.	3–5	MWF	201 Chem.A.	
	53 Quiz	2	MW	201, 204 Chem.	
	Lab.	10–12	MWF	201 Chem.A.	
	54 Quiz	11	TT	116 Chem.	
	Lab.	1–3	MWF	201 Chem.A.	
	55 Quiz	1	TT	201, 204, 300 Chem.	
	Lab.	1–3	MWF	201 Chem.A.	
	56 Quiz	8	TT	204, 300, 301 Chem.	
	Lab.	8–10	MWF	201 Chem.A.	
	57 Quiz	9	MW	201 Chem., 9 Chem.A.	
	Lab.	10–12	MWF	201 Chem.A.	
	58 Quiz	9	MW	8, 210 Chem.A.	
	Lab.	1–4	TT	201 Chem.A.	
[2]Sections 55h and 56h are for home economics students only.	[2]55h Quiz	1	TT	116 Chem., 8 Chem.A.	
	Lab.	1–3	MWF	212 Chem.A.	
	[2]56h Quiz	8	TT	8, 9 Chem.A., 103 Chem.	
	Lab.	8–10	MWF	201, 212 Chem.A.	

Chem. 6. Inorganic Chemistry.—(Limited to students in the curricula of chemistry, chemical engineering, and ceramics, and chemistry majors who are not pre-medics.) *Prerequisite:* Chem. 1, 2, or 3.

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	10	TT	100 Chem.	Reed
[1]Seniors will receive only 3 hours credit.	62 Quiz	1	TT	210 Chem.A.	
	Lab.	1–3	MWF	101 Chem.A.	
	63 Quiz	8	TT	210 Chem.A.	
	Lab.	8–10	MWF	101 Chem.A.	
	64 Quiz	11	TT	210, 9 Chem.A., 201 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	65 Quiz	9	TT	210, 308 Chem.A., 103 Chem.	
	Lab.	8–10	MWF	101 Chem.A.	

Chem. 10. Qualitative Analysis.—(Required of students majoring in chemistry and of those registered in the curriculum of chemistry or of chemical engineering.) *Prerequisite:* Chem. 6.

5	Lect.	8	F	112 Chem.A.	Reedy
	Quiz	8	MW	116 Chem.	
	Lab.	1–4	MWF	310 Chem.A.	

Chem. 12b. Teachers' Course.—*Prerequisite:* 13 hours of chemistry and senior standing. Open to students who expect to teach.

3	Lect.	8	TT	116 Chem.	Parr
	Practice teaching to be arranged				

Chem. 22. Elementary Quantitative Analysis.—*Prerequisite:* Chem. 4 or 5 (for all students who have not followed the sequence Chem. 1, 2 or 3, 6 and 10).

5	Lect.	11	M	112 Chem.A.	Englis
	A Quiz	11	WF	111 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	11	WF	300 Chem.	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S	301 Chem.A.	

Chem. 23b. Quantitative Analysis.—(For students in ceramics and ceramic engineering only.) *Prerequisite:* Chem. 10.

4	Lect.	9	F	112 Chem.A.	Smith
	A Quiz	9	MW	162 Chem.	
	Lab.	1–4	TT	301 Chem.A.	
	B Quiz	9	MW	300 Chem.	
	Lab.	8–11	TT	301 Chem.A.	

Chem. 24. Quantitative Analysis.—(Regular course for all students other than those specified for Chem. 23b.) *Prerequisite:* Chem. 10.

5	Lect.	9	W	100 Chem.	Clark
	A Quiz	9	MF	303, 111 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	9	MF	116, 204 Chem.	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S	301 Chem.A.	
	C Quiz	9	MF	308 Chem.A.	
	Lab.	8–11	TTS	301 Chem.A.	
	D Quiz	9	MF	301 Chem.	
	Lab.	1–5:30	TT	301 Chem.A.	

Chem. 32. Elementary Organic Chemistry.—(Especially for students in agriculture.) *Prerequisite:* Chem. 5 or 10.

3	Lect.	8	TT	161 Chem.	Fuson and assistants
	A Quiz	1	Tu	111 Chem., 163 Chem.	
	Lab.	2–5	Tu	216 Chem.	
	B Quiz	1	Th	161 Chem.	
	Lab.	2–5	Th	218 Chem.	

Chem. 33. Elementary Organic Chemistry.—(For students in home economics and pre-medical courses.) *Prerequisite:* Chem. 10 or 5.

5	Lect.	8	MW	100 Chem.	Shriner
	Quiz	8	F	100, 111 Chem. 161, 163 Chem. 204, 300 Chem. 303, 301 Chem.	
Quiz section assignments will be made by the instructor after registration is complete.					
	A Conf.	8	Tu	217 Chem.	
	Lab.	9–11	Tu	250 Chem.	
		8–11	Th	250 Chem.	
[1]Section B is limited to 20 students.	[1]B Conf.	1	Tu	217 Chem.	
	Lab.	2–4	Tu	250 Chem.	
		1–4	Th	250 Chem.	
[2]Section C is limited to 24 students.	[2]C Conf.	1	M	217 Chem.	
	Lab.	2–4	M	218 Chem.	
		1–4	W	218 Chem.	

Chem. 90b. Thesis.—Each student who desires research must receive special permission both from the instructor under whom he is to work and from the head of the division in which the research is to be taken. Such written permission should be presented, at the time of registration, to the adviser for the chemists or chemical engineers. *Prerequisite:* Chem. 24, 34a, 40, 41, 42, and 43, or the consent of the head of the department. (3 to 5).* Professor ADAMS (in charge).

Chem. 91b. Elements of Glass-blowing.—*Prerequisite:* Two years work in chemistry. (1). Arrange. Mr. ANDERS.

Courses for Advanced Undergraduates and Graduates

Chem. 27. Special Methods and Instruments in Quantitative Analysis.—*Prerequisite:* Chem. 24, 34a, and 40, 41 or registration in 40 and 41.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	11	Tu	111 Chem.	SMITH
	A Lab.	1–4	TT	305 Chem.	
	B Lab.	1–4	F	305 Chem.	
		8–11	S	305 Chem.	

Chem. 29b. Food Analysis.—*Prerequisite:* Chem. 24 and 33 or 34a.

5	Lect.	9	TT	201 Chem.	ENGLIS
	Quiz	1	M	301 Chem.	
	Lab.	2–4	M	305a Chem.	
		1–4	WF	305a Chem.	

Chem. 36b. Organic Chemistry.—(Second course). *Prerequisite:* Chem. 34a.

3	Lect.	9	MWF	217 Chem.	MARVEL

Chem. 37b. Organic Chemistry.—(Laboratory). (Second course). To accompany Chem. 36b. *Prerequisite:* Chem. 34a, and 36b or registration in 36b.

2	A Conf.	1	W	217 Chem.	FUSON
	A Lab.	1–4	M	250 Chem.	
		2–4	W	250 Chem.	
	B Conf.	1	Th	217 Chem.	
(Section B is limited to 48 students.)	B Lab.	1–4	Tu	218 Chem.	
		2–4	Th	218 Chem.	

Chem. 40. Elementary Physical Chemistry.—*Prerequisite:* Chem. 24; Physics 1a-1b or 7a-7b; Math. 7 or 8.

3	Lect.	10	MWF	112 Chem.A.	RODEBUSH

Chem. 41. Elementary Physical Chemistry.—(Laboratory). To accompany Chem. 40.

1	A Lab.	1–4	Tu	124 Chem.	PHIPPS and assistants
	B Lab.	1–4	Th	124 Chem.	
	C Lab.	1–4	F	124 Chem.	

Chem. 42. Elementary Physical Chemistry.—*Prerequisite:* Chem. 40.

3	Lect.	8	TTS	112 Chem.A.	PHIPPS

Chem. 43. Elementary Physical Chemistry.—(Laboratory). *Prerequisite:* Chem. 40, 41, and registration in 42.

1	A Lab.	1–4	M	124 Chem.	PHIPPS and assistants
	B Lab.	1–4	Tu	124 Chem.	
	C Lab.	1–4	W	124 Chem.	
	D Lab.	1–4	Th	124 Chem.	
	E Lab.	1–4	F	124 Chem.	

Chem. 44b. Advanced Physical Chemistry.—*Prerequisite:* Chem. 40, 41.

2	Lect.	10	TT	116 Chem.	RODEBUSH

Chem. 49b. Chemistry of Colloids.—*Prerequisite:* Chem. 24 and 40 or consent of the instructor.

3	Lect.	10	MWF	161 Chem.	BUSWELL and assistant

Chem. 51b. Problems of Metabolism.—*Prerequisite:* Chem. 50a.

3	Lect.	11	M	111 Chem.	CARTER and assistants
	Lab.	1–4	TT	450 Chem.	

Chem. 61b. Principles of Chemical Engineering.—*Prerequisite:* Chem. 42.

4	Lect.	9	MWF	161 Chem.	KRASE
	A Lab.	1–6	M	50 Chem.	JOHNSTONE
	B Lab.	1–6	Tu	50 Chem.	JOHNSTONE
	C Lab.	1–6	W	50 Chem.	JOHNSTONE
	D Lab.	1–6	Th	50 Chem.	JOHNSTONE

Chem. 62b. Economics of Chemical Engineering.—*Prerequisite:* Senior standing in chemistry or chemical engineering.

2	Lect.	10	MW	111 Chem.	KEYES

Chem. 63b. Introduction to Chemical Engineering.—*Prerequisite:* Junior standing.

3	Lect.	10	MWF	217 Chem.	HOWARD

Chem. 64b. High Pressure Reactions.—*Prerequisite:* Senior standing in chemistry or chemical engineering.

2	Lect.	10	TT	161 Chem.	KRASE

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 65b. Chemical Engineering Calculations.—*Prerequisite:* Senior standing in chemistry or chemical engineering.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	11	MWF	163 Chem.	JOHNSTONE

Chem. 74b. Metallurgy and Metallography.—*Prerequisite:* Chem. 24.

3	Lect.	11	TT	161 Chem.	HOWARD
	A Lab.	1–6	Tu	53 Chem.	
	B Lab.	1–6	W	53 Chem.	
	C Lab.	1–6	Th	53 Chem.	

Chem. 92b. Chemical Literature and Reference Work.—(Required of juniors in chemistry; advised for juniors who are majoring in chemistry and for students in the curriculum of chemical engineering.) *Prerequisite:* 18 hours of chemistry; one year of French or German; junior standing.

1	A	10	Th	201 Chem.	BARTOW
[1]Section C is for stu-	B	8	F	201 Chem.	
dents who have not [1]C		10	Tu	201 Chem.	

had previous work in this field. This section will not be given unless there are 20 registrants.

Courses for Graduates

Graduate students whose major subject is in some department other than chemistry must have had the equivalent of 15 university credits in chemistry, and the ground covered should include satisfactory work in general chemistry and in qualitative and quantitative analysis and elementary organic chemistry. Such students are advised to make selections from the following courses: Chemistry 40, 41, 42, 43, 27, 34a, 36b and 37b, 50a, 15a, and 29b. Courses of a more special nature will not as a rule be accepted for graduate work unless preceded by one of the courses above. Graduate students who are candidates for an advanced degree in chemistry must have had the equivalent of 25 university credits in chemistry, properly distributed.

Graduate students whose major subject is in some department other than chemistry and who intend to take a first minor in chemistry or any branch of chemistry toward the Ph.D. degree must include among the courses taken Chemistry 40 and 41, or must have had the equivalent.

Graduate students who are candidates for the A.M. or M.S. degree in chemistry must include in the courses taken Chemistry 40 and 41, or must have had the equivalent. Graduate students who are candidates for the Ph.D. degree in any branch of chemistry must include among their courses Chemistry 40, 41, 42, and 43, or must have had the equivalent. Those courses (with the exception of Chemistry 12b) listed under the heading "Advanced Undergraduate and Graduate Courses" may be all counted toward advanced degrees in chemistry.

Chem. 101b. Inorganic Chemistry.—The less familiar elements and their relationship in the periodic system. (½ unit). (For laboratory work see Chem. 102b). 8 MW; 303 Chem. Professor HOPKINS.

Chem. 102b. Inorganic Chemistry.—Inorganic preparations and qualitative analysis of the less familiar elements. (Laboratory work to accompany or follow Chem. 101b.) (¼ to ¾ unit).* Arrange. Professor HOPKINS.

Chem. 105b. Inorganic Seminar and Special Topics.—(¼ to 1 unit).* Seminar, 4 Tu; 162 Chem. Professor HOPKINS. Special topic: The structure of complex inorganic compounds. 9 TT; 161 Chem. Assistant Professor BAILAR.

Chem. 124b. Quantitative Analysis.—A modern survey of advanced principles, calculations, experimental methods, and applications. (½ unit). Lectures, 11 MF; 116 Chem. Associate Professor REEDY.

Chem. 124d. Quantitative Analysis.—(Laboratory work, optional, to accompany Chem. 124b.) (¼ to ¾ unit).* Arrange; 260 Chem. Associate Professor SMITH.

Chem. 125b. Analytical Chemistry.—(Seminar). Required of all students taking a major or minor in analytical chemistry. (¼ to 1 unit).* 4 Th; 162 Chem. Additional meetings to be arranged. Professor CLARK.

Chem. 127b. Modern Applications of X-rays to Chemical and Industrial Problems.—(½ unit). Lectures, 10 TT; 217 Chem. Professor CLARK.

Chem. 127d. Modern Applications of X-rays to Chemical and Industrial Problems.—(Laboratory work, optional, to accompany Chem. 127b.) (¼ to ½ unit).* Arrange; 308 Chem. Professor CLARK.

Chem. 133b. Organic Chemistry.—(¾ unit). 11 TT; 217 Chem. Professor ADAMS.

Chem. 134. Organic Chemistry.—Chiefly laboratory work. (½ to 1 unit).* Arrange; 219 Chem. Professor MARVEL.

Chem. 135b. Organic Chemistry.—(Seminar). (¼ unit). 11 W; 217 Chem. Professor ADAMS.

Chem. 145b. Physical Chemistry.—(Seminar). (¾ unit). 10-12 S; 176 Chem. Professor RODEBUSH.

Chem. 150b. Physiological Chemistry.—(¾ unit). 9 TT; 111 Chem. Professor ROSE.

Chem. 152b. Physiological Chemistry.—(½ to 1 unit).* Chiefly laboratory work. Arrange; 467b Chem. Professor ROSE.

Chem. 155b. Physiological Chemistry.—(Seminar). Required of all students majoring in physiological chemistry. (¾ unit). 9–11 F; 456 Chem. Professor ROSE.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 160b. Chemical Engineering.—*Prerequisite:* Chem. 61a and 61b. (½ unit). Lect., 8 MW; 162 Chem. Professor KEYES.

Chem. 161b. Chemical Plant Design.—*Prerequisite:* Chem. 61a and 61b. (½ unit). 9 TT; 162 Chem. Associate Professor KRASE.

Chem. 186b. Sanitary Chemistry.—(½ to 1¼ units).* Arrange; 60b Chem. Professor BUSWELL.

Chem. 190b. Research.—Work may be taken in the following subjects:

Physical and Electrochemistry.—Professor RODEBUSH, Associate Professor PHIPPS, Dr. COPLEY.

Inorganic Chemistry.—Professor HOPKINS, Associate Professor REEDY, Assistant Professors BAILAR and AUDRIETH, Dr. COPLEY.

Analytical Chemistry.—Professor CLARK, Associate Professors REEDY and SMITH, Assistant Professor ENGLIS.

Food and Phyto-Chemistry.—Assistant Professor ENGLIS.

Applied X-rays.—Professor CLARK.

Organic Chemistry.—Professors ADAMS, MARVEL, FUSON, and SHRINER, Assistant Professor BAILAR.

Sanitary Chemistry.—Professor BUSWELL.

Physiological Chemistry.—Professor ROSE.

Chemical Engineering.—Professor KEYES, Associate Professor KRASE, Assistant Professors JOHNSTONE and SWANN, Mr. HOWARD.

Ceramic Chemistry.—Professor PARMELEE.

Zymochemistry.—Professor BUSWELL.

CIVIL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1 to $2.

Courses for Undergraduates

C.E. 1. Plane Surveying.—*Prerequisite:* Math. 4; G.E.D. 1 or 4.

Credit	Section	Hours	Days	Room	Instructor
3	E	10–12	MWF	C.E.S.B.	

C.E. 2. Topographic Surveying.—*Prerequisite:* C.E. 1.

3	E	2–4	MTh	C.E.S.B.	
		1–5	Tu	C.E.S.B.	
	F	10–12	TT	C.E.S.B.	
		1–5	Th	C.E.S.B.	
	G	1–3	MF	C.E.S.B.	
		1–5	W	C.E.S.B.	

C.E. 3. Railway and Highway Surveying.—*Prerequisite:* C.E. 2, 15, or 18.

4	E	1–3	MTWF	419 E.H.	PICKELS
	F	2–4	MTh	C.E.S.B.	WILEY
		1–3	WF	C.E.S.B.	WILEY
	G	8–10	MTWT	C.E.S.B.	RAYNER

C.E. 15. General Surveying.—*Prerequisite:* Math. 4; G.E.D. 1 or 4.

3	E	8–11	TT	C.E.S.B.	

C.E. 16. Elementary Surveying.—*Prerequisite:* Math. 4; G.E.D. 1 or 4.

2	E	2–4	WF	C.E.S.B.	

C.E. 18. Surveying for Landscape Architects.—*Prerequisite:* C.E. 17.

3	E	1–3	MWF	C.E.S.B.	RAYNER

C.E. 19. Construction Surveying.—*Prerequisite:* C.E. 3; Math. 7.

3	E	Arrange		C.E.S.B.	RAYNER

C.E. 20a. Highway Construction.—*Prerequisite:* C.E. 2, 15 or 18, or consent of instructor

3	E	10	MWF	101 E.H.	WILEY
	F	11	MWF	101 E.H.	CRANDELL

C.E. 23. Highway Administration.—*Prerequisite:* C.E. 20a or 21, or consent of instructor.

3	E	8	MWF	101 E.H.	WILEY

C.E. 28. Regional Design.—*Prerequisite:* C.E. 20, 21, and senior standing.

3	E	10	MF	102 E.H.	CRANDELL
		1–4	Th	309 E.H.	

C.E. 29. Municipal Transportation.—*Prerequisite:* Junior standing.

3	E	8	MWF	105 E.H.	KING, CRANDELL, and TUTHILL

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

C.E. 31. Advanced Highway Materials.—*Prerequisite:* C.E. 30a, 35.

Credit	Section	Hours	Days	Room	Instructor
2	E	9	Th	102 E.H.	Wiley
		8–10	Tu	102 E.H.	

C.E. 35. Plain Concrete.—*Prerequisite:* Sophomore standing in engineering or architecture.

2	E	9	Tu	112 M.T.L.	
		9–12	Th	112 M.T.L.	

C.E. 36. Construction Materials.—*Prerequisite:* Junior standing in engineering, architecture, or landscape architecture.

1	E	8	Tu	400 E.H.	Oliver

C.E. 40. Water Supply.—*Prerequisite:* T.A.M. 3 and 4.

4	E	11	MWF	208 E.H.	Doland
		1–4	Tu	309 E.H.	

C.E. 41. Sewerage.—*Prerequisite:* C.E. 40.

3	E	10	TT	208 E.H.	Babbitt
		1–4	Tu	211 E.H.	
	F	11	TT	208 E.H.	Babbitt
		1–4	Tu	214 E.H.	

C.E. 43. Sewage Treatment.—*Prerequisite:* Registration or credit in C.E. 41 and 42.

4	E	9–11	MWF	208 E.H.	Babbitt

C.E. 51. Drainage and Flood Control.—*Prerequisite:* C.E. 50.

3	E	10	MWF	105 E.H.	Pickels

C.E. 55. Water Power.—*Prerequisite:* T.A.M. 4 and 64.

3	E	9	MWF	105 E.H.	Doland

C.E. 60. Bridge and Building Construction.—*Prerequisite:* Sophomore standing in engineering or architecture.

3	E	8	MWF	205 E.H.	Doland

C.E. 61. Structural Stresses.—*Prerequisite:* Registration or credit in T.A.M. 3.

4	E	10	MWF	405 E.H.	Shedd
		1–4	Tu	419 E.H.	
	F	11	MWF	400 E.H.	Oliver
		1–4	Tu	419 E.H.	

C.E. 62. Elementary Structural Design.—*Prerequisite:* Registration or credit in C.E. 61.

3	E	8–10	MWF	405, 419 E.H.	Vawter
	F	8–10	MWF	400, 408 E.H.	Dell
	G	1–3	MWF	405, 419 E.H.	Dell

C.E. 63. Theory of Reinforced Concrete.—*Prerequisite:* T.A.M. 3 and registration or credit in C.E. 61.

2	E	9	TT	405 E.H.	Shedd
	F	10	TT	400 E.H.	Oliver
	G	11	TT	405 E.H.	Shedd

C.E. 64a. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 62 and 63.

5	E	10	MWF	400 E.H.	Vawter
		1–4	MW	408 E.H.	

C.E. 65a. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 64a.

4	E	8	Th	405 E.H.	Shedd
		1–4	MWF	211 E.H.	
	F	8	Th	400 E.H.	Stubbs
		1–4	MWF	214 E.H.	
	G	8	Th	205 E.H.	Oliver
		1–4	MWF	309 E.H.	

C.E. 66. Masonry Construction.—*Prerequisite:* C.E. 61, 63.

3	E	8	MWF	102 E.H.	Huntington
	F	9	MWF	102 E.H.	Huntington

C.E. 68. Indeterminate Structures.—*Prerequisite:* C.E. 67.

3	E	10	MWF	205 E.H.	Cross

C.E. 87. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 86.

4	E	1	TT	408 E.H.	Stubbs
		2–5	TT	408 E.H.	

C.E. 90. Contracts and Specifications.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	11	TT	102 E.H.	Vawter

C.E. 91. Estimates and Costs.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	9	TT	400 E.H.	Stubbs

C.E. 98. Thesis.—*Prerequisite:* High standing and approval of head of the department. (1 to 3).* To be arranged. Members of the department.

Courses for Graduates

	Credit	Section	Hours	Days	Room	Instructor
C.E. 102. Sewerage.—	1 unit		8	TT	204 E.H.	Babbitt
C.E. 104. Municipal Engineering.—	1 unit		11	TT	101 E.H.	Crandell
C.E. 107. Steel Design.—	1 unit		4	MF	305 E.H.	Cross, Shedd
C.E. 108. Structural Theory and Design.—	1 or 2 units*		4	TT	305 E.H.	Cross
C.E. 110. Sewage Disposal.—	1 unit		8	WF	204 E.H.	Babbitt
C.E. 113. Foundations.—	½ to 1 unit*		10	W	102 E.H.	Huntington
C.E. 120. Highway Traffic and Safety.—	1 unit		10	TT	101 E.H.	Wiley
C.E. 131. Water Power.—	1 unit		9	TT	105 E.H.	Doland
C.E. 140. Special Problems.—	½ to 2 units*		To be arranged			Members of department
C.E. 198. Thesis.—	1 to 2½ units*		To be arranged			Members of department

CLASSICS

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, and 17.

Minors: 20 hours chosen from not more than two of the following: foreign language (Latin being especially recommended), English literature, history, and philosophy. At least eight hours must be taken in each subject, if two are chosen.

Latin

Major: 20 hours, excluding Latin 1a-1b, 6, 13, and 20, and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours chosen from not more than two of the following: foreign language (Greek being especially recommended), English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17 and Latin 1a-1b, 6, 9, 11a-11b, 13, 20. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours chosen from not more than two of the following: foreign language, English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

A. GREEK

Courses for Undergraduates

Greek 1b. Elementary Greek (continuation of 1a).—

Credit	Section	Hours	Days	Room	Instructor
4	A	11	TWTF	120 L.H.	Perry

Greek 4. Second Year Greek, Homer.—*Prerequisite:* Greek 3 or an equivalent.

3	A	11	MWF	114 L.H.	Zickgraf

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Greek Life and History

Note: For Greek 15 and 17 a knowledge of Greek is not required.

Greek 15. Greek Athletics.—*Prerequisite:* Freshman standing.

Credit	Section	Hours	Days	Room	Instructor
2	A	11	MW	202 L.H.	Oldfather

Greek 17. Greek Drama in English Translation.—*Prerequisite:* Sophomore standing.

2	A	2	TT	109 L.H.	Perry

Courses for Advanced Undergraduates and Graduates

Greek 8. Greek Oratory, Aristotle and Theocritus.—*Prerequisite:* Greek 3 and 4 or an equivalent.

3	A	9	TTS	114 L.H.	Perry

Courses for Graduates

Note: Students desiring to take graduate work in Greek should have had at least three years of college Greek or an equivalent.

Greek 110b. See Latin 110b.

Greek 121. Thucydides.—(1 unit). 9 WF; 124 L.H. Associate Professor Perry.

B. LATIN

Courses for Undergraduates

Latin 1b. Vergil.—*Prerequisite:* Three entrance units in Latin or Latin 6.

4	A	1	TWTF	114 L.H.	Stone

Latin 4. Horace (Satires) and Vergil (Ecologues and Georgics).—*Prerequisite:* Latin 12a-12b or an equivalent.

3	A	10	MWF	120 L.H.	Johnston

Latin 5b. Latin Composition.—*Prerequisite:* Three entrance units in Latin or registration in Latin 1b. Required to secure the department's recommendation to teach.

1	A	4	Th	120 L.H.	Canter

Latin 9. Teachers' Course.—*Prerequisite:* 12 hours credit in Latin. Required to secure the department's recommendation to teach.

2	A	11	TT	104 L.H.	Canter

Latin 10. Latin Composition.—*Prerequisite:* 12 hours of Latin acceptable for a major. Required to secure the department's recommendation to teach.

2	A	10	TT	120 L.H.	Perry

Latin 12b. Sallust and Cicero (De Senectute).—*Prerequisite:* Four entrance units in Latin.

4	A	9	TWTF	120 L.H.	Johnston

Latin 30b. Honors Course.—Thesis or special course of study approved by the department. *Prerequisite:* Senior standing and 14 hours of Latin acceptable for a major. (2). Arrange. Professor Canter.

Roman Life and History

Latin 13. Roman Private Life.—*Prerequisite:* Sophomore standing. Knowledge of Latin not required.

1	A	3	Th	202 L.H.	Zickgraf

Latin 56. Roman History.—See History 56. 1 MWF; 202 L.H. Professor Oldfather.

Courses for Advanced Undergraduates and Graduates

Latin 18. Roman Archaeology.—*Prerequisite:* Junior standing.

2	A	2	TT	120 L.H.	Daly

Latin 22. Martial, Suetonius, and Apuleius.—*Prerequisite:* 12 hours of Latin acceptable for a major.

3	A	2	MWF	120 L.H.	Canter

Courses for Graduates

Note: Students desiring to take graduate work in Latin should have had at least three years of college Latin in addition to the Latin presented to meet entrance requirements.

Latin 110b. Bibliography and Criticism.—(1 unit). Arrange; 118 Lib. Professors Oldfather, Canter, and Associate Professor Perry.

Latin 115. Latin Elegy.—(1 unit). 4-6 Tu; 120 L.H. Professor Canter.

Latin 117. Suetonius.—(1 unit). 10 TT; 118 Lib. Professor Oldfather.

DAIRY HUSBANDRY

Note: Certain courses in this department require laboratory fees varying from $2 to $3.

Courses for Undergraduates

D.H. 2a. Dairy Cattle Breeding and Feeding.—*Prerequisite:* D.H. 24a or junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	A	9	MWF	553 Agr.	YAPP, NEVENS

D.H. 2b. Dairy Cattle Judging.—*Prerequisite:* D.H. 24a or junior standing.

2	A	8–10	TT	S.P.	YAPP

D.H. 6b. Dairy Products Plant Operations.—*Prerequisite:* D.H. 24b and consent of instructor. (3). 7-10 two days a week and one hour to be arranged; D.Mfrs. Associate Professor TRACY, Mr. TUCKEY.

D.H. 9. Dairy Products Judging.—*Prerequisite:* D.H. 24b. Inspection trip waived, 1935-36.

2	A	4	TT	D.Mfrs.	TRACY, TUCKEY

D.H. 11. General Dairy Bacteriology.—*Prerequisite:* Sophomore standing.

2	A	11	TT	302 Agr.	PRUCHA

D.H. 12. General Dairy Bacteriology.—*Prerequisite:* D.H. 11 or registration therein.

2	A	3–5 or arrange	TT	455 Agr.	PRUCHA, BRANNON

D.H. 23b-k. Investigation with Thesis.—(Continuous throughout the year; credit is not given for either semester separately.) *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem and approval of the head of the department. (5). Arrange.

(b) **Dairy Bacteriology.**—Professor PRUCHA, Assistant Professor BRANNON.

(d) **Dairy Chemistry.**—Associate Professor OVERMAN.

(f) **Dairy Farming and Economic Milk Production.**—Professor FRASER.

(h) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.

(k) **Dairy Production.**—Professors GAINES, YAPP, Associate Professor NEVENS.

D.H. 24a. Elementary Dairy Production.—*Note:* Juniors and seniors allowed only 2 hours credit.

3	Lect.	9	M	127 New Agr.	NEVENS
	Lab.	8–10	W	S.P.	
	Quiz	9	F	127 New Agr. 106 L.H.	KUHLMAN

D.H. 24b. Elementary Testing and Manufacture of Dairy Products.—*Note:* Juniors and seniors allowed only 2 hours credit.

3	Lect.	3	M	D.Mfrs.	TUCKEY
	Quiz	4	M	D.Mfrs.	
	A Lab.	3–5	W	D.Mfrs.	
	B Lab.	3–5	F	D.Mfrs.	

Courses for Advanced Undergraduates and Graduates

D.H. 5. Composition of Dairy Products.—*Prerequisite:* Junior standing, including Chem. 32.

3	A	10–12	MWF	502 Agr.	OVERMAN

D.H. 7. Creamery Buttermaking and Factory Management.—*Prerequisite:* D.H. 24b or its equivalent and junior standing. Inspection trip waived, 1935-36.

5	Lect.	1	MTu	D.Mfrs.	RUEHE, TUCKEY
	Lab.	1–3	Th	D.Mfrs.	
		1–6	F		
	Quiz	2	Tu	D.Mfrs.	

D.H. 8. Fluid Milk Plant Operations.—*Prerequisite:* D.H. 24b or its equivalent and junior standing. Inspection trip waived, 1935-36.

3	A	8–10	MWF	D.Mfrs.	TRACY

D.H. 14. Milk Condensing.—*Prerequisite:* D.H. 24b or its equivalent and junior standing. Inspection trip waived, 1935-36.

3	Lect.	9	TT	D.Mfrs.	TRACY
	Lab.	1–5	W	D.Mfrs.	

D.H. 21. Systems of Dairy Farming.—*Prerequisite:* Junior standing. Inspection trip costing about $1.

3	A	11	MWF	553 Agr.	FRASER

Courses for Graduates

D.H. 101. Economic Milk Production.—(½ to 2 units).* Twice a week. Arrange. Professor FRASER.

D.H. 105. Dairy Manufactures.—(½ to 2 units).* Arrange. Professor RUEHE, Associate Professor TRACY.

D.H. 106. Dairy Bacteriology.—(½ to 2 units).* Arrange. Professor PRUCHA.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

D.H. 107. Dairy Chemistry.—(½ to 2 units).* Arrange. Associate Professor OVERMAN.

D.H. 108. Physiology of Lactation.—(½ to 2 units).* Arrange. Professor GAINES.

D.H. 112a-f. Research.—(1 to 4 units).* Arrange. *Note:* Graduate students writing a thesis should so indicate when registering in Dairy Husbandry 112.

(a) **Dairy Bacteriology.**—Professor PRUCHA.
(b) **Dairy Chemistry.**—Associate Professor OVERMAN.
(c) **Dairy Cattle Breeding.**—Professor YAPP.
(d) **Dairy Cattle Feeding.**—Associate Professor NEVENS.
(e) **Milk Production.**—Professor GAINES.
(f) **Dairy Manufactures.**—Professor RUEHE, Associate Professor TRACY.

D.H. 113. Seminar.—(½ unit). Once a week. Both semesters. Current literature in dairy bacteriology, dairy chemistry, and dairy manufactures. Members of the graduate staff.

D.H. 114. Seminar.—(½ unit). Once a week. Both semesters. Current literature in biology of milk production. Professor GAINES.

ECONOMICS

Including courses formerly in Public Utilities and Transportation
(See also Agricultural Economics and Business Organization and Operation)

Major: For students in the College of Liberal Arts and Sciences, 20 hours made up of Economics 1 and other courses in economics for which it is a prerequisite.

Minors: 20 hours in any one or two of the following subjects: geography, history, philosophy, political science, and sociology.

Note: Economics 22 and 27 are open only to freshmen, without previous requirements.

Economics 1 is the fundamental course in economics. It is a prerequisite for most of the advanced courses, and students expecting to do advanced work in economics should take it in their sophomore year.

Courses for Undergraduates

Econ. 1. Principles of Economics.—*Prerequisite:* 30 hours of university work.

Credit	Section	Hours	Days	Room	Instructor
5	Lect.	9	TT	114 Com.	THOMPSON
	A Quiz	8	MWF	101 Com.	HOOVER
	B1 Quiz	9	MWF	329 Com.	BEHLING
	B2 Quiz	9	MWF	123 Com.	WESTON
	B3 Quiz	9	MWF	328 Com.	WEST
	B4 Quiz	9	MWF	101 Com.	HOOVER
	C1 Quiz	10	MWF	306 Com.	LOCKLING
	D Quiz	11	MWF	123 Com.	WESTON

Econ. 2. Elements of Economics.—*Prerequisite:* 30 hours of university work.

3	C1 Quiz	10	MWF	328 Com.	LOUNSBURY
	C2 Quiz	10	MWF	219 Com.	BRUCE
	C3 Quiz	10	MWF	224 Com.	HUDSON
	D Quiz	11	MWF	219 Com.	BRUCE
	E1 Quiz	1	MWF	328 Com.	LOUNSBURY
	E2 Quiz	1	MWF	322 Com.	STEINER
	F1 Quiz	2	MWF	325 Com.	MILLER
	F2 Quiz	2	MWF	322 Com.	GAY

Econ. 3. Money, Credit, and Banking.—*Prerequisite:* Econ. 1 or 2.

3	[1]Lect. I	8	W	114 Com.	LEE
	A1 Quiz	8	MF	326 Com.	STEINER
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II.	A2 Quiz	8	MF	122 Com.	STALNAKER
	A3 Quiz	8	MF	305 Com.	LOCKLING
	A4 Quiz	8	MF	328 Com.	LOUNSBURY
	K1 Quiz	9	TT	328 Com.	LOUNSBURY
	K2 Quiz	9	TT	123 Com.	WESTON
	N Quiz	1	TT	306 Com.	LOCKLING
	O Quiz	2	TT	328 Com.	STEINER
	[1]Lect. II	8	Th	114 Com.	LEE
	J1 Quiz	8	TuS	306 Com.	LOCKLING
	J2 Quiz	8	TuS	123 Com.	WESTON
	K3 Quiz	9	TuS	306 Com.	LOCKLING
	B2 Quiz	9	MF	305 Com.	LEE
	L Quiz	10	TT	122 Com.	STALNAKER
	M Quiz	11	TT	122 Com.	STALNAKER

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Econ. 27. Introduction to Business.—Open to freshmen, and to others with consent of instructor.

Credit	Section	Hours	Days	Room	Instructor
3	[1]Lect. I	1	Tu	114 Com.	Russell
	C1 Quiz	10	WF	113 Com.	Gay
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II in Lect. II; and those in Lect. III in Lect. III.	E1 Quiz	1	WF	329 Com.	Stalnaker
	E2 Quiz	1	WF	312 Com.	Morris
	E3 Quiz	1	WF	113 Com.	Gay
	E4 Quiz	1	WF	326 Com.	Muntz
	E5 Quiz	1	WF	306 Com.	Hudson
	K1 Quiz	9	TT	119 Com.	Hudson
	O1 Quiz	2	TT	123 Com.	Miller
	P1 Quiz	3	TT	101 Com.	Hoover
	[1]Lect. II	2	M	114 Com.	Russell
	F1 Quiz	2	WF	326 Com.	Morris
	F2 Quiz	2	WF	101 Com.	McKay
	F3 Quiz	2	WF	219 Com.	Stalnaker
	F4 Quiz	2	WF	328 Com.	Muntz
	F5 Quiz	2	WF	113 Com.	Hudson
	K2 Quiz	9	TT	223 Com.	Osborn
	N Quiz	1	TT	123 Com.	Miller
	O2 Quiz	2	TT	101 Com.	Hoover
	P2 Quiz	3	TT	219 Com.	Osborn
	[1]Lect. III	10	Tu	114 Com.	Russell
	C2 Quiz	10	WF	108 Com.	Muntz
	D Quiz	11	WF	326 Com.	Mandeville
	K3 Quiz	9	ThS	219 Com.	West
	L1 Quiz	10	ThS	328 Com.	Morris
	L2 Quiz	10	ThS	326 Com.	West
	L3 Quiz	10	ThS	101 Com.	Hoover
	O3 Quiz	2	TT	219 Com.	Osborn
	G Quiz	3	MW	219 Com.	Gay

Econ. 92. Economics of Transportation.—*Prerequisite:* Econ. 1 and junior standing.

3	A Quiz	8	MWF	106 Com.	Locklin
	C Quiz	10	MWF	101 Com.	Turney
	D Quiz	11	MWF	101 Com.	Turney

Courses for Advanced Undergraduates

Econ. 90b. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis or take a comprehensive examination, as part of the requirement. (2 or 4).* Arrange. Associate Professor Berman and other members of the department.

Econ. 91b. Independent Study.—Seniors registered in the College of Commerce who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this Department or sixteen semester hours if divided between this Department and any other department. (3 to 5).* Arrange. Associate Professor Gray and other members of the department.

Courses for Advanced Undergraduates and Graduates

Econ. 8. Foreign Exchange and the Money Market.—*Prerequisite:* Econ. 1 and 3, and senior standing.

3	Lect.	8	W	215 Com.	Wright
	A Quiz	8	MF	322 Com.	Wright
	J Quiz	8	TT	322 Com.	Wright
	K Quiz	9	TT	322 Com.	Wright

Econ. 10. Corporation Finance and Management.—*Prerequisite:* Econ. 1 and 3; Accy. 1a and 1b.

3	A Quiz	8	MWF	329 Com.	Behling
	C1 Quiz	10	MWF	222 Com.	Gray
	C2 Quiz	10	MWF	111 Com.	Van Arsdell
	D1 Quiz	11	MWF	111 Com.	Van Arsdell
	D2 Quiz	11	MWF	329 Com.	Behling
	D3 Quiz	11	MWF	126 Com.	Gray
	L Quiz	10	TTS	111 Com.	Van Arsdell

Econ. 23. Current Economic Problems.—*Prerequisite:* Econ. 1 or 2; junior standing. Not open to Commerce students or L.A.S. students whose major subject is economics.

3	D Quiz	11	MWF	306 Com.	Lee

Econ. 31. Organization of Foreign Commerce.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	10	W	114 Com.	Litman
	C Quiz	10	MF	322 Com.	Litman
	L Quiz	10	TT	322 Com.	Litman

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Econ. 36. Investments.—*Prerequisite:* Econ. 10, and senior standing.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	9	W	114 Com.	Brown
	B1 Quiz	9	MF	108 Com.	Brown
	B2 Quiz	9	MF	111 Com.	Van Arsdell
	K1 Quiz	9	TT	108 Com.	Brown
	K2 Quiz	9	TT	111 Com.	Van Arsdell
	L Quiz	10	TT	108 Com.	Brown

Econ. 42. Trade Unionism.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	E	1	MWF	325 Com.	Berman

Econ. 43. Personnel Administration.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	2	F	114 Com.	Helbing
	F1 Quiz	2	MW	223 Com.	Helbing
	F2 Quiz	2	MW	329 Com.	Heckman
	J Quiz	8	TT	310 Com.	Heckman
	K Quiz	9	TT	310 Com.	Heckman
	O Quiz	2	TT	223 Com.	Helbing

Econ. 44. Socialism and Economic Reform.—*Prerequisite:* Econ. 1 or 2, and senior standing.

3	E	1	MWF	215 Com.	Helbing

Econ. 51. Public Finance.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	A Quiz	8	MWF	312 Com.	Hunter
	C Quiz	10	MWF	312 Com.	Hunter

Econ. 52. Modern Problems of Taxation.—*Prerequisite:* Econ. 51.

3	D	11	MWF	312 Com.	Hunter

Econ. 56. Property Insurance.—*Prerequisite:* Econ. 1 or 2, and junior standing.

3	Lect.	8	M	215 Com.	Dickinson
	J Quiz	8	TT	325 Com.	Dickinson
	K Quiz	9	TT	325 Com.	Dickinson

Econ. 61. Economic Theory.—*Prerequisite:* Econ. 1 or 2, and senior standing.

3	D Quiz	11	MWF	325 Com.	Berman

Econ. 72. Economic Statistics.—*Prerequisite:* Econ. 71 or the permission of the instructor.

3	L	10	TT	325 Com.	Dickinson
	Practice	1–3	Tu	317 Com.	Dickinson

Econ. 83. Public Utility Rates.—*Prerequisite:* Econ. 81.

3	A	9	MWF	126 Com.	Gray

Econ. 93. Industrial Traffic Management.—*Prerequisite:* Econ. 92.

3	A	9	TTS	100 Com.	Locklin

Econ. 94. Ocean Shipping.—*Prerequisite:* Econ. 92.

3	A	9	MWF	322 Com.	Litman

Econ. 96. Current Transportation Problems.—*Prerequisite:* Econ. 92.

3	A	10	TTS	100 Com.	Locklin

Courses for Graduates

Econ. 101. Economic Theory.—(1 unit). 2-4 M; 212 Com. Professor Fetter.

Econ. 102. Monetary Theory and History from the Restriction Period to the Present.—(1 unit). Arrange. Dr. Lounsbury.

Econ. 104b. Organization of International Trade.—(1 unit). 3 TT; 212 Com. Professor Litman.

Econ. 105. Public Finance.—(1 unit). 4-6 Tu; 212 Com. Professor Hunter.

Econ. 106. International Exchange and the Money Markets.—(1 unit). Arrange. Professor Wright.

Econ. 110. Corporation Finance.—(1 unit). Arrange. Assistant Professor Brown.

Econ. 112b. Labor Problems: Economic Insecurity.—(1 unit). 4-6 M; 212 Com. Associate Professor Berman.

Econ. 118. Seminar.—Thesis Course. *Note:* All graduate students writing theses in economics register in Econ. 118; registration for others is optional. (1 to 4 units).* 4-6 Th (alternate weeks); 420 Com.

(a) Third Year: Seminar.—Professor Litman.

(b) First Year: General Economics.—Assistant Professor Brown.

(c) First Year: Public Utilities.—Associate Professor Gray.

Econ. 120. History of Economic Thought.—(1 unit). 3-5 W; 209 Com. Professor Fetter.

Econ. 123. Industrial and Financial Organization of Society.—(1 unit). 10-12 S; 212 Com. Professor Lee.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Econ. 143. Administration of Industrial Relations.—(1 unit). Arrange. Dr. HELBING.

Econ. 144. Economic Statistics with Special Reference to Time Series and Business Cycles.—(1 unit). Arrange. Assistant Professor DICKINSON.

Econ. 180. Management of Public Utilities.—(1 unit). 4-6 W; 212 Com. Associate Professor GRAY.

Econ. 192. Economics of Transportation.—(1 unit). Arrange. Associate Professor LOCKLIN.

EDUCATION

A. GENERAL EDUCATION

Introductory Courses

Ed. 2. History of Education.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	B	9	MWF	303 Adm.(E)	SEYBOLT
	C	10	MWF	303 Adm.(E)	SEYBOLT

Ed. 6. Principles of Secondary Education.—*Prerequisite:* Ed. 25.

3	J	8	TTS	308 Adm.(E)	WILLIAMS
	K	9	TTS	308 Adm.(E)	CLEMENT
	D	11	MWF	303 Adm.(E)	PETERS
	E	1	MWF	308 Adm.(E)	PETERS
	F	2	MWF	307 Adm.(E)	WEBER
	G1	3	MWF	308 Adm.(E)	PETERS
	G2	3	MWF	307 Adm.(E)	WEBER

Ed. 10. Technic of Teaching.—*Prerequisite:* Ed. 25 and Ed. 6.

Students who are preparing to teach biology, chemistry, civics, economics, English, French, general science, German, history, home economics, Latin, music, physics, or Spanish, or who expect to teach in elementary schools, and who plan to take Educational Practice, must register in the sections indicated immediately below, and must register at the same time for the Educational Practice indicated. Only students specializing in the fields indicated may enroll in these sections. Sections G1 and G2 are offered for 4 hours credit and meet four days a week; all others 3 hours credit.

(Biology—Ed. Prac. 6) (Chemistry—Ed. Prac. 7) (Gen. Sci.—Ed. Prac. 13) (Physics—Ed. Prac. 21)	A1	8	MWF	303 U.H.S.	HARNISH
(Elem. Sch.—Ed. Prac. 25)	A2	8	MWF	206 Adm.(E)	REAGAN
(Civics—Ed. Prac. 8) (History—Ed. Prac. 15) (Economics—Ed. Prac. 27)	E	1	MWTF	210 U.H.S.	HABBERTON
(Home Econ.—Ed. Prac. 14)	F1	2	MWF	104 U.H.S.	KING
(P.E. Men—Ed. Prac. 1, 2, 3, 4)	F2	2	MWF	209 New Gym.	JACKSON
(English—Ed. Prac. 11) (Speech—Ed. Prac. 11a)	G1	3	MTWF	205 U.H.S.	MCHARRY
(French—Ed. Prac. 12) (German—Ed. Prac. 28) (Latin—Ed. Prac. 17) (Spanish—Ed. Prac. 23)	G2	3	MWF	312 U.H.S.	ARNDT

Students preparing to teach in other fields than those listed above and those who do *not* plan to take Educational Practice will enroll in the sections listed below:

	B	9	MWF	206 Adm.(E)	ODELL
	C	10	MWF	206 Adm.(E)	REAGAN
	D	11	MWF	206 Adm.(E)	MONROE

Ed. 25. Educational Psychology.—*Prerequisite:* Psych. 1 for all sections except Section G.

3	K	9	TTS	304 Adm.(E)	POTTHOFF
	C	10	MWF	304 Adm.(E)	PETERS
	L	10	TTS	304 Adm.(E)	DOLCH
	M	11	TTS	206 Adm.(E)	POTTHOFF
	E	1	MWF	304 Adm.(E)	DOLCH
	F	2	MWF	206 Adm.(E)	PETERS
	[1]G1	3	MWF	204 Adm.(E)	CAMERON
	G2	3	MWF	206 Adm.(E)	POTTHOFF
	H	4	MWF	304 Adm.(E)	DOLCH

[1]Section G1 is for students who have not taken Psych. 1. Consent of instructor must be obtained.

Ed. 91. Special Problems of Education in Rural Communities.—(Same as Agr. Ed. 91). *Prerequisite:* Senior standing and at least 6 hours in education.

2	A	11	MW	122 Agr.	NOLAN

Ed. 99b. Thesis.—*Prerequisite:* Senior standing. (2). Arrange. Dean BENNER and others.

Courses for Advanced Undergraduates and Graduates

Ed. 18. Educational Measurements.—*Prerequisite:* Ed. 25.

3	A	10	MWF	204 Adm.(E)	ODELL

Ed. 18b. Educational Measurements in Elementary Schools.—*Prerequisite:* Ed. 25, senior standing, or consent of instructor.

Credit	Section	Hours	Days	Room	Instructor
2	A	10–12	S	206 Adm.(E)	ODELL

Ed. 30. History of American Education.—*Prerequisite:* Senior standing or Ed. 2 or 11.

2	A	9	TT	303 Adm.(E)	SEYBOLT

Ed. 31. Introduction to Modern Theories in Education.—*Prerequisite:* Junior standing.

3	A	2	MWF	303 Adm.(E)	BROWNE

Ed. 41. Principles of Vocational Education.—(Same as Ind. Ed. 41). *Prerequisite:* Senior standing.

3	A	3	MWF	304 Adm.(E)	MAYS

Ed. 42. Special Education.—*Prerequisite:* Ed. 25.

3	A	3	MWF	303 Adm.(E)	DOLCH

Ed. 43. Mental Tests.—*Prerequisite:* Ed. 25.

3	Lect.	1	MF	202 Adm.(E)	POTTHOFF
	Lab.	1	WTh	202 Adm.(E)	POTTHOFF

Ed. 45. Genetic Psychology for Teachers.—*Prerequisite:* Senior standing, Psych. 1, Ed. 25, or consent of instructor.

3	A	11	MWF	204 Adm.(E)	GRIFFITH

Ed. 53. Problems of Industrial Education.—(Same as Ind. Ed. 53). *Prerequisite:* Junior standing or consent of instructor.

3	A	9	MWF	304 Adm.(E)	MAYS

Ed. 55. Problems of Vocational Guidance.—(Same as Ind. Ed. 55). *Prerequisite:* Senior standing.

3	A	8	MWF	304 Adm.(E)	MAYS

Courses for Graduates

In addition to complying with the general rules of the Graduate School, candidates for the master's degree in education must meet the following requirements: (1) Education 125 is a required course for all students; (2) for students who have not taken a course in the history of education, Education 11 or Education 30 is required; (3) Education 6 and 25, or their equivalents, are prerequisites for all graduate courses.

No student is recommended to the Dean of the Graduate School for formal admission to candidacy for the master's degree until at least four units of the eight ordinarily required for the degree have been completed satisfactorily. In the case of a student who has been allowed to waive the thesis (see Graduate School Bulletin), two papers will be required. The first shall be written during the first half of the student's residence and shall be an important factor in determining his further status in the department. The second shall be written during the second half of the student's period of residence.

Ed. 101. Philosophy of Education.—(1 unit). 4-6 F; 204 Adm.(E). Professor CAMERON.

Ed. 102. Research in the History of Education.—(1 unit). Arrange; 311 Adm.(E). Professor SEYBOLT.

Ed. 104. Educational Administration.—(1 unit). 4-6 W; 308 Adm.(E). Associate Professor WEBER.

Ed. 119. Trends and Techniques in Curriculum Making.—(1 unit). 10-12 S; 305 U.H.S. Assistant Professor EVERETT.

Ed. 120a. Seminar in the Supervision of Secondary Education.—*Prerequisite:* Ed. 106. (1 unit). 4-6 Tu; 308 Adm.(E). Professor CLEMENT.

Ed. 121. Educational Measurements.—Seminar. (1 unit). 4-6 M; 307 Adm.(E). Associate Professor ODELL.

Ed. 124. Reading in Educational Research.—(1 unit). 4-6 W; 206 Adm.(E). Professor MONROE.

Ed. 125. Educational Psychology.—(1 unit). 10-12 S; 204 Adm.(E). Professor CAMERON.

Ed. 129. The Junior College.—*Prerequisite:* 3 units of graduate work in education. (1 unit). 4-6 Th; 308 Adm.(E). Professor CLEMENT.

Ed. 131. Analysis and Evaluation of High School Texts.—*Prerequisite:* Ed. 127. (1 unit). 10-12 S; 308 Adm.(E). Professor CLEMENT.

Ed. 139. Seminar in Curriculum Problems.—*Prerequisite:* Ed. 119a or 119b or consent of instructor. (1 unit).* 4-6 Tu; 305 U.H.S. Assistant Professor EVERETT.

Ed. 150. Thesis.—(1 to 2 units).* Dean BENNER and others.

Ed. 184. Seminar in School Administration.—*Prerequisite:* 3 units of graduate work in education including Ed. 104 or 106 and consent of instructor. (1 unit). Arrange. 302 Adm.(E). Associate Professor WEBER.

Ed. 185. Seminar in Educational Psychology.—*Prerequisite:* Ed. 125 and consent of instructor. (1 unit). Arrange. 203 Adm.(E). Professor CAMERON, Associate Professor GRIFFITH.

Ed. 190. Research in Education.—*Prerequisite:* 3 units of graduate work in education and consent of the dean. (1 unit). Dean BENNER and others.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

B. RELATED COURSES IN SPECIAL SUBJECTS

The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 20 hours in Education for graduation; for the 15 hours in Education for the State High School Certificate; or for the hours of Education necessary as a qualification for teachers in the North Central Association accredited schools.

Art 10b. Course for Teachers.—(3). (See Art).

Botany 14. Course for Teachers.—(3). (See Botany).

Chemistry 12b. Course for Teachers.—(3). (See Chemistry).

English 41. Teaching of English Literature.—(2). (See English).

German 25. Teachers' Course.—(2). (See German).

History 18. Teaching of History.—(2). (See History).

Home Economics 11. Teachers' Course.—(3). (See Home Economics).

Latin 9. Teachers' Course.—(2). (See Classics).

Music 25b. Instrumental Methods.—(2). (See Music).

C. EDUCATIONAL PRACTICE

The courses listed below are open only to seniors. *Prerequisite:* Ed. 25, 6, and 10, except that students who take Ed. Prac. 6, 7, 8, 11, 11a, 12, 13, 14, 15, 17, 20, 21, 23, 25, 27, or 28 must register at the same time for Ed. 10. For Educational Practice in Agriculture, see Associate Professor NOLAN at 116 Old Agriculture. For Educational Practice in Physical Education, see Mr. JACKSON at 202 Old Gymnasium. For Educational Practice in Home Economics, see Miss ROBINSON and Miss KING at 119 Woman's Building. Arrange for all other courses in Educational Practice with Principal C. W. SANFORD, at 102 University High School.

Ed. Prac. 1. Physical Education for Men.—(2 to 4).*

Ed. Prac. 2. Physical Education for Men.—(2 to 4).*

Ed. Prac. 3. Physical Education for Men.—(2 to 4).*

Ed. Prac. 4. Physical Education for Men.—(2 to 4).*

Ed. Prac. 5. Agricultural Education.—(2 to 5).* (Same as Agr. Ed. 50).

Ed. Prac. 6. Biology.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 7. Chemistry.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 8. Civics.—(5). Students must be registered in Ed. 10, Section E.

Ed. Prac. 9. Drawing, Art.—(3 to 5).*

Ed. Prac. 10. Drawing, Mechanical.—(3 to 5).*

Ed. Prac. 11. English.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 11a. Speech.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 12. French.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 13. General Science.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 14. Home Economics Education.—(5). Students must be registered in Ed. 10, Section F1.

Ed. Prac. 15. History.—(5). Students must be registered in Ed. 10, Section E.

Ed. Prac. 16. Industrial Education.—(3 to 5).*

Ed. Prac. 17. Latin.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 19. Mathematics.—(5).

Ed. Prac. 20. Music.—(3 to 5).*

Ed. Prac. 21. Physics.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 23. Spanish.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 24. Stenography and Typewriting.—(3 to 5).*

Ed. Prac. 25. Elementary Education.—(5). Students must be registered in Ed. 10, Section A2.

Ed. Prac. 26. Bookkeeping.—(5).

Ed. Prac. 27. Economics.—(5). Students must be registered in Ed. 10, Section E.

Ed. Prac. 28. German.—(5). Students must be registered in Ed. 10, Section G2.

D. AGRICULTURAL EDUCATION

Agr. Ed. 50. Teaching.—(Same as Ed. Prac. 5). *Prerequisite:* Ed. 25 and senior standing.

Credit	Section	Hours	Days	Room	Instructor
2 to 5*	A	Conference 4	Tu	Tolono H.S.	HENDERSON
		Teaching to be arranged			
	B	Conference 4	Tu	St. Joseph H.S.	RUCKER
		Teaching to be arranged			
	C	Apprentice teaching in state			NOLAN

Agr. Ed. 51. Teachers' Course in Agriculture.—*Prerequisite:* Ed. 25, and senior standing.

3	A	4	MWF	122 Agr.	NOLAN

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Agr. Ed. 91. Special Problems of Education in Rural Communities.—(Same as Ed. 91). *Prerequisite:* Senior standing and at least 6 hours in education.

Credit	Section	Hours	Days	Room	Instructor
2	A	11	MW	122 Agr.	NOLAN

Agr. Ed. 92. Adult Education in Vocational Agriculture.—*Prerequisite:* 20 hours of technical agriculture, Ed. 25, and senior standing. (Subject-matter and methods in part-time and evening classes, and other extension service in vocational agriculture.)

2	A	11	TT	122 Agr.	NOLAN

E. INDUSTRIAL EDUCATION

Ind. Ed. 1. Industrial Arts.—First course.

4	Lect.	2	TT	5 Wood Shop	BRAUCHER and
	Shop	2–4	MWF	5 Wood Shop	assistant

Ind. Ed. 2. Advanced Industrial Arts.—

4	Lect.	9	TT	5 Wood Shop	BRAUCHER and
	Shop	8–10	MWF	5 Wood Shop	assistant

Ind. Ed. 2a. Problems of House Construction.—

4	Lect.	10	TT	5 Wood Shop	BRAUCHER and
	Shop	10–12	MWF	5 Wood Shop	assistant

Ind. Ed. 57. Methods of Trade Teaching.—

3	A	11	MWF	310 Adm.(E)	MAYS

Note: The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 25 hours in Industrial Education.

G.E.D. 1. Elements of Drawing.—(4). (See General Engineering Drawing).

G.E.D. 2. Descriptive Geometry.—(4). (See General Engineering Drawing).

G.E.D. 4. Advanced Drawing.—(4). (See General Engineering Drawing).

Journ. 9b. History and Practice of Printing and Publishing.—(2 or 3). (See Journalism).

M.E. 85. Pattern and Foundry Laboratory.—(3). (See Mechanical Engineering).

M.E. 87. Machine Laboratory.—(3). (See Mechanical Engineering).

Courses for Advanced Undergraduates and Graduates

Ind.Ed. 41. Principles of Vocational Education.—(Same as Ed. 41). *Prerequisite:* Senior standing.

3	A	3	MWF	304 Adm.(E)	MAYS

Ind. Ed. 53. Problems of Industrial Education.—(Same as Ed. 53). *Prerequisite:* Junior standing or consent of instructor.

3	A	9	MWF	304 Adm.(E)	MAYS

Ind.Ed. 55. Problems of Vocational Guidance.—(Same as Ed. 55). *Prerequisite:* Senior standing.

3	A	8	MWF	304 Adm.(E)	MAYS

Extra-mural Courses

Extra-mural Courses in Industrial Education.—Arrange. Assistant Professor DODGE.

ELECTRICAL ENGINEERING

Note: Certain courses in this department require laboratory fees of $2.

Courses for Undergraduates

E.E. 2. Electrical Equipment.—*Prerequisite:* One year of college physics.

Credit	Section	Hours	Days	Room	Instructor
3		11	MWF	200 E.E. Annex	

E.E. 12. Direct and Alternating Current Apparatus.—*Prerequisite:* E.E. 11, 61 and registration in E.E. 62.

3	C1	8	MWF	305 E.H.
	C2	8	MWF	111 E.H.
	Q1	10	MWF	305 E.H.
	Q2	10	MWF	104 P.L.
	J	11	MWF	305 E.H.
	P1	1	MWF	305 E.H.
	P2	1	MWF	109 E.H.
	C3	9	TTS	305 E.H.

E.E. 14. Commercial and Industrial Wiring and Illumination.—*Prerequisite:* Sophomore standing or equivalent.

3		8	MWF	200 E.E. Annex

E.E. 26. Alternating Currents.—*Prerequisite:* E.E. 25, Physics 44a, registration in E.E. 76.

Credit	Section	Hours	Days	Room	Instructor
4	N	9	MTWTF	111 E.H.	
	L	11	MTWTF	111 E.H.	
	M	11	MTWTF	105 E.H.	
	K	1	MTWTF	111 E.H.	

E.E. 36. Alternating Current Apparatus.—*Prerequisite:* E.E. 35, registration in E.E. 86.

4	K	8	MTWTF	109 E.H.
	L	10	MTWTF	109 E.H.
	M	11	MTWTF	109 E.H.
	N	11	MTWTF	104 P.L.

E.E. 48. Fundamentals of Telephone Transmission.—*Prerequisite:* Senior standing in electrical engineering or consent of instructor.

3	KLM	1	TT	109 E.H.
	Lab. K	2–5	Tu	311a E.E.L.
	Lab. L	2–5	W	311a E.E.L.
	Lab. M	2–5	Th	311a E.E.L.

E.E. 52. Radio Communication Theory.—*Prerequisite:* E.E. 35 or consent of instructor.

3		10	TT	305 E.H.
	Lab.	2–5	W	311 E.E.L.

E.E. 54. Vacuum Tubes and Control Devices.—*Prerequisite:* E.E. 26.

3		1	MWF	105 E.H.

E.E. 56. Economical Design of Electrical Systems.—*Prerequisite:* E.E. 35.

4	Lect. KLM	9	Th	319 E.H.
	K	9	MWF	312 E.H.
	L	10	MWF	312 E.H.
	M	1	MWF	312 E.H.

E.E. 58. Power and Communication Networks.—*Prerequisite:* Grade of "A" or "B" in E.E. 26.

3		10	MWF	111 E.H.

E.E. 62. Direct and Alternating Current Laboratory.—*Prerequisite:* E.E. 11, E.E. 61, registration in E.E. 12.

1	J1	9–12	Tu	200 E.E.L.
	J2	9–12	Tu	214 E.E.L.
	Q	1–4	Tu	214 E.E.L.
	P1	9–12	Th	200 E.E.L.
	P2	9–12	Th	214 E.E.L.
	R1	1–4	Th	200 E.E.L.
	R2	1–4	Th	214 E.E.L.
	C1	1–4	F	214 E.E.L.
	C2	1–4	F	200 E.E.L.
	C3	9–12	S	214 E.E.L.
	C4	9–12	S	200 E.E.L.

E.E. 72. Electrical Engineering Problems.—(Elective for juniors and seniors). *Prerequisite:* E.E. 25.

1 to 3*	KL	8	TT	111 E.H.
	Lab. K	2–5	M	110 E.E.L.
	Lab. L	2–5	F	110 E.E.L.
	M	8	TTS	305 E.H.
	Others arrange			

E.E. 76. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 25, 75; registration in E.E. 26.

2	Lect. MYZ	8	Tu	215 E.E.L.
	Lect. KLA	10	W	100 P.L.
	K	2–5	M	200 E.E.L.
	L	2–5	Tu	200 E.E.L.
	M	8–11	W	200 E.E.L.
	Y	2–5	W	200 E.E.L.
	Z	8–11	F	200 E.E.L.
	A	8–11	S	200 E.E.L.

E.E. 84. Vacuum Tube Laboratory.—*Prerequisite:* Registration or credit in E.E. 54 and consent of instructor.

1	K	2–5	Tu	300 E.E.L.
	L	2–5	W	300 E.E.L.
	M	2–5	Th	300 E.E.L.

E.E. 86. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 85, registration in E.E. 36.

2	Lect. KLMNY	9	Tu	215 E.E.L.
	L	2–5	M	200 E.E.L.
	K	2–5	Tu	200 E.E.L.
	K2	9–12	W	200 E.E.L.
	M	2–5	W	200 E.E.L.
	N	2–5	Th	200 E.E.L.
	Y	2–5	F	200 E.E.L.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

E.E. 90. Building Lighting.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
1		11	Tu	200 E.E. Annex	

E.E. 96. Seminar.—*Prerequisite:* Senior standing in electrical engineering.

1	K	9	M	305 E.H.
	L	11	Tu	305 E.H.
	M	9	W	305 E.H.
	N	11	Th	305 E.H.
	Y	1	Th	101 E.H.

E.E. 98. Thesis.—(3). Arrange.

Courses for Graduates

Note: Entrance on graduate work in electrical engineering presupposes the equivalent of the full undergraduate course in that subject. The undergraduate courses in electrical engineering are open for minor credit to students majoring in other departments who have the proper prerequisites.

E.E. 101. Advanced Courses in Alternating Currents.—(½ to 2 units).* Arrange.
- (a) **Graduate Seminar.**—Professor PAINE.
- (c) **Machine Transients.**—Assistant Professor KEENER.

E.E. 102. Electric Waves, Oscillations, and Transients.—(½ to 2 units).* Arrange.
- (a) **Theory of Electric Waves, Oscillations, and Transients.**—Assistant Professor REICH.
- (b) **Demonstration Lecture.**—Assistant Professor REICH.
- (c) **Theory of Energy Radiation.**—Assistant Professor BROWN.
- (d) **Principles of Television Engineering.**—Assistant Professor BROWN.

E.E. 103. Electric Design.—(1 unit). Arrange.
- (a) **Power Plant Design.**—Professor PAINE.
- (b) **Machine Design.**—Professor PAINE.
- (c) **Illumination Practice and Design.**—Assistant Professor KRAEHENBUEHL.

E.E. 104. Courses in Electronics.—(1 unit). Arrange.
- (a) **Theoretical Electronics.**—Assistant Professor REICH.
- (c) **Photoelectric Cells, Gaseous Control Tubes and Inverters.**—Assistant Professor REICH.

E.E. 105. Electrical Engineering Research.—(1 to 3 units).* Professors PAINE, TYKOCINER, KNIGHT, Assistant Professors BROWN, REICH, KEENER, KRAEHENBUEHL.

ENGINEERING

Courses for Undergraduates

Note: Each of the following courses may be used as an approved or non-technical elective in all engineering curricula.

Eng. 10. Engineering Economics.—Evolution and growth of industry; basic industrial principles; ownership and securities; standardization; valuation and depreciation; comparisons and selections of engineering projects. *Prerequisite:* Junior standing in engineering.

Credit	Section	Hours	Days	Room	Instructor
3	A	9	MWF	105 T.B.	KING
	B	10	MWF	105 T.B.	
	C	1	MWF	105 T.B.	

Eng. 39. Industrial Relations.—History of the development of industry; the factory system; manufacturers' organizations; labor organizations; works management; trade unions; wage systems; personnel problems; labor legislation. *Prerequisite:* Junior standing.

3	A	11	MWF	Mach. Lab.	CASBERG

Eng. 92. Engineering Law.—Contracts, evidence, torts, equity, real property, corporations, agency, sales, negotiable instruments, water rights, patent rights, special assessments, contract letting, general conditions. *Prerequisite:* Senior standing in engineering or architecture.

3	A	9	MWF	101 E.H.	PICKELS
	B	1	MWF	101 E.H.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

ENGLISH

(Including Rhetoric, Speech, and Scandinavian Languages)

Major: 20 hours in English *excluding* Rhetoric 1, 2, 10, 12, 21, 22, English 10a, 10b, 20a, 20b, 41, 42, and *including* at least ten hours in English literature, at least three hours in composition, and two courses from the advanced group in English literature.

Minors: 20 hours in (a) Latin or Greek or French or German or Spanish; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history; or (e) in history and philosophy. No language courses may be regarded as satisfying the minor requirement if they are excluded from the majors of the language departments (excepting elementary courses in Greek, Latin, French 2a, and Spanish 2a). At least eight hours must be offered in each subject.

Major in Speech

Major: 10 hours in speech, inclusive of Speech 7 and 8 and either 4 or 6; and 10 hours of English, exclusive of English 10a, 10b, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, 22, and inclusive of one course in English literature from the advanced group.

Minors: 20 hours, in any one or two of the following subjects: psychology, philosophy, Greek, Latin, French, German, history, political science, economics, law, or sociology. At least eight hours must be offered in each subject, if two are chosen.

A. ENGLISH LANGUAGE AND LITERATURE

Courses for Undergraduates

Engl. 10a. An Introduction to Literature.—Forms of poetry, mainly narrative. *Prerequisite:* The minimum entrance requirement in English. (Credit is not given for Engl. 10a in addition to 20a and 20b).

Credit	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	142 L.H.	Secord
	A2	8	MWF	412 U.H.	Busey
[1]Seniors will receive only 2 hours credit.	B	9	MWF	204a L.H.	Kelley
	C	10	MWF	133 L.H.	Zeitlin
	D1	11	MWF	219 L.H.	Tupper
	D2	11	MWF	213 U.H.	Templeman
	E1	1	MWF	203 U.H.	Finney
	E2	1	MWF	148 L.H.	Haskell
	F	2	MWF	203 U.H.	Bloom

Engl. 10b. An Introduction to Literature.—Forms of poetry, mainly lyrical. *Prerequisite:* Engl. 10a. (Credit is not given for Engl. 10b in addition to 20a and 20b).

3[1]	A1	8	MWF	204a L.H.	Kelso
[1]Seniors will receive only 2 hours credit.	A2	8	MWF	310 U.H.	Goldman
	B1	9	MWF	128 L.H.	Rinaker
	B2	9	MWF	219 L.H.	Tupper
	C1	10	MWF	206 L.H.	Rapp
	C2	10	MWF	232 L.H.	Rinaker
	D1	11	MWF	232 L.H.	Landis
	D2	11	MWF	235 L.H.	Weirick
	E	1	MWF	235 L.H.	Busey
	F	2	MWF	133 L.H.	Parry

Engl. 13. American Literature.—*Prerequisite:* Sophomore standing, or exemption from Rhet. 2.

2	A	9	TT	103 New Agr.	Paul
	B	3	TT	103 New Agr.	Paul

Engl. 20a. Chief English Writers of the Nineteenth Century.—Intended for students in professional and technical courses such as law, medicine, commerce, engineering, etc. *Prerequisite:* One year of college work. (Credit is not given for Engl. 20a in addition to Engl. 10a and 10b).

4	A1	8	MTWT	203 U.H.	Harris
	A2	8	MTWT	133 L.H.	Martin
	B	9	MTWT	413 U.H.	Blair
	C	10	MTWT	214 U.H.	Peterson
	D	11	MTWT	207 U.H.	Sandin
	E	1	MTWT	133 L.H.	Roberts

Engl. 20b. Chief English Writers Before 1800.—*Prerequisite:* Engl. 20a. (Credit is not given for Engl. 20b in addition to Engl. 10a and 10b).

4	A	8	MTWT	302 U.H.	Glenn
	B	9	MTWT	310 U.H.	Kelso
	C1	10	MTWT	302 U.H.	Trelease
	C2	10	MTWT	312 U.H.	Templeman
	D	11	MTWT	139 L.H.	Graham
	E1	1	MTWT	139 L.H.	Rinaker
	E2	1	MTWT	208 U.H.	French

Engl. 22. Literary Study of the Bible.—*Prerequisite:* 6 hours of English Literature.

3	A	11	MWF	103 New Agr.	E. C. Baldwin

Engl. 23. Introduction to Shakespeare.—*Prerequisite:* Sophomore standing, or exemption from Rhet. 2.

3	B	9	MWF	109 L.H.	Hillebrand
	F	2	MWF	109 L.H.	Finney

Engl. 41. Teaching of English Literature.—*Prerequisite:* 9 hours of English literature.

Credit	Section	Hours	Days	Room	Instructor
2	A	2	TT	202 L.H.	PAUL

Engl. 44. Contemporary Poetry.—*Prerequisite:* 6 hours of English literature, or junior standing.

3	A	1	MWF	103 New Agr.	WEIRICK

Courses for Advanced Undergraduates and Graduates

Prerequisite: Junior standing, except as otherwise specified.

Engl. 3. Poetry of Milton.—

3	A	9	MWF	304 L.H.	E. C. BALDWIN

Engl. 4. English Versification.—

2	A	10	TT	123 L.H.	LANDIS

Engl. 5. Shakespeare.—

3	A	11	MWF	109 L.H.	T. W. BALDWIN

Engl. 9. Old English (Anglo-Saxon).—Beowulf.

3	A	11	MWF	305 L.H.	JONES

Engl. 17. History of the English Language.—(Consent of instructor must be obtained).

3	A	9	MWF	305 L.H.	FLOM

Engl. 26. Spenser.—

3	A	9	MWF	148 L.H.	JONES

Engl. 30. Tendencies in American Fiction since 1870.—(Consent of instructor must be obtained).

3	A	10	MWF	235 L.H.	TUPPER

Engl. 36. English Drama (exclusive of Shakespeare) from 1600 to 1700.—

3	A	3	MWF	109 L.H.	HILLEBRAND

Engl. 38. Development of the Arthurian Tradition.—

3	A	1	MWF	329 L.H.	PARRY

Engl. 43. Browning.—

3	A	10	MWF	L.H. Theatre	GRAHAM

Engl. 50. Prose of the First Half of the Seventeenth Century.—

3	A	11	MWF	206 L.H.	ZEITLIN

Engl. 51. Great Novelists of the Eighteenth Century.—Defoe, Richardson, Fielding, Smollett, Sterne, Goldsmith, etc.

3	A	9	MWF	202 L.H.	SECORD

Engl. 54b. Introduction to Comparative Literature.—*Prerequisite:* English 54a. Survey of the greatest French, German, and English authors.

3	Lect.	10	WF	303 L.H.	BERNBAUM, CARNAHAN, and ARON
	A Disc.	10	M	308 L.H.	LANDIS
	B Disc.	10	M	321 L.H.	BUSEY
	C Disc.	10	M	335 L.H.	PARRY

Engl. 55b. Survey of English Literature.—*Prerequisite:* Senior standing.

3	A	9	MWF	139 L.H.	PARRY

Engl. 60b. Thesis and Honors.—(Credit to be arranged). Professor JONES, Dr. TUPPER, and others.

Courses for Graduates

Engl. 101. Research in Special Topics.—(1 to 2 units).* Professors BERNBAUM, FLOM, PAUL, ZEITLIN, T. W. BALDWIN, GRAHAM, E. C. BALDWIN, JONES, HILLEBRAND, JEFFERSON; Associate Professors PARRY, FLETCHER; Assistant Professors RINAKER, SECORD, FINNEY.

Engl. 128. Literature of the Sixteenth Century.—(1 unit). 10 TT; 104 L.H. Professor JONES.

Engl. 130. Tragedy.—(1 unit). 1 TT; 104 L.H. Professor HILLEBRAND.

Engl. 135. Problems in American Literature.—Poe and Whitman. (1 unit). 8 TT; 113 L.H. Professor PAUL.

Engl. 137. Prose Writers of the Nineteenth Century.—Twice a week. Arrange. (1 unit). Professor ZEITLIN.

Engl. 138. The Romantic Movement.—(1 unit). 2 TT; 303a L.H. Professor BERNBAUM.

Engl. 140. Investigations in Modern English Literature.—(1 to 3 units).* Three hours once a week. Arrange. Professor BERNBAUM.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Engl. 141. Literature of the Seventeenth Century.—(1 unit). 3 TT; 302 L.H. Professor E. C. BALDWIN.

Engl. 143. Seminar in the History and Theory of Prose Fiction.—(1 unit). Two hours a week. Arrange; 220 L.H. Professor BERNBAUM.

Engl. 145. Studies in Eighteenth Century Literature.—(1 unit). 2 MW; 113 L.H. Professor GRAHAM.

Engl. 147. Shakespeare and Elizabethan Drama.—(1 unit). 10 MW; 303a L.H. Professor T. W. BALDWIN.

Engl. 149. Development of Tudor Drama.—(1 unit). Twice a week. Arrange. Professor T. W. BALDWIN.

B. RHETORIC

Courses for Undergraduates

Rhet. 1. Rhetoric and Composition.—*Prerequisite:* The minimum entrance requirements in English.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	213 U.H.	JOHNSON
[1]Seniors will receive	[2]A2	8	MWF	207 U.H.	WASHBURN
only 2 hours credit.	B1	9	MWF	411 U.H.	JOHNSON
	[2]B2	9	MWF	407 U.H.	MARTIN
[2]Sections A2, B2, C2,	C1	10	MWF	212 U.H.	MOOD
D2, E2, F2, G2 are for	[2]C2	10	MWF	207 U.H.	
students who are re-	D1	11	MWF	412 U.H.	BLAIR
peating Rhet. 1.	[2]D2	11	MWF	407 U.H.	PETERSON
	E1	1	MWF	321 L.H.	BALLARD
	[2]E2	1	MWF	106 U.H.	CAMP
	F1	2	MWF	106 U.H.	FISHER
	[2]F2	2	MWF	207 U.H.	OWEN
	G1	3	MWF	204 U.H.	TRIMBLE
	[2]G2	3	MWF	207 U.H.	WHEELER

Rhet. 2. Rhetoric and Composition.—*Prerequisite:* Rhet. 1.

3[1]	A1	8	MWF	406 U.H.	MOOD
	A2	8	MWF	411 U.H.	GETTMANN
[1]Seniors will receive	A3	8	MWF	413 U.H.	DAVIDSON
only 2 hours credit.	A4	8	MWF	407 U.H.	EDWARDS
	A5	8	MWF	106 U.H.	
[2]Sections A8, A9, B8,	A6	8	MWF	211 U.H.	SANDIN
B9, C7, C8, D8, D9,	A7	8	MWF	315 U.H.	PETERSON
E7, E8, E9, F6, F7,	[2]A8	8	MWF	311 U.H.	HAMILTON
F8, G6, G7, H4, K2,	[2]A9	8	MWF	321 L.H.	STUTZMAN
and L2 are for stu-	B1	9	MWF	207 U.H.	GLENN
dents who received a	B2	9	MWF	311 U.H.	HENNEBERGER
grade of "D" in Rhet. 1.	B3	9	MWF	203 U.H.	BALLARD
	B4	9	MWF	212 U.H.	FRENCH
	B5	9	MWF	302 U.H.	TRELEASE
	B6	9	MWF	412 U.H.	EDWARDS
	B7	9	MWF	204 U.H.	WASHBURN
	[2]B8	9	MWF	406 U.H.	HARRIS
	[2]B9	9	MWF	404 U.H.	TEMPLEMAN
	C1	10	MWF	204 U.H.	GETTMANN
	C2	10	MWF	128 L.H.	DAVIDSON
	C3	10	MWF	211 U.H.	FRENCH
	C4	10	MWF	311 U.H.	KELLEY
	C5	10	MWF	310 U.H.	JEFFERSON
	C6	10	MWF	413 U.H.	HAMILTON
	[2]C7	10	MWF	411 U.H.	SANDIN
	[2]C8	10	MWF	407 U.H.	EDWARDS
	D1	11	MWF	311 U.H.	HARRIS
	D2	11	MWF	148 L.H.	SECORD
	D3	11	MWF	413 U.H.	GOLDMAN
	D4	11	MWF	406 U.H.	STUTZMAN
	D5	11	MWF	211 L.H.	RAPP
	D6	11	MWF	211 U.H.	MARTIN
	D7	11	MWF	203 U.H.	HAMILTON
	[2]D8	11	MWF	204 U.H.	DAVIDSON
	[2]D9	11	MWF	302 U.H.	GETTMANN
	E1	1	MWF	213 U.H.	OWEN
	E2	1	MWF	204 U.H.	TRIMBLE
	E3	1	MWF	219 L.H.	WHEELER
	E4	1	MWF	214 U.H.	KELLEY
	E5	1	MWF	407 U.H.	MCDOWELL
	E6	1	MWF	302 U.H.	OSENBURG
	[2]E7	1	MWF	310 U.H.	BLOOM
	[2]E8	1	MWF	311 U.H.	DOLK
	[2]E9	1	MWF	312 U.H.	FISHER
	F1	2	MWF	204 U.H.	ROBERTS
	F2	2	MWF	128 L.H.	CAMP
	F3	2	MWF	406 U.H.	DOLK
	F4	2	MWF	412 U.H.	BALLARD
	F5	2	MWF	404 U.H.	SHATTUCK
	[2]F6	2	MWF	123 L.H.	TRIMBLE

Rhet. 2. Rhetoric and Composition.—(concluded)

[1]Seniors will receive only 2 hours credit.

[2]Sections A8, A9, B8, B9, C7, C8, D8, D9, E7, E8, E9, F6, F7, F8, G6, G7, H4, K2, and L2 are for students who received a grade of "D" in Rhet. 1.

Credit	Section	Hours	Days	Room	Instructor
3[1]	[2]F7	2	MWF	411 U.H.	McDowell
	[2]F8	2	MWF	202 U.H.	Haskell
	G1	3	MWF	406 U.H.	Sweney
	G2	3	MWF	311 U.H.	Owen
	G3	3	MWF	105 L.H.	Haskell
	G4	3	MWF	212 U.H.	Roberts
	G5	3	MWF	240 L.H.	Dolk
	[2]G6	3	MWF	411 U.H.	Osenburg
	[2]G7	3	MWF	312 U.H.	
	H1	4	MWF	203 U.H.	Bloom
	H2	4	MWF	204 U.H.	Wheeler
	H3	4	MWF	105 L.H.	Camp
	[2]H4	4	MWF	106 L.H.	Shattuck
	K1	8	TTS	211 U.H.	Carney
	[2]K2	8	TTS	315 U.H.	Orlovich
	L1	9	TTS	315 U.H.	Orlovich
	[2]L2	9	TTS	311 U.H.	Carney
	M	10	TTS	413 U.H.	
	N	11	TTS	407 U.H.	Hughes

Rhet. 3. Exposition.—*Prerequisite:* Rhet. 1 and 2, and sophomore standing.

3	B	9	MWF	104 L.H.	Busey
	C	10	MWF	406 U.H.	Goldman
	G	3	MWF	104 L.H.	Landis

Rhet. 4. Narration and Description.—Elements of narrative writing. (Not a course in short-story writing). *Prerequisite:* Rhet. 1 and 2.

3	B	9	MWF	312 U.H.	Rapp
	C	10	MWF	139 L.H.	Kelso
	D	11	MWF	310 U.H.	Trelease
	G	3	MWF	113 L.H.	Finney

Rhet. 10. Business Letter Writing.—*Prerequisite:* Rhet. 1 and 2, and sophomore standing.

2	B1 (Com.)	9	MW	306 L.H.	Coleman
	B2 (Com.)	9	MW	312 Com.	Anderson
	B3 (Com.)	9	TT	128 L.H.	Coleman
	C1 (Com.)	10	MW	329 Com.	Anderson
	C2 (Com.)	10	TT	128 L.H.	Saunders
	C3 (Com.)	10	TT	312 Com.	Lang
	C4 (Com.)	10	TT	305 Com.	Coleman
	D1 (Eng.)	11	MW	101 E.H.	Lang
	D2 (Com.)	11	TT	128 L.H.	Anderson
	D3 (Com.)	11	TT	312 Com.	Lang
	E1 (Com.)	1	MW	305 Com.	Saunders
	E2 (Com.)	1	TT	322 Com.	Coleman
	F1 (Com.)	2	MW	306 Com.	Saunders
	F2 (Com.)	2	TT	312 Com.	Lang

Courses for Advanced Undergraduates

Prerequisite: Junior standing.

Rhet. 7. Advanced Narrative Composition.—

3	A	3	MWF	204a L.H.	Weirick

Rhet. 21. Advanced Business Writing.—Sales letter campaigns and advertising copy. *Prerequisite:* Grade of "A" or "B" in Rhet. 10.

2	A	11	TT	305 Com.	Saunders

Rhet. 22. Special Types of Business Writing.—Business magazine articles and business reports. *Prerequisite:* Rhet. 10.

2	A	10	TT	310 Com.	Anderson

Rhet. 46. Dramatic Composition.—

3	A	2	MWF	204a L.H.	Hillebrand

C. SPEECH

Courses for Undergraduates

Speech 1. Principles of Effective Speaking.—*Prerequisite:* Rhet. 2.

3	A1	8	MWF	202 Entom.	Judson
	A2	8	MWF	136 L.H.	Huston
	B1	9	MWF	202 Entom.	Judson
	B2	9	MWF	136 L.H.	Siedenburg
	C1	10	MWF	202 Entom.	Hadley
	C2	10	MWF	136 L.H.	Siedenburg
	C3	10	MWF	219 L.H.	Stutzman
	D1	11	MWF	202 Entom.	Hadley
	D2	11	MWF	136 L.H.	Nelson
	E	1	MWF	136 L.H.	Swanson
	F	2	MWF	136 L.H.	Henderson
	G	3	MWF	136 L.H.	Henderson

Speech 2. Business and Professional Speaking.—*Prerequisite:* Speech 1.

Credit	Section	Hours	Days	Room	Instructor
2	K	9	TT	142 L.H.	SIEDENBURG
	L	10	TT	142 L.H.	HUSTON
	M	11	TT	142 L.H.	JUDSON

Speech 3. Elements of Debating.—*Prerequisite:* Speech 1.

3	B	9	MWF	142 L.H.	HUSTON
	E	1	MWF	142 L.H.	SIEDENBURG

Speech 10. Oral Interpretation of Literature.—*Prerequisite:* Speech 1.

2	K	9	TT	136 L.H.	HENDERSON
	L	10	TT	136 L.H.	HADLEY
	N	1	TT	136 L.H.	NELSON
	O	2	TT	136 L.H.	NELSON

Courses for Advanced Undergraduates

Speech 4. Advanced Debating.—*Prerequisite:* Speech 3 and junior standing.

3	A	10	MWF	142 L.H.	HUSTON

Speech 7. Masters of Public Address.—*Prerequisite:* Speech 2 or 3 and junior standing.

3	A	11	MWF	142 L.H.	JUDSON

Speech 8. Dramatization.—*Prerequisite:* Speech 10 and junior standing.

3	A	2	MWF	L.H. Theatre	SWANSON

Speech 12. The Teaching of Speech.—*Prerequisite:* 10 hours of speech.

2	A	11	TT	136 L.H.	NELSON

Speech 16. Advanced Acting (and Play Directing).—*Prerequisite:* Speech 8.

2	A	1	TT	L.H. Theatre	SWANSON

D. SCANDINAVIAN LANGUAGES AND LITERATURE

Courses for Undergraduates

Scand. 6. Ibsen.—Lectures. Study of three of the social dramas; parallel reading of three of the early and three of the later dramas; Ibsen's technique. Archer's translation is used. *Prerequisite:* Junior standing.

2	A	9	TT	202 L.H.	FLOM

Scand. 22b. Elementary Swedish.—Grammar; conversation; reading of *Nils Holgerssons resa genom Sverige*. *Prerequisite:* Scand. 22a or the equivalent.

3	A	1	MWF	211 L.H.	JOHNSON

Scand. 4b. Intermediate Swedish.—*Prerequisite:* Scand. 4a or a reading knowledge of the language.

3	A	2	MWF	211 L.H.	JOHNSON

Courses for Graduates

Scand. 101. Old Norse (Old Icelandic).—(1 unit). Arrange; 209 L.H. Professor FLOM.

Scand. 150. Research.—Thesis. Conferences. (1 to 2 units).* Arrange; 209 L.H. Professor FLOM.

ENTOMOLOGY

Note: Certain courses in this department require laboratory fees varying from $1.50 to $5.00.

Major: 20 hours exclusive of Entomology 1, 2, 31. At least five hours must be offered from the advanced group.

Minors: 20 hours in not more than two of the following, with not less than eight hours in either department, if two subjects are chosen: zoology, botany, chemistry, physiology, horticulture, and agronomy.

Entomology 1 is open to freshmen, and 2 and 31 to sophomores, without prerequisites. Either 1, or both 2 and 9, are prerequisite to all other courses in the department. Recommended sequences of courses are 1, 8, 20, and 31, for those desiring strictly practical or economic work; 2, 9, and 21 for those interested in the cultural or biological values of insect study. Students majoring in entomology should include some advanced work in classification, morphology, and control and should plan all of their work with the advice of the department. Seniors receive reduced credit in Entomology 1.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Undergraduates

Entom. 1. Destructive and Useful Insects.—Two discussion periods and four hours laboratory a week.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8–10	MWF	309 Entom.	HAYES, MILUM, and FAY
[1]Seniors will receive only 2 hours credit.	B	10–12	MWF	309 Entom.	METCALF, MILUM, and HEISS
	C	1–3	MWF	309 Entom.	METCALF, MILUM, and MCCLURE

Entom. 2. Insects: Their Ways and Their Relations to Man.—A non-technical, cultural course of illustrated lectures with exhibits. *Prerequisite:* Sophomore standing. (Not open to students who have taken Entom. 1.)

2	A	11	TT	202 Entom.	BALDUF
	B	2	TT	202 Entom.	

Entom. 3. Classification of Insects (Orders with Gradual Metamorphosis) and Principles of Systematic Entomology.—*Prerequisite:* Entom. 9 or its equivalent; sophomore standing.

5	Lab.	1–3	MWF	310 Entom.	BALDUF
	Lect.	Arrange		310 Entom.	

Entom. 31. Essentials of Beekeeping.—*Prerequisite:* Sophomore standing.

1 or 2[1]	Lect.	4	Tu	104 Exp.Zool.Lab.	MILUM
	Lab.	3–5	Th	104 Exp.Zool.Lab.	

[1]For two hours credit include laboratory.

Courses for Advanced Undergraduates and Graduates

Entom. 6. Special Problems.—*Prerequisite:* Any of the following: Entom. 3, 7, 8, 10, 20, 21, 22, or 31; and senior standing. (2 to 5).* Saturday morning; additional hours to be arranged. Members of the department.

Entom. 8c. Pests of Man and Domestic Animals.—*Prerequisite:* Entom. 1 or 9 and junior standing.

3 or 5*	Lab.	2–4	TT	312 Entom.	METCALF
	Lect.	Arrange		312 Entom.	

Entom. 10b. Taxonomy of Immature Insects.—*Prerequisite:* Entom. 10a; senior standing.

3	A	10–12	MWF	312 Entom.	HAYES

Course for Graduates

Note: The prerequisite for graduate work in entomology is two years of undergraduate biology, including zoology and entomology.

Entom. 100. Research.—(½ to 4 units).* Arrange.

(a) **Morphology and Embryology of Insects.**—Associate Professor HAYES.

(b) **Economic Entomology.**—Professor METCALF.

(c) **Systematic Entomology.**—Professor METCALF, Assistant Professor BALDUF.

(d) **Biology and Ecology of Insects.**—Professor METCALF.

GENERAL ENGINEERING DRAWING

Note: All courses in this department require laboratory fees of $1.50.

Courses for Undergraduates

G.E.D. 1. Elements of Drawing.—*Prerequisite:* Plane geometry.

Credit	Section	Hours	Days	Room	Instructor
4	A	8–11	MF	316 T.B.	Department staff
		8–10	W	316 T.B.	
	B	1–4	MF	316 T.B.	
		1–3	W	316 T.B.	

G.E.D. 2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry.

4	A	8–11	MF	To be assigned at registration	Department staff
		8–10	W		
	B	1–4	MF		
		1–3	W		
	C	8–11	TT		
		8–10	S		
	D	1–4	TT		
		10–12	S		

G.E.D. 4. Advanced Drawing.—*Prerequisite:* At least three years of drawing in high school, or the equivalent in commercial practice, to be determined by the department at registration time.

4	C	8–11	TT	302 T.B.
		8–10	S	302 T.B.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

G.E.D. 6. Elements of Drawing.—*Prerequisite:* Plane geometry. (For students in chemical engineering).

Credit	Section	Hours	Days	Room	Instructor
3	D	1–4	TT	316 T.B.	JORGENSEN

G.E.D. 8. Architectural Projections.—Continuation of G.E.D. 7. *Prerequisite:* G.E.D. 7. (Students completing G.E.D. 7 and 8 may substitute them for G.E.D. 2).

2	A	8–11	MF	103 T.B.	PORTER and
	B	2–5	MF	103 T.B.	LENDRUM
	C	8–11	TT	103 T.B.	

G.E.D. 10. Pictorial Drawing.—*Prerequisite:* G.E.D. 2. (Required of students in the City Planning Option in Civil Engineering; and "approved elective" in all other curricula of the College of Engineering).

4 or 3[1]	C	8–11	TT	316 T.B.	LENDRUM
		8–10	S	316 T.B.	

[1]For "approved elective" group who will omit 8-10 S hours in registering.

GEOLOGY AND GEOGRAPHY

Note: Certain courses in this department require laboratory fees varying from $1.00 to $2.50.

A. GEOLOGY

Major: 20 hours in geology, exclusive of Geol. 1, 1a, 43, and 44, and inclusive of at least five hours of courses not open to freshmen or sophomores.

Minors: 20 hours chosen from one or two of the following subjects: astronomy, botany, chemistry, economics, geography, mathematics, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology. At least eight hours must be offered in each subject, if two are chosen.

Note: Certain geology courses are offered only in alternate years: 4, 15, 24, 38, 95, 96, 122, 125, 151, 160, 161, 163.

Students desiring training which leads to executive positions with companies engaged in the development of various mineral industries should select appropriate courses in geology after consulting the head of the department, and also: Accountancy 1a, 1b; Economics 2, 3, and 35; B.O.O. 11; and Business Law 1a, 1b. A minimum of one year's work after graduation should be included in the student's program if possible. Students of petroleum production engineering should select appropriate courses in geology.

Courses for Undergraduates

Geol. 1. General Geology.—Cultural course. Lectures; one half-day field trip.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8	MWF	228 N.H.	SHEPARD
[1]Seniors receive only 2	B	9	MWF	247 N.H.	DEWOLF
hours credit; students	C	1	MWF	228 N.H.	DEWOLF

who have credit for Geog. 1 receive only 1 hour credit for Geol. 1.

Geol. 1a. General Geology Laboratory.—*Prerequisite:* Geol. 1 or concurrent registration in it. (Not open to students who received credit for Geol. 1 prior to September, 1932.)

2	Lab. 1	8–10	TT	251 N.H.	WANLESS
	Lab. 2	10–12	TT	251 N.H.	DEWOLF
	Lab. 3	1–3	TT	251 N.H.	SHEPARD
	Lab. 4	3–5	TT	251 N.H.	BARRETT

Geol. 2a. Historical Geology.—*Prerequisite:* Geol. 1.

4[1]	Lect. A	9	TWTF	241 N.H.	SUTTON
[1]Seniors receive only	Lect. B	11	TWTF	241 N.H.	SUTTON

3 hours credit.

Geol. 17. Physiographic Geology.—*Prerequisite:* Geol. 1.

3	A	11	MWF	247 N.H.	SHEPARD

Geol. 43. Engineering Geology.—*Prerequisite:* Sophomore standing in the College of Engineering.

3	Lect.	10	MWF	247 N.H.	HOWARD
	Lab. 1	2–4	Tu	147 N.H.	
	Lab. 2	10–12	S	147 N.H.	

Geol. 44. Agricultural Geology.—*Prerequisite:* Sophomore standing in the College of Agriculture.

3	Lect.	1	MW	247 N.H.	WANLESS
	A Quiz	10	Tu	247 N.H.	
	B Quiz	1	F	247 N.H.	
	C Quiz	10	Th	241 N.H.	
	Lab. 1	3–5	Th	147 N.H.	Assistants
	Lab. 2	10–12	F	147 N.H.	

Courses for Advanced Undergraduates and Graduates

Geol. 16. Stratigraphy.—*Prerequisite:* Geol. 9.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	8	MWF	236 N.H.	SUTTON
	Lab.	To be arranged			

Geol. 24. Field Methods.—*Prerequisite:* Geol. 2a and junior standing. Lecture and quiz 1 hour weekly, 3 or 4 field trips on Saturdays, and mapping of an area in Illinois during the week following the Easter recess. Credit will be given only upon the completion of a satisfactory written report. Estimated traveling expense about $25.

3	A	10	S	150 N.H.	WANLESS

Geol. 49. Microscopic Mineralogy.—*Prerequisite:* Geol. 20 or 47.

5	Lect.	1	TT	254 N.H.	QUIRKE and assistants
	Lab. 1	8–10	MWF	254 N.H.	
	Lab. 2	8–10	TTS	254 N.H.	
	Lab. 3	10–12	MWF	254 N.H.	

Geol. 60b. Introduction to Research.—Limited to seniors majoring in geology. (2). Members of the department.

Geol. 96. Economic Geology.—*Prerequisite:* Geol. 2a or 43, and 20 or 48.

3	A	9	TTS	150 N.H.	QUIRKE

Courses for Graduates

Geol. 102. Igneous Petrography.—(1 unit). Twice a week. Arrange; 253 N.H. Professor QUIRKE.

Geol. 122. Mountain and Continental Structures.—(1 unit). Arrange; 134 N.H. Associate Professor SHEPARD.

Geol. 134. Advanced Studies in Geology.—(½ to 4 units).* Arrange. Members of the department.

Geol. 135. Research.—(½ to 4 units).* Once a week. Arrange. Members of the department.

Geol. 143. Stratigraphic Paleontology: Mesozoic and Cenozoic.—(1 unit). Arrange; 134 N.H. Assistant Professor SUTTON.

Geol. 163. Geologic Development of the Continents.—(1 unit). Three times a week. Arrange. Associate Professor HOWARD.

B. GEOGRAPHY

Major: 20 hours of courses in geography, exclusive of Geography 1, and including at least five hours of courses not open to freshmen.

Minors: 20 hours chosen from one or two of the following subjects: botany, economics, education, geology, history, and zoology. At least eight hours must be offered in each subject, if two are chosen.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, or 10 or 11, or 12 or 8 or 53.

Note: Certain geography courses are offered only in alternate years: 6, 9, 10, 14a.

Courses for Undergraduates

Geog. 1. Elements of Geography.—Lectures and discussions.

5[1]	A1	8	MTWTF	247 N.H.	PAGE
[1]Seniors receive only 4 hours credit; students who have credit for Geol. 1 receive only 3 credits for Geog. 1.	A2	8	MTWTF	422 N.H.	BURGY
	B1	9	MTWTF	422 N.H.	RANDALL
	B2	9	MTWTF	435 N.H.	COZZENS
	C1	10	MTWTF	422 N.H.	BURGY
	C2	10	MTWTF	435 N.H.	COZZENS
	D	11	MTWTF	422 N.H.	RANDALL
	E	1	MTWTF	422 N.H.	COZZENS
	F	2	MTWTF	422 N.H.	RANDALL

Geog. 2. Economic Geography.—*Prerequisite:* Geog. 1. Lectures and discussion.

5[1]	A	8	MTWTF	434 N.H.	BLANCHARD
[1]Seniors will receive only 4 hours credit.	B	9	MTWTF	134 N.H.	POGGI
	C	10	MTWTF	434 N.H.	BLANCHARD
	D	11	MTWTF	134 N.H.	POGGI

Geog. 5. Geography of South America.—Lectures and discussions. *Prerequisite:* Geog. 2.

3	A	1	MWF	435 N.H.	BURGY

Geog. 15. Physiography.—*Prerequisite:* Geog. 1.

3	A	2	MWF	434 N.H.	PAGE

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Geog. 10. Geography of Africa.—*Prerequisite:* One regional course.

Credit	Section	Hours	Days	Room	Instructor
3	A	11	MWF	435 N.H.	Page

Geog. 11. Geography of Asia.—*Prerequisite:* One regional course.

3	A	2	MWF	134 N.H.	Poggi

Geog. 53b. Advanced Commercial Geography.—*Prerequisite:* One regional course and senior standing.

3	A	1	MWF	434 N.H.	Blanchard

Geog. 60b. Introduction to Research.—Limited to seniors whose major is in geography. (2). Arrange. Members of the staff.

Courses for Graduates

Geog. 134. Advanced Studies in Geography.—(½ to 2 units).* Arrange. Members of the department.

Geog. 135. Research.—(½ to 4 units).* Arrange. Members of the department.

GERMAN

Major: 20 hours in German, excluding courses 1 and 2, and including six hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list, with not less than eight hours in each subject: education, English (excluding Rhetoric 1 and 2), French (excluding 1a), Greek, history, Italian, Latin, philosophy, Spanish (excluding 1a).

Note: Seniors receive reduced credit in German 1 and 2.

Elementary and Intermediate Courses

German 1. Elementary Course:—

Credit	Section	Hours	Days	Room	Instructor
4[1]	A	8	MTWT	307 Adm.(E.)	Farwell
	B	9	MTWT	106 U.H.	Robertson
[1]Seniors will receive	C	10	MTWT	302 L.H.	Fehlau
only 3 hours credit.	D	11	MTWT	214 U.H.	Scherer
	E	1	MTWT	224 L.H.	Palmer
	F	3	MTWT	232 L.H.	McQuown

German 2. Elementary Course (continued).—*Prerequisite:* German 1 or one year of high school German.

4[1]	A1	8	MTWT	224 L.H.	Robertson
	A2	8	MTWT	206 L.H.	Robinson
[1]Seniors will receive	B1	9	MTWT	227 L.H.	Brooks
only 3 hours credit.	B2	9	MTWT	307 Adm.(E.)	Farwell
	C1	10	MTWT	233 L.H.	Robinson
	C2	10	MTWT	204a L.H.	Planitz
	D	11	MTWT	133 L.H.	Ittner
	E1	1	MTWT	206 L.H.	Planitz
	E2	1	MTWT	105 L.H.	Stubing
	F	2	MTWT	219 L.H.	Jehle
	G1	3	MTWT	224 L.H.	Scherer
	G2	3	MTWT	206 L.H.	Palmer
	H	4	MTWT	204a L.H.	von Westen

German 4. Intermediate Course.—*Prerequisite:* German 2 or two years of high school German or equivalent.

4	A	8	MTWT	233 L.H.	Krauss
	B	9	MTWT	235 L.H.	Geissendoerfer
	C	1	MTWT	227 L.H.	Fehlau
	D	3	MTWT	114 L.H.	Stubing

German 5. Intermediate Course (continued).—Literary reading. *Prerequisite:* German 4 or three years of high school German or equivalent.

4	A	8	MTWT	219 L.H.	Geissendoerfer
	B	9	MTWT	302 L.H.	Jehle
	C	10	MTWT	227 L.H.	Koller
	D	11	MTWT	302 L.H.	Krauss
	E	1	MTWT	233 L.H.	Robinson
	F	2	MTWT	233 L.H.	Ittner
	G	3	MTWT	233 L.H.	von Westen

German 6. Scientific Reading.—(Students may not take both 5 and 6 for more than a total of 4 hours credit without permission of department). *Prerequisite:* German 4 or three years of high school German or equivalent.

4	A	11	MTWT	227 L.H.	Williams
	B	4	MTWT	227 L.H.	Koller

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates

German 7. Modern Fiction.—*Prerequisite:* German 5 or equivalent.

Credit	Section	Hours	Days	Room	Instructor
3	A	2	MWF	227 L.H.	KOLLER

German 10. Introductory Goethe Course.—*Prerequisite:* German 5 or equivalent.

3	A	11	MWF	105 L.H.	ARON

German 16b. Conversation and Writing.—*Prerequisite:* German 16a or equivalent.

2	A	2	TT	148 L.H.	KOLLER

German 24b. Nineteenth Century Drama.—*Prerequisite:* German 24a or equivalent.

2	A	3	TT	204a L.H.	GEISSENDOERFER

German 25. Teachers' Course.—*Prerequisite:* Three years of college German or equivalent.

2	A	3	MW	227 L.H.	JEHLE

German 28b. Lyrics and Ballads.—*Prerequisite:* German 28a or equivalent.

2	A	9	TT	204a L.H.	WILLIAMS

German 29b. Advanced Conversation and Writing.—*Prerequisite:* German 29a or equivalent.

2	A	2	TT	211 L.H.	GEISSENDOERFER

German 30b. Senior Thesis and Honors Course.—*Prerequisite:* Senior standing; three years of college German or equivalent.

2		To be arranged			ARON and others

Courses for Advanced Undergraduates and Graduates

German 19b. Goethe's Faust II.—*Prerequisite:* German 19a or equivalent.

2	A	11	TT	425 Lib.	BROOKS

German 26b. German Literature in the Nineteenth Century.—*Prerequisite:* German 26a or equivalent.

3	A	9	MWF	233 L.H.	ARON

German 54. Introduction to Comparative Literature.—See English 54.

Courses for Graduates

German 101. Seminar in Goethe and Schiller.—(1 unit). Twice a week. Arrange. Professor ARON.

German 102. Thesis.—(½ to 2 units).* Arrange. Professors ARON, BROOKS, WILLIAMS; Assistant Professor GEISSENDOERFER.

German 105. Old High German.—(1 unit). Twice a week. Arrange. Professor WILLIAMS.

German 110. Early German Drama.—(1 unit). Twice a week. Arrange. Professor BROOKS.

German 121. Walther von der Vogelweide.—(1 unit). Twice a week. Arrange. Professor WILLIAMS.

HISTORY

Major: 20 hours, including (a) ten hours in courses having junior standing as a prerequisite, and (b) any other courses offered by the department (except courses taken in the freshman year).

Minors: 20 hours selected from one or two of the following subjects: economics, political science, geography, philosophy, law, sociology, and English and American literature (except such courses as are taken in the freshman year). Courses in one modern language (except such as are primarily designed for freshmen) will be accepted as one of two minor subjects.

Note: Seniors receive reduced credit in History 1 and 2.

Courses for Undergraduates

Hist. 1b. Continental European History, 1815-1936.—

Credit	Section	Hours	Days	Room	Instructor
4[1]	[2]Lect. 1	10	TT	Morrow Hall	JONES
	A Disc.	11	TT	335 L.H.	SHAY
	B Disc.	8	WF	335 L.H.	BONE
	C Disc.	9	WF	321 L.H.	BONE
	D Disc.	10	WF	211 L.H.	JONES
	E Disc.	10	WF	308 L.H.	KING
	F Disc.	10	WF	335 L.H.	SHAY
	G Disc.	10	WF	321 L.H.	BONE
	H Disc.	11	WF	303a L.H.	JONES
	I Disc.	1	WF	305 L.H.	SHAY

[1]Seniors will receive only 3 hours credit.

[2]Students in Lecture 1 must elect a discussion in the A-I group. Students in Lecture 2 must elect a discussion in the J-P group.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hist. 1b. Continental European History, 1815-1936.—(Concluded)

Credit	Section	Hours	Days	Room	Instructor
4[1]	[2]Lect. 2	2	MW	228 N.H.	Ronalds
	J Disc.	10	TT	329 L.H.	Ronalds
[1]Seniors will receive only 3 hours credit.	K Disc.	11	TT	321 L.H.	Ronalds
	L Disc.	1	TT	305 L.H.	Ronalds
	M Disc.	2	TT	335 L.H.	Shay
[2]Students in Lecture 1 must elect a discussion	N Disc.	2	TT	340 L.H.	Krenkel
	O Disc.	2	TT	321 L.H.	King
in the A-1 group. Stu-	P Disc.	2	TT	302 L.H.	Claussen

dents in Lecture 2 must elect a discussion in the J-P group.

Hist. 2b. English History, 1688-1936.—

3[1]	Lect. 1	11	M	L.H. Theatre	Dietz
	Lect. 2	2	M	Morrow Hall	Dietz
[1]Seniors will receive only 2 hours credit.	A Disc.	10	TT	321 L.H.	Werner
	B Disc.	11	WF	329 L.H.	Shay
	C Disc.	11	WF	238 L.H.	Caldwell
	D Disc.	11	WF	224 L.H.	Larson
	E Disc.	11	WF	335 L.H.	Claussen
	F Disc.	11	WF	321 L.H.	Dietz
	G Disc.	1	WF	303a L.H.	Erickson
	H Disc.	2	WF	335 L.H.	Erickson
	I Disc.	2	WF	311 L.H.	Dietz
	J Disc.	2	WF	329 L.H.	Shay
	K Disc.	2	TT	224 L.H.	Erickson
	L Disc.	2	TT	334 L.H.	Werner
	M Disc.	3	TT	305 L.H.	

Hist. 3b. History of the United States, 1828-1936.—*Prerequisite:* One year of college work.

3	[1]Lect. 1	8	MF	218 U.H.	Werner
	A Disc.	8	Tu	305 L.H.	Werner
[1]Students in Lecture 1	B Disc.	8	W	305 L.H.	Werner
must elect a discussion	C Disc.	8	W	311 L.H.	Krenkel
in the A-E group. Stu-	D Disc.	8	W	303a L.H.	Caldwell
dents in Lecture 2	E Disc.	8	Th	305 L.H.	Werner
must elect a discussion	[1]Lect. 2	11	MF	Morrow Hall	Dunbar
in the F-I group. Stu-	F Disc.	11	Tu	305 L.H.	Dunbar
dents in Lecture 3	G Disc.	11	W	311 L.H.	Dunbar
must elect a discussion	H Disc.	11	W	300 L.H.	King
in the J-N group.	I Disc.	11	Th	300 L.H.	Dunbar
	[1]Lect. 3	2	MF	218 U.H.	Hansen
	J Disc.	2	Tu	238 L.H.	Hansen
	K Disc.	2	W	321 L.H.	Hansen
	L Disc.	2	W	304 L.H.	King
	M Disc.	2	W	308 L.H.	Larson
	N Disc.	2	Th	311 L.H.	Hansen

Hist. 5b. The Ancient World.—*Prerequisite:* Sophomore standing.

3	Lect.	2	MF	303 L.H.	Swain
	A Disc.	2	Tu	240 L.H.	Bone
	B Disc.	2	W	240 L.H.	Bone
	C Disc.	2	W	206 L.H.	Swain
	D Disc.	2	Th	240 L.H.	Bone

Hist. 18. The Teaching of History.—*Prerequisite:* One year of college history and senior standing.

2		3	TT	303 L.H.	Werner

Hist. 23b. Puritan Revolution in England and America, 1642-1713.—*Prerequisite:* Junior standing and one year of college history or political science.

2		11	TT	410 U.H.	Pease

Hist. 33b. History of Russia Since 1881; Revolution; the Soviet Union.—*Prerequisite:* Junior standing and one year of college history.

3		8	MWF	105 L.H.	Rodkey

Hist. 34b. Development of Modern Europe, 1789-1848.—*Prerequisite:* Junior standing and one year of college history.

3		11	MWF	204 L.H.	Erickson

Hist. 35. History of Civilization among the Western Slavs.—*Prerequisite:* Sophomore standing and one year of college history.

2		9	TT	329 L.H.	Rodkey

Hist. 37. The Far East in Modern Times.—*Prerequisite:* One year of college history.

2		8	TT	329 L.H.	Lybyer

Hist. 42. Medieval Civilization, Religious and Intellectual.—*Prerequisite:* One year of college history.

3		2	TT	329 L.H.	Larson

Hist. 43. The British People in the Victorian Age, 1830-1901.—*Prerequisite:* One year of college history.

2		1	TT	204 L.H.	Erickson

Hist. 45b. History of England in the Eighteenth and Early Nineteenth Centuries (1760-1830).—*Prerequisite:* Junior standing and one year of college history.

Credit	Section	Hours	Days	Room	Instructor
2		2	TT	303 L.H.	RONALDS

Hist. 51b. Hebrew History: Post-exilic and New Testament Times.—*Prerequisite:* Junior standing.

2		2	TT	305 L.H.	SWAIN

Hist. 90b. Thesis.—*Prerequisite:* Senior standing.

2 to 4*	To be arranged	LYBYER

Hist. 91b. Honors Course: Pro-seminar in Recent History.—*Prerequisite:* Senior standing.

2 to 4*	To be arranged	LYBYER

Courses for Advanced Undergraduates and Graduates

(Open to juniors and seniors)

Hist. 16b. Foundations of American Society: Transition to National Life and Organization, 1763-1789.—*Prerequisite:* One year of college history.

3	10	MWF	311 L.H.	DUNBAR

Hist. 17b. Social and Economic Forces in the Nineteenth Century (since 1860).—*Prerequisite:* History 3b.

3	9	MWF	105 L.H.	HANSEN

Hist. 19b. History of American Immigration since the Civil War.—*Prerequisite:* History 3b.

2	9	TT	204 L.H.	HANSEN

Hist. 20b. The South since 1850.—*Prerequisite:* One year of college history.

2	8	TT	335 L.H.	RANDALL

Hist. 22b. History of the West, 1774-1830.—*Prerequisite:* One year of college history.

2	10	TT	410 U.H.	PEASE

Hist. 27. History of Latin America from the Wars of Independence to the Present Time.—*Prerequisite:* One year of college history.

3	2	MWF	305 L.H.	ROBERTSON

Hist. 29. America and Europe: Selected Topics, 1776-1870.—*Prerequisite:* One year of college history.

3	8	MWF	308 L.H.	ROBERTSON

Hist. 32b. Recent European History, 1914-1936.—*Prerequisite:* One year of college history, economics, or political science.

3	8	MWF	L.H. Theatre	LYBYER

Hist. 36b. Imperial and Republican Germany; the National Socialist State, 1862-1936.—*Prerequisite:* One year of college history.

3	9	MWF	308 L.H.	RODKEY

Hist. 39b. The Age of the Protestant and the Catholic Reformation (1500-1648).—*Prerequisite:* One year of college history.

3	9	MWF	329 L.H.	JONES

Hist. 44b. Constitutional History of England.—*Prerequisite:* One year of college history or political science.

3	3	MWF	303 L.H.	LARSON

Hist. 47b. History of England in the Early Modern Period: the Strong Monarchy of the Tudors.—*Prerequisite:* One year of college history or economics.

3	9	MWF	335 L.H.	DIETZ

Hist. 56. History of the Roman Republic.—*Prerequisite:* One year of college history.

3	1	MWF	202 L.H.	OLDFATHER

Hist. 57b. Ancient Imperialism: Augustus to Constantine.—*Prerequisite:* One year of college history.

3	11	MWF	128 L.H.	SWAIN

Hist. 60. The United States in the World War.—*Prerequisite:* One year of college history.

3	11	MWF	304 L.H.	RANDALL

Hist. 62b. Political and Constitutional Development of the United States (since 1809).—*Prerequisite:* One year of college history or political science.

3	10	MWF	329 L.H.	RANDALL

Courses for Graduates

Hist. 101b. Seminar in American History: Investigation of Selected Topics.—(1 unit). 4-6 Tu. Professor RANDALL.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hist. 102b. Seminar in English History: Studies in the Later Years of Queen Elizabeth's Reign.—(1 unit). 4-6 Th. Professor DIETZ.

Hist. 104b. Seminar in Modern History: Recent Problems.—(1 unit). 4-6 W. Professor LYBYER.

Hist. 105. Research in Special Topics (Thesis Course).—(1 to 2 units).* Professors LARSON, LYBYER, ROBERTSON, JONES, RANDALL, HANSEN, DIETZ; Associate Professor RODKEY, SWAIN; Assistant Professors DUNBAR, RONALDS, WERNER.

Hist. 106b. Seminar in the History of the Later Middle Ages.—(1 unit). Arrange. Professor LARSON.

Hist. 122c. The Westward Movement, 1761-63.—(1 unit). Two hours, 4 MTh. Professor PEASE.

Hist. 127. Inter-American Relations: Relations of the Latin-American Nations with each other and with the United States.—(1 unit). Arrange. Professor ROBERTSON.

Hist. 133b. Studies in the History of Europe in the Nineteenth Century (1848-1878).—(1 unit). 9-11 S. Associate Professor RODKEY.

Hist. 138b. Studies in the History of France during the Religious Civil Wars (1547-1598).—(1 unit). Arrange. Professor JONES.

Hist. 150b. Seminar in Ancient History.—(1 unit). 3-5 M; 114 Lib. Associate Professor SWAIN.

HOME ECONOMICS

Note: Certain courses in this department require laboratory fees varying from $1 to $16.

College of Agriculture

For Curriculum in General Home Economics, see "Directions for Registration," page 51.
For Curriculum in Nutrition and Dietetics, see "Directions for Registration," page 53.

College of Education

For Curriculum in Home Economics Education, see "Directions for Registration," page 56.
For Curriculum in Home Economics Education—Smith-Hughes, see "Directions for Registration," page 56.

College of Liberal Arts and Sciences

Major A.—General Home Economics: 20 hours from courses offered by the department, excluding Home Economics 7 and 58, and including Home Economics 2, 5, 10, 29, 59, and two or more of the following: Home Economics 14, 20, 28, 31, 33, 35, 41, 43a, 43b, 48, 55, 57a, 57b.

Major B.—Nutrition: 20 hours excluding Home Economics 58, and including Home Economics 5, 39a, 39b, 41, 59, and two or more of the following: Home Economics 20, 33, 35, 45, 47.

Minor A.—20 hours chosen from one or two of the following subjects: chemistry, bacteriology. At least eight hours must be offered in each subject, if two are chosen.

Minor B.—20 hours chosen from one or two of the following subjects: economics, sociology. At least eight hours must be offered in each subject, if two are chosen.

For All Colleges

Transfer Students.—To satisfy the requirements for graduation, students transferring home economics credits from other institutions must take five hours in residence from the following: Home Economics 20, 28, 31, 33, 35, 39a, 39b, 41, 43a, 43b, 47, 48, 50, 51, 55, 57a, 57b.

Electives.—In addition to the required subjects in each college, it is expected that students will choose electives in accord with their special interests, as follows:

1. Textiles, clothing, and costume design: Home Economics 19, 30, 31, 42, 43a, 43b, 50, 51.
2. Institution management and hospital dietetics: Home Economics 20, 33, 35, 46, 47, 48, 55.
3. Household management: Home Economics 14, 28, 57a, 57b, and additional courses in economics.
4. House planning and furnishing: Art 11, 12; Architecture 11, 12; Home Economics 3, 43a, 43b, and additional courses in art and history.
5. Nutrition: Chemistry 22, 50a; Zoology 1; Home Economics 20, 33, 35, 39a, 39b, 41, 45.
6. Teaching of home economics: Home Economics 11, 13, 45; Education 6, 10, 25.

Courses for Undergraduates NOT Majoring in Home Economics

Courses 7, 38, 56a, 60, 61, and 70 are open to both men and women and, with the exception of Course 7, are NOT open to students majoring in Home Economics.

Home Econ. 7. Textiles.—See sections listed under Home Econ. 7 in the following group of courses.

Home Econ. 38. Elementary Nutrition.—*Prerequisite:* Sophomore standing.

Credit	Section	Hours	Days	Room	Instructor
2	F Lect. (for women)	2	MW	117 W.B.	BARTO
	K Lect. (for men)	9	TT	231 W.B.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Home Econ. 56a. The Child and His Development.—*Prerequisite:* Senior standing or consent of instructor.

Credit	Section	Hours	Days	Room	Instructor
2	Lect.	10	MW	210 W.B.	Walls

Home Econ. 60. Food Problems of Student Groups.—(A course for commissaries). Selection, buying, and managerial problems in the preparation and serving of food for student groups. *Prerequisite:* Sophomore standing and consent of instructor.

1	Lect.	2	Tu	210 W.B.	Smith, Barto

Home Econ. 61. Introduction to Foods.—Standards of selection, preparation, and service of foods; grades, cost; consumers' problems.

3	Lect.	10	Tu	117 W.B.	Janssen
	Quiz	10	Th	117 W.B.	Janssen
	Lab.	3–5	M	235 W.B.	Janssen

Home Econ. 70. Clothing Selection.—Economic, artistic, psychologic, and hygienic problems in the selection of clothing. Includes no garment construction.

3	Lect.	9	Tu	117 W.B.	Whitlock, Eades
	Lab.	10–12	TT	203 W.B.	

Courses for Undergraduates Majoring in Home Economics

Home Econ. 2. Home Architecture.—*Prerequisite:* Art 1a or the equivalent. *Prerequisite or concurrent:* Art 1b.

3	Lect.	1	MW	210 W.B.	Foster, Weaver
	Quiz	1	F	210 W.B.	Weaver
	C Conf.	10	F	309 W.B.	Weaver
	D Conf.	11	F	309 W.B.	Weaver
	F1 Conf.	2	F	309 W.B.	Weaver
	F2 Conf.	2	M	325 W.B.	Weaver
	G Conf.	3	W	325 W.B.	Weaver
	M Conf.	11	S	309 W.B.	Weaver

Home Econ. 3. Home Decoration.—*Prerequisite:* Art 1a, 1b, or the equivalent.

3	Lect.	10	S	210 W.B.	Weaver
	L Lab.	10–12	TT	309 W.B.	
	N Lab.	1–3	TT	309 W.B.	
	P Lab.	3–5	TT	309 W.B.	

Home Econ. 5. Dietetics.—*Prerequisite:* Chem. 33; Home Econ. 58; Physiol. 1, 1a. *Prerequisite or concurrent:* Home Econ. 59.

4	Lect.	9	M	117 W.B.	Barto
	B1 Quiz	9	W	117 W.B.	Barto
	B2 Quiz	9	F	117 W.B.	Barto
	C Lab.	10–12	MW	229 W.B.	Barto
	N Lab.	1–3	TT	229 W.B.	Janssen

Home Econ. 7. Textiles.—Students are required to take the quiz and laboratory in some one section.

3[1]	A Lect.	10	M	117 W.B.	Jacobsen
	1 Quiz	10	Th	304 W.B.	Jacobsen
[1]Seniors will receive only 2 hours credit.	Lab.	10–12	Tu	304 W.B.	Jacobsen
	2 Quiz	10	F	117 W.B.	Jacobsen
	Lab.	10–12	W	304 W.B.	Jacobsen
	3 Quiz	1	Th	117 W.B.	Jacobsen
	Lab.	1–3	Tu	304 W.B.	Jacobsen
	4 Quiz	9	F	304 W.B.	Jacobsen
	Lab.	3–5	Th	304 W.B.	Jacobsen

Home Econ. 9. Home Economics Extension.—*Prerequisite:* Senior standing in home economics and consent of instructor.

3	Lect.	3–5	M	117 W.B.	Burns
		3	W	117 W.B.	

Home Econ. 10. Organization and Management of the Home.—*Prerequisite:* Econ. 1 or 2; Home Econ. 7. *Prerequisite or concurrent:* Home Econ. 59.

3	A Quiz	8	MWF	121 W.B.	Nickell
	E Quiz	1	MWF	121 W.B.	

Home Econ. 11. The Teaching of Home Economics.—*Prerequisite:* Home Econ. 29, 59. *Prerequisite or concurrent:* Educ. 10; Home Econ. 5, 10, 19. One inspection trip (approximate cost $3). Required of all who wish to be recommended to teach home economics.

3	Lect. and Disc.	2	TT	121 W.B.	Robinson

Home Econ. 13. Home Economics in Education.—Not offered in the second semester of 1935-36. Substitute Education 41, Principles of Vocational Education.

Home Econ. 14. Home Management House.—Conferences and laboratory work in the home management apartment and laundry. Students reside in home management apartment four weeks during the semester. Required of all students who expect to meet the Smith-Hughes requirements. *Prerequisite:* Home Econ. 5, 10 and consent of the instructor.

3	Conf.	4	Th	117 W.B.	Nickell
	Lab.	To be arranged			

Home Econ. 19. Costume Design.—*Prerequisite:* Art 1a, 1b, or the equivalent.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	1	F	117 W.B.	EADES
	C Lab.	10–12	MW	309 W.B.	
	E Lab.	1–3	MW	309 W.B.	

Home Econ. 29. Clothing.—*Prerequisite:* Art 1a or 1b; Home Econ. 7.

4	Lect.	9	F	210 W.B.	WHITLOCK
	B Quiz	9	W	121 W.B.	BEAM
	L Quiz	10	Th	121 W.B.	BEAM
	C Lab.	10–12	MW	327 W.B.	BEAM
	E Lab.	1–3	MW	327 W.B.	BEAM
	N Lab.	1–3	TT	327 W.B.	BEAM

Home Econ. 30. Clothing.—*Prerequisite:* Art 1a, 1b; Home Econ. 29. *Prerequisite or concurrent:* Home Econ. 19.

3	Lect.	2	F	117 W.B.	WHITLOCK
	E Lab.	1–3	MW	203 W.B.	
	N Lab.	1–3	TT	203 W.B.	

Home Econ. 40. Home Care of the Sick.—*Prerequisite:* Junior standing in home economics.

1	Lect.	2	M	210 W.B.	BROOKS

Home Econ. 46. Quantity Cookery.—*Prerequisite:* Home Econ. 59.

3	Quiz	4	W	117 W.B.	SMITH, UNDERWOOD
	Lab.	8–11	Two mornings a week to be arranged. Students are advised not to have eleven o'clock classes, as they are required to serve from 11:30 to 12:30 at least two days a week.		

Home Econ. 47. Institution Management.—*Prerequisite:* Econ. 1 or 2 and senior standing. *Prerequisite or concurrent:* Home Econ. 46.

3	Lect. and Disc.	2	MWF	121 W.B.	SMITH

Home Econ. 58. Foods.—*Prerequisite:* Chemistry 1, 5.

5	Lect.	9	MW	210 W.B.	WOODRUFF
	B Quiz	9	F	121 W.B.	WOODRUFF, PICKENS
	D Quiz	11	F	121 W.B.	JANSSEN
	C Lab.	10–12	MWF	235 W.B.	PICKENS
	E Lab.	1–3	MWF	235 W.B.	PICKENS
	N Lab.	1–3 10–12	TT S	235 W.B.	CHAPIN

Home Econ. 59. Food Economics.—*Prerequisite:* Home Econ. 58.

2	Lect.	11	Th	210 W.B.	WOODRUFF
	P1 Lab.	3–5	Tu	229 W.B.	PICKENS
	G Lab.	3–5	W	229 W.B.	JANSSEN
	P2 Lab.	3–5	Th	229 W.B.	JANSSEN

Courses for Advanced Undergraduates and Graduates

Home Econ. 28. Organization and Management of the Home.—*Prerequisite:* Home Econ. 10.

2	Disc.	2	TT	117 W.B.	NICKELL

Home Econ. 31. Clothing.—*Prerequisite:* Home Econ. 30.

3	Quiz	11	F	203-5 W.B.	WHITLOCK
	Lab.	10–12	MW	203-5 W.B.	

Home Econ. 33. Diet in Disease.—*Prerequisite:* Home Econ. 5.

3	Lect.	3	F	121 W.B.	BARTO
	Quiz	3	W	121 W.B.	
	Lab.	3–5	M	229 W.B.	

Home Econ. 39b. Readings in Foods and Nutrition.—*Prerequisite:* Home Econ. 5 and senior standing. *Prerequisite or concurrent:* One of the following: Chem. 50a, Home Econ. 20, 33, 35, 41, 55.

1	Seminar	4-5:30	Th	203 W.B.	WOODRUFF, OUTHOUSE, BARTO, and HATHAWAY

Home Econ. 41. Problems in Nutrition.—*Prerequisite:* Chem. 50a; Physiol. 1, 1a; senior standing.

3 to 5*	1 Disc.	10	WF	121 W.B.	OUTHOUSE, HATHAWAY
	Lab.	8–10	MWFS	215 W.B.	
	2 Disc.	9	MW	231 W.B.	
	Lab.	10–12	MWFS	215 W.B.	

Home Econ. 43b. Problems in Textiles and Clothing.—*Prerequisite:* Econ. 1 or 2; Home Econ. 30 or 51. Individual problems may involve prerequisites of chemistry and physics.

3	Quiz	3	Tu	304 W.B.	JACOBSEN, WHITLOCK, EADES
	Lab.	To be arranged			

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Home Econ. 48. Institution Dietaries and Administration.—*Prerequisite:* Home Econ. 5, 47; consent of instructor. Three and one-half day field trip to Chicago (approximate cost $25).

Credit	Section	Hours	Days	Room	Instructor
4	Lect.	9	TT	121 W.B.	SMITH
	Lab.	8–12	S	207 W.B.	

Home Econ. 50. Costume Design.—*Prerequisite:* Home Economics 30, 42.

3	Lab.	2–5	MW	309 W.B.	EADES

Home Econ. 51. Textiles.—*Prerequisite:* Chem. 5; Econ. 1 or 2; Home Econ. 7; junior standing.

3	Lect.	1	F	304 W.B.	JACOBSEN
	Lab.	1–3	MW	304 W.B.	

Home Econ. 56. The Child and His Development.—*Prerequisite:* Home Econ. 10; Psych. 1.

2	Lect.	1	MW	117 W.B.	WALLS

Home Econ. 57b. Problems in Home Management.—*Prerequisite:* Home Econ. 10 and consent of instructor.

3	Arrange			313 W.B.	NICKELL

Courses for Graduates

Home Econ. 101. Home Economics.—(1 unit). Professor WARDALL.

Home Econ. 102. Research in Nutrition.—(½ to 3 units).* Associate Professor OUTHOUSE.

Home Econ. 103. Seminar in Nutrition.—(½ unit). Once a week. Associate Professor OUTHOUSE.

Home Econ. 104. Research in Foods.—(½ to 3 units).* Professor WOODRUFF.

Home Econ. 105. Seminar in Foods.—(½ unit). Professor WOODRUFF.

HORTICULTURE

Note: Certain courses in this department require laboratory fees varying from $0.75 to $2.50.

Courses for Undergraduates

Hort. 1. Introductory Horticulture.—(No credit allowed to juniors and seniors.)

Credit	Section	Hours	Days	Room	Instructor
3	L Disc.	10	TT	127 New Agr.	COLBY, MARSH, and WEAVER
	Lab.	10–12	S	H.F. Lab.	
	J Disc.	8	TT	127 New Agr.	
	Lab.	8–10	S	H.F. Lab.	
	A Disc.	8	WF	118 New Agr.	
	Lab.	8–10	M	H.F. Lab.	
	I Disc.	4	MW	127 New Agr.	
	Lab.	3–5	F	H.F. Lab.	

Hort. 2. Small Fruit Culture.—*Prerequisite:* Hort. 1.

2	A	1–3	TT	118 New Agr. until April 1; thereafter 106 H.F.L.	COLBY

Hort. 3. Commercial Vegetable Gardening.—*Prerequisite:* Hort. 1 or junior standing.

3	A	1–3	MWF	203 V.G.	LLOYD, WEAVER

Hort. 4. Plant Houses.—

3	A	3	MWF	F.G.	DORNER

Hort. 7. Spraying.—*Prerequisite:* Hort. 1; Chem. 1.

3	Lect. and Quiz	10–12	W	118 New Agr.	RUTH
	Lab.	10–12	MF	503 Agr.	

Hort. 8b. Orcharding.—*Prerequisite:* Hort. 1. (Inspection trip requirement waived for 1935-36.)

3	A	1–3	MW	106 H.F.L.	McMUNN
		1	F	106 H.F.L.	

Hort. 15a. Greenhouse Management.—*Prerequisite:* Hort. 5, Bot. 5.

3	A	10–12	MWF	F.G.	DORNER, HALL

Hort. 15c. Commercial Floricultural Crops.—*Prerequisite:* Hort. 15b.

3	A	8–10	TTS	F.G.	HALL

Hort. 22b-h. Investigation with Thesis.—*Prerequisite:* Senior standing; not less than 20 hours pertinent to the thesis problem, and the approval of the head of the department. Continuous throughout the year. Credit is not given for either semester separately. (5). Arrange.

(b) **Pomology.**—*Prerequisite:* Hort. 22a. Professors DORSEY, RUTH, COLBY, ANDERSON.
(d) **Olericulture.**—*Prerequisite:* Hort. 22c. Professor LLOYD.
(f) **Floriculture.**—*Prerequisite:* Hort. 22e. Professor DORNER, Associate Professor WEINARD.
(h) **Plant Breeding.**—*Prerequisite:* Hort. 22g. Professor DORSEY.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hort. 30. Tender Bedding Plants.—*Prerequisite:* Hort. 15a.

Credit	Section	Hours	Days	Room	Instructor
3	A	8–10	MWF	F.G.	HALL

Hort. 31. Garden Flowers.—*Prerequisite:* Bot. 5.

3	Lect.	1	MWF	F.G.	DORNER
	Lab.	Arrange		F.G.	

Hort. 32b. Floral Decoration.—*Prerequisite:* Hort. 32a.

3	A	3–5	TT	F.G.	DORNER
		10–12	S	F.G.	

Courses for Advanced Undergraduates and Graduates

Hort. 44. Current Pomological Literature.—*Prerequisite:* Junior standing.

1	A	11	Th	118 New Agr.	RUTH

Hort. 45. Plant Nutrition.—*Prerequisite:* Bot. 3; Agron. 9 or 28; Hort. 3 or 15a; senior standing.

3	A	2	MWF	F.G.	WEINARD

Hort. 51. Fruit Diseases.—*Prerequisite:* Senior standing; Bot. 7a.

3	Lect.	3	Tu	Seminar, H.F.L.	ANDERSON
	Lab.	10–12	TT	114 H.F.L.	

Courses for Graduates

Hort. 103. Olericulture.—(1 to 2 units).* Arrange. Professor LLOYD.

Hort. 108. Pomology.—(1 to 4 units).* Arrange.

(a) **Pomological Problems.**—Professor BLAIR.
(b) **Pomology and Fruit Breeding.**—Professor DORSEY.
(c) **Pomological Physiology.**—Professor RUTH.
(d) **Small Fruits.**—Professor COLBY.
(e) **Pomological Pathology.**—Professor ANDERSON.

Hort. 115. Floriculture.—(1 to 2 units).* Arrange.

(a) **Floricultural Problems.**—Professor DORNER.
(b) **Floricultural Physiology and Pathology.**—Associate Professor WEINARD.

Hort. 120. Pomology Seminar.—(¼ unit). Arrange. Professors DORSEY, RUTH, ANDERSON.

Hort. 140. Advanced Small Fruit Culture.—(1 unit). Arrange. Professor COLBY.

HYGIENE

Courses for Undergraduates

Hygiene 2. Essentials of Hygiene and Sanitation.—Required of all undergraduate women during their first year of residence. Names beginning with the letters from Mc through Z should register the second semester.

Credit	Section	Hours	Days	Room	Instructor
2[1]	A1	8	TT	106 L.H.	MILLBROOK
	A2	8	WF	106 L.H.	COON
[1]Seniors will receive only 1 hour credit.	B1	9	TT	106 L.H.	ETHEREDGE
	B2	9	MW	106 L.H.	ETHEREDGE
	C1	10	TT	106 L.H.	LYNCH
	D1	11	MW	106 L.H.	MILLBROOK
	F1	2	TT	106 L.H.	COON
	G1	3	MW	106 L.H.	LYNCH

Hygiene 5. Elementary Hygiene and Sanitation.—Required of all undergraduate men during their first year of residence. Students who did not complete the course during the first semester should register in the second semester.

2[1]	A1	8	MW	128 New Agr.	BEARD
	A2	8	TT	128 New Agr.	JUDAH
[1]Seniors will receive only 1 hour credit.	A3	8	WF	127 New Agr.	JUDAH
	B1	9	TT	128 New Agr.	BEARD
	B2 (Pre-Med.)	9	WF	128 New Agr.	BEARD
	B3	9	MW	319 E.H.	THACKER
	B4 (Pre-Med.)	9	TT	127 New Agr.	LEWIS
	B5	9	WF	214 New Agr.	LEWIS
	B6	9	TT	214 New Agr.	THACKER
	C1 (Pre-Med.)	10	TT	128 New Agr.	CAIN
	C2	10	WF	128 New Agr.	CAIN
	C3 (Eng.)	10	MF	319 E.H.	BLACKSTONE

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hygiene 5. Elementary Hygiene and Sanitation.—(Concluded)

Credit	Section	Hours	Days	Room	Instructor
2[1]	C4 (Eng.)	10	TT	319 E.H.	Blackstone
	D1	11	MW	128 New Agr.	Gebhart
[1]Seniors will receive only 1 hour credit.	D3	11	TT	128 New Agr.	Gebhart
	F1 (Eng.)	2	TT	319 E.H.	Judah
	F2	2	WF	127 New Agr.	Thacker
	F3	2	MW	128 New Agr.	Lewis
	G1	3	TT	128 New Agr.	Blackstone
	G3	3	MW	128 New Agr.	Cain

Hygiene 10. Advanced Hygiene.—Especially suited to the needs of teachers, coaches, and social workers. *Prerequisite:* Hygiene 2 or 5.

2	G	3	MW	127 New Agr.	Gebhart

JOURNALISM

Note: Certain courses in this department require laboratory fees varying from $1 to $2.

Credit in journalism will be given for Rhetoric 6; English 45; Political Science 22, 27, 28; Law 2, 5; History 21.

Courses for Undergraduates

Journ. 2a. Supervised Publication Work.—For members of the *Daily Illini* reporting staff. Six hours of regular staff duty and one 15-minute faculty conference each week. *Prerequisite:* Sophomore standing in the University, and credit in Journ. 1a or consent of the instructor.

Credit	Section	Hours	Days	Room	Instructor
1	A	To be arranged		122 U.H.	Shere

Journ. 3. The Newspaper and the News.—A non-laboratory, critical course for beginners and students regarding journalism as a social problem. Not open to students with credit in or registered in Journ. 5. *Prerequisite:* Freshman standing.

2[1]	C	10	MW	218 U.H.	Murphy

[1]Seniors will receive only 1 hour credit.

Journ. 4. Newspaper Reference Service.—Use of morgue and reference materials. *Prerequisite:* Freshman standing.

2[1]	L	10	TT	212 U.H.	Dickinson
[1]Seniors will receive only 1 hour credit.	M	11	TT	213 U.H.	

Journ. 5. Reporting.—*Prerequisite:* Sophomore standing.

3	Lect. O	2	Tu	113 U.H.	Leiter
	Lab. P	3–5	TT	113 U.H.	

Journ. 6. Reporting.—*Prerequisite:* Sophomore standing and Journ. 5. (Students register for lecture and one laboratory section.)

3	Lect. M	11	Th	315 U.H.	Leiter
	Lab. C	10–12	MW	118 U.H.	
	Lab. E	1–3	WF	113 U.H.	
	Lab. K	9–11	TT	118 U.H.	

Journ. 8. Sports Writing.—(For students in Physical Education). *Prerequisite:* Sophomore standing and Journ. 7.

3	E	1	MWF	107 U.H.	Schooley

Journ. 9a. History and Practice of Printing and Publishing.—*Prerequisite:* Sophomore standing.

2 or 3[1]	Lect. D	11	M	318 U.H.	Allen
[1]For 3 hours credit, students must register for two lab. periods.	Lab. N	1–3	Tu	126 U.H.	
	Lab. G	3–5	M	126 U.H.	

Journ. 9b. History and Practice of Printing and Publishing.—*Prerequisite:* Sophomore standing and Journ. 9a.

2 or 3[1]	Lect. M	11	Tu	315 U.H.	Allen
[1]For 3 hours credit, students must register for two lab. periods.	Lab. J	8–10	Tu	126 U.H.	
	Lab. E	1–3	M	126 U.H.	

Courses for Advanced Undergraduates

Journ. 11. The Press, the Courts, and the Law.—*Prerequisite:* Junior standing.

3	C	10	MWF	315 U.H.	Siebert

Journ. 14. Copyreading.—*Prerequisite:* Junior standing and Journ. 13.

3	Lect. F	2	M	318 U.H.	Siebert
[1]Lab. E is for students with desk experience. Consult adviser before registering.	Lab. N	1–3	TT	118 U.H.	
	[1]Lab. E	1–3	WF	118 U.H.	
	Lab. P	3–5	TT	118 U.H.	

Journ. 18. Ethics of Journalism.—*Prerequisite:* Junior standing and Journ. 17 or consent of the instructor.

Credit	Section	Hours	Days	Room	Instructor
3	D	11	MWF	315 U.H.	MURPHY

Journ. 20. Editorials and the Editorial Page.—*Prerequisite:* Junior standing and Journ. 5 and 6.

2	B	9	MW	113 U.H.	LEITER

Journ. 22. Newspaper Administration.—*Prerequisite:* Junior standing.

3	Lect.-Disc. C	10	MW	126 U.H.	ALLEN
	Lab.	Two hours to be arranged			

Journ. 24. Agricultural Journalism.—Farm and home news and features. Open to students in journalism, agriculture, and home economics. *Prerequisite:* Junior standing.

2	Q	4	TT	106 U.H.	SHERE

Journ. 26. Newspaper Advertising Copy.—*Prerequisite:* Journ. 25.

3	C	10	MWF	404 U.H.	DICKINSON

Journ. 30. Advanced Reporting.—General news and correspondence. *Prerequisite:* Junior standing.

3	H	4	MWF	113 U.H.	SHERE

Journ. 34. Newspaper Advertising Layout.—*Prerequisite:* Journ. 33.

3	Lect.-Disc.	8–10	M	126 U.H.	ALLEN
	Lab.	8–10	W	126 U.H.	

Journ. 36. Contemporary Affairs.—*Prerequisite:* Junior standing.

2	M	11	TT	310 U.H.	SIEBERT

Journ. 40. Special Investigations.—(For seniors not writing theses in journalism). *Prerequisite:* Senior standing.

2	G	3	W	113 U.H.	DICKINSON and members of the staff

Journ. 41. Business Problems of the Newspaper.—The departmentalized daily. *Prerequisite:* Junior standing.

3	E	1	MWF	318 U.H.	DICKINSON

Journ. 50. Critical Writing and Reviewing.—*Prerequisite:* Junior standing and six hours of journalism.

2	O	2	TT	302 U.H.	MURPHY

Journ. 60b. Thesis Course.—Open to seniors with consent of the Director.

2	To be arranged			304 U.H.	MURPHY

LANDSCAPE ARCHITECTURE

Note: Certain courses in this department require laboratory fees varying from $0.50 to $2.00.

Courses for Undergraduates

L.A. 32. Landscape Design.—*Prerequisite:* L.A. 31.

Credit	Section	Hours	Days	Room	Instructor
3	Lab.	9–12	MWF	200 New Agr.	WHITE

L.A. 34. Intermediate Landscape Design.—*Prerequisite:* L.A. 33.

3	Lect. and Lab.	9–12	TTS	200 New Agr.	WHITE

L.A. 36. Advanced Landscape Design.—*Prerequisite:* L.A. 35.

5	Lect. and Lab.	9–12	MWFS	203 New Agr.	LOHMANN

L.A. 38. Civic Design.—*Prerequisite:* Senior standing in the City Planning Option.

4	Lect. and Lab.	9–12	MWFS	203 New Agr.	LOHMANN

L.A. 44. Landscape Construction.—*Prerequisite:* L.A. 43.

3	Lect.	9	MF	211 New Agr.	SCHAFFER
	Lab.	10–12	MF	200 New Agr.	
		9–12	W	200 New Agr.	

L.A. 46. Office Practice in Landscape Architecture.—*Prerequisite:*. L.A. 35.

1	Lect.	9	Tu	211 New Agr.	SCHAFFER

L.A. 52. Trees and Shrubs.—*Prerequisite:* L.A. 51. Open only to students in Landscape Architecture and Floriculture.

3	Lect.	3	W	214 New Agr.	ROBINSON
	Lab.	3–5	MF	211 New Agr.	

L.A. 54. Planting Design.—*Prerequisite:* L.A. 53.

3	Lect.	1	Tu	211 New Agr.	ROBINSON
	Lab.	2–5	Tu	203 New Agr.	
		1–5	Th	203 New Agr.	

L.A. 62. Rural Improvement.—*Prerequisite:* 30 hours of university work. (Credit not allowed for both L.A. 62 and 64).

Credit	Section	Hours	Days	Room	Instructor
2	Lect.	11	TT	214 New Agr.	PETERSON

L.A. 64. Appreciation of Landscape Architecture.—For students not specializing in landscape architecture. *Prerequisite:* 30 hours of university work. (Credit not allowed for both L.A. 64 and 62).

3	Lect.	11	MWF	214 New Agr.	PETERSON and others

L.A. 72. City Planning.—*Prerequisite:* 60 hours of university work.

2	Lect.	10	TT	214 New Agr.	BARTHOLOMEW and LOHMANN

L.A. 74. Regional Planning.—*Prerequisite:* 30 hours of university work.

3	Lect.	8	MWF	214 New Agr.	LOHMANN

LAW

Note: Students other than those registered in the College of Law are required to pay fees at the rate of $1 per semester hour for courses in law.

First Year Courses

Law 1b. Contracts.—Costigan: *Cases on Contracts* (2d ed.).

Credit	Section	Hours	Days	Room	Instructor
3	A	2	MTW	103 Law	GOBLE
	B	3	MTW	103 Law	GOBLE

Law 2b. Torts.—Bohlen: *Cases on Torts* (3d ed.).

2	A	2	ThF	103 Law	WEISIGER
	B	3	ThF	103 Law	WEISIGER

Law 10. Real Property I. Titles.—Aigler: *Cases on Property* (2d ed.). Bigelow: *Introduction to the Law of Real Property.*

4	A	8	TWTF	103 Law	SUMMERS
	B	9	TWTF	103 Law	SUMMERS

Law 11. Agency.—Mechem: *Cases on Agency* (2d ed.).

3	A	9	MTW	106 Law	GREEN
	B	10	MTW	106 Law	GREEN

Law 12. Equity Jurisdiction I.—Cook: *Cases on Equity* (2d one-volume ed.).

3	A	10	MThF	103 Law	HOLT
	B	11	MThF	103 Law	HOLT

Second and Third Year Courses

Law 6b. International Law.—Law of war and neutrality.

3	A	10	MWF	202 L.H.	GARNER

Law 8. Evidence.—Hinton: *Cases on Evidence* (2d ed.).

3	A	11	MWF	106 Law	HARNO

Law 15. Bills and Notes.—Britton: *Cases on Bills and Notes* (2d ed.).

3	A	2	MTW	303 Law	BRITTON
	B	3	MTW	303 Law	BRITTON

Law 16b. Trusts.—Scott: *Cases on Trusts* (2d ed.).

2	A	2	ThF	303 Law	SCHNEBLY
	B	3	ThF	303 Law	SCHNEBLY

Law 19b. Private Corporations.—Richards, *Cases on Private Corporations* (3d ed.). *Prerequisite:* Law 19a or its equivalent.

2	A	11	MTu	300 Law	JOHNSON

Law 20. Procedure II.—Selected cases on common law, equity, and code pleading.

4	A	9	MTWT	300 Law	MCCASKILL

Law 21b. Credit Transactions II.—Mortgages, pledges, and conditional sales. Sturges: *Cases on Credit Transactions.*

3	A	11	WTF	300 Law	FERRALL

Law 22b. Constitutional Law. The State and the Nation.—Rottschaefer: *Cases on Constitutional Law.*

2	A	1	TT	106 Law	GREEN

Law 31b. Conflict of Laws.—Lorenzen: *Cases on Conflict of Laws* (3d ed.).

2	A	2	ThF	306 Law	HOLT

Law 32. Equity Jurisdiction III.—Cook: *Cases on Equity* (2d ed.), Vol. III.

3	A	10	WTF	303 Law	GOBLE

Law 33. Administrative Law.—Frankfurter and Davison: *Cases on Administrative Law* (2d ed.).

Credit	Section	Hours	Days	Room	Instructor
2	A	4	MTu	303 Law	FERRALL

Law 36. Procedure IV.—Practice court.

3	A	1:30–3	MW	300 Law	McCASKILL

Law 38. Real Property III.—Future interests and restraints upon alienation. Powell: *Cases on Future Interests*, and selected cases.

4	A	8	TWTF	106 Law	SCHNEBLY

Law 39b. Thesis Course.—This course is open to students who are candidates for the J.D. degree during the academic year next preceding their graduation.

1			To be arranged		Members of the staff

Law 40. Bankruptcy.—Britton: *Cases on Bankruptcy.*

2	A	9	MTu	303 Law	BRITTON

Law 45. Use of Law Books.—Weisiger: *Manual for the Use of Law Books.*

1	A	9	F	106 Law	WEISIGER

Law 50. Industrial Relations II.—Labor law.

2	A	3–5	W	306 Law	WEISIGER

Law 55. Legal Problems II.—Comments on recent decisions. *Prerequisite:* One year of law work and at least an average grade of B (4.) in all law courses.

1			To be arranged		FERRALL

Law 57. Legal Problems IV.—Comments on recent decisions. *Prerequisite:* Legal Problems I or II, two years of law work, and at least an average grade of B (4.) in law courses.

1			To be arranged		FERRALL

Law 64. Taxation.—Magill and Maguire: *Cases on Taxation.*

2	A	4	ThF	303 Law	FERRALL

Law 65. Landlord and Tenant.—Jacobs: *Cases and Materials on Landlord and Tenant.*

2	A	10	MTu	303 Law	SUMMERS

LIBRARY SCIENCE

Courses for Freshmen and Sophomores

Lib. Sci. 12. General Reference.—

Credit	Section	Hours	Days	Room	Instructor
2	A	9	TT	118 Lib.	BLACK
	B	10	TT	118 Lib.	LYLE
	C	11	TT	118 Lib.	SIGNOR
	D	1	TT	118 Lib.	WILSON
	E	2	TT	118 Lib.	KROGH

Courses for First-Year Library School Students

Lib. Sci. 2b. Reference.—

3	A	9	MWF	314 Lib.	SINGLETON
	B	11	MWF	314 Lib.	SINGLETON

Lib. Sci. 21. Printing and Binding.—

2	A	2	TT	314 Lib.	SINGLETON, HOUCHENS

Lib. Sci. 33b. Library Administration and Extension.—Continuation of Lib. Sci. 34.

3	A	8	MWF	314 Lib.	LYLE
	B	10	MWF	314 Lib.	LYLE

Lib. Sci. 37. Cataloging.—Continuation of Lib. Sci. 31a.

3	A	9–12	TTS	314-306 Lib.	BOND
2	B	9–12	TT	227-306 Lib.	KRIEG

Lib. Sci. 38. Selection of Books.—Continuation of Lib. Sci. 3a.

3	A	9	MWF	227 Lib.	BOYD
	B	11	MWF	227 Lib.	BOYD

Lib. Sci. 47. Subject Bibliography.—*Prerequisite:* Lib. Sci. 2a and consent of instructor.

2	A	3	MW	314 Lib.	PHELPS

Courses for Advanced Library School Students and Graduate Students

Lib. Sci. 7. History of Libraries.—(2 semester hours or ½ unit). 8 TT; 314 Lib. Miss SINGLETON.

Lib. Sci. 24b. Book Selection for Special Groups.—*Prerequisite:* Lib. Sci. 24a. (2 semester hours or ½ unit). 11 TT; 328 Lib. Assistant Professor HOSTETTER.

Lib. Sci. 42. State, Municipal, and Foreign Documents.—*Prerequisite:* Lib. Sci. 13a. (3 semester hours or ½ unit). 11 MWF; 328 Lib. Miss Phelps.

Lib. Sci. 46. High School Library Administration.—*Prerequisite:* Fifteen hours of library science and consent of instructor. (3 semester hours or ½ unit). 2 MWF; 314 Lib. Assistant Professor Hostetter.

Lib. Sci .49. Children's Literature.—(2 semester hours or ½ unit). 3 TT; 314 Lib. Assistant Professor Hostetter.

Courses for Graduates

Lib. Sci. 101. Thesis.—(1 to 2 units).* Professor Windsor and others.

Lib. Sci. 102. Seminar.—

(b) College and University Library Administration.—(1 unit). 3-5 Tu; 328 Lib. Professor Windsor.

(c) Individual Problems.—(½ to 1 unit). To be arranged. Professor Windsor and others.

Lib. Sci. 103b. Advanced Reference.—(½ unit). 10 TT; 328 Lib. Miss Phelps.

Lib. Sci. 104b. Advanced Cataloging and Classification.—(½ unit). 9-11 F; 328 Lib. Assistant Professor Bond.

MATHEMATICS

Major: 20 hours exclusive of Math. 2, 3, 4, 5, 6, 6a, 8a, 8b, and all courses taken during the freshman year, and inclusive of Mathematics 7 and 9, and two semesters of Math. 70, 71, 72.

Note: For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: first semester, Math. 2 (or 3) and 4 (or 5); second semester, Math. 6. Sophomore year: first semester, Math. 7; second semester, Math. 9. In certain courses Math. 6 may be replaced by Math. 6a, and Math. 7 and 9 by Math. 8a and 8b.

Minors: 20 hours exclusive of courses taken during the freshman year selected from one or two of the following subjects: astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), economics, accountancy, philosophy, theoretical and applied mechanics, surveying. If two subjects are chosen, at least eight hours must be offered in each.

Note: Seniors receive reduced credit in Mathematics 2, 3, 4, 5, 6, or 6a.

Mathematics 32, 35, 36, and 40 are suggested as desirable courses for students preparing to teach high school mathematics.

Courses for Undergraduates

Math. 2. College Algebra.—*Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit.

Credit	Section	Hours	Days	Room	Instructor
3[1]	R	8	MWF	105 Entom.	Rempfer
	S	9	MWF	211 U.H.	Modesitt
[1]Seniors will receive only 2 hours credit.	T1	10	MWF	102 Entom.	Thrall
	T2	10	TTS	206 U.H.	Bower
	[2]D	11	MWF	105 Entom.	Hurd
[2]Sections D and H are for freshman engineers.	U	11	MWF	103 Entom.	Bristow
	W1	1	MWF	158 Math.	Shreve
	W2	1	MWF	156 Math.	Netzorg
	X1	2	MWF	103 Entom.	Wilson
	X2	2	MWF	206 U.H.	Rumsey
	Y1	3	MWF	102 Entom.	Welker
	Y2	3	MWF	155 Math.	Campbell
	[2]H	4	MWF	155 Math.	Campbell

Math. 3. Algebra.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit.

5[1]	R1	8	MTWTF	206 U.H.	Chanler
	R2	8	MTWTF	102 Entom.	Dennis
[1]Students having 1½ entrance units in algebra will receive only 3 hours credit for this course. Seniors will receive only 4 hours credit.	S1	9	MTWTF	110 L.H.	Moore
	S2	9	MTWTF	103 Entom.	Gentry
	T1	10	MTWTF	156 Math.	Fryer
	T2	10	MTWTF	105 Entom.	Norval
	U1	11	MTWTF	158 Math.	Gentry
	U2	11	MTWTF	202 U.H.	Pence
	W	1	MTWTF	155 Math.	Brown
	X1	2	MTWTF	110 L.H.	Steimley
	X2	2	MTWTF	155 Math.	Brown
	Y1	3	MTWTF	206 U.H.	Welch
	Y2	3	MTWTF	158 Math.	Burdette

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Math. 4. Plane Trigonometry.—*Prerequisite:* Entrance algebra, 1½ units, or registration in Math. 3; plane geometry, 1 unit.

Credit	Section	Hours	Days	Room	Instructor
2[1]	R	8	TT	154 Math.	Fryer
	[2]B	9	TT	154 Math.	Hazlett
[1]Seniors will receive only 1 hour credit.	S	9	TT	155 Math.	Brahana
	T	10	TT	154 Math.	Crathorne
	U1	11	TT	156 Math.	Emch
[2]Sections B and E are for freshman engineers.	U2	11	TT	110 L.H.	Coble
	[2]E	1	TT	158 Math.	Welker
	W	1	TT	159 Math.	Brahana
	X	2	TT	159 Math.	Dobbie
	Y1	3	TT	154 Math.	Welker
	Y2	3	TT	155 Math.	Bergmann

Math. 6. Analytic Geometry.—*Prerequisite:* Math. 2 (or 3) and Math. 4.

5[1]	T	10	MTWTF	202 U.H.	Chanler
[1]Seniors will receive only 4 hours credit.	X	2	MTWTF	158 Math.	Burdette
	Y	3	MTWTF	156 Math.	Bourgin

Math. 6a. Analytic Geometry.—(For chemists, architects, and engineers). *Prerequisite:* Math. 2 (or 3) and Math. 4.

4[1]	[2]A	8	MTWT	158 Math.	Bailey
[1]Seniors will receive only 3 hours credit.	R	8	MTWT	202 U.H.	Modesitt
	[2]B1	9	MTWT	159 Math.	Armstrong
	[2]B2	9	MTWT	102 Entom.	Collins
[2]Sections A, B1, B2, D1, D2, E, F, G1, and G2, are for freshman engineers.	S	9	MTWT	158 Math.	Levy
	[2]D1	11	MTWT	206 U.H.	Pepper
	[2]D2	11	MTWT	106 U.H.	Moore
	[3]U	11	MTWT	102 Entom.	Miles
	[2]E	1	MTWT	206 U.H.	Rumsey
[3]Sections U and W are for architects and architectural engineers.	[3]W	1	MTWT	103 Entom.	Wilson
	[2]F	2	MTWT	154 Math.	Hoersch
	[2]G1	3	MTWT	202 U.H.	Dobbie
	[2]G2	3	MTWT	159 Math.	Shreve

Math. 7. Calculus.—First course for students of mathematics and engineering. *Prerequisite:* Math. 6 (or 6a).

5	A	8	MTWTF	159 Math.	Armstrong
	B1	9	MTWTF	156 Math.	Emch
	B2	9	MTWTF	202 U.H.	Chanler
	C	10	MTWTF	155 Math.	Brahana
	D	11	MTWTF	159 Math.	Hazlett
	E	1	MTWTF	154 Math.	Hoersch
	G	3	MTWTF	103 Entom.	Wilson

Math. 9. Calculus.—Second course for students of mathematics and engineering. *Prerequisite:* Math. 7.

3	A1	8	MWF	155 Math.	Miles
	A2	8	MWF	154 Math.	Doob
	A3	8	MWF	114 L.H.	Dolan
	B1	9	MWF	154 Math.	Trjitzinsky
	B2	9	MWF	206 U.H.	Pepper
	C1	10	MWF	110 L.H.	Bower
	C2	10	TTS	158 Math.	Doob
	D	11	MWF	156 Math.	Levy

Math. 8b. Calculus.—For students of chemistry and chemical engineering, and insurance. *Prerequisite:* Math. 8a.

3	A1	8	MWF	107 U.H.	Bower
	A2	8	MWF	110 L.H.	Moore
	A3	8	MWF	103 Entom.	Bristow
	C1	10	MWF	107 U.H.	Peters
	C2	10	MWF	159 Math.	Armstrong
	D	11	MWF	107 U.H.	Peters

Math. 9a. Calculus.—Special topics. *Prerequisite:* Math. 7 and 9 (or 8a-8b).

	C	10	TT	159 Math.	Ketchum
	D1	11	TT	154 Math.	Crathorne
	D2	11	TT	155 Math.	Ketchum
	F	2	MF	156 Math.	Bourgin

Math. 23. Mathematics of Finance.—*Prerequisite:* Math. 2, junior standing.

3	A	8	TTS	156 Math.	Bristow
	B	9	TTS	206 U.H.	Peters
	C	10	MWF	103 Entom.	Bristow
	D	11	MWF	110 L.H.	Bower
	E	1	MWF	159 Math.	Kent
	F	2	MWF	159 Math.	Kent
	G	3	MWF	154 Math.	Hoersch

Math. 90. Undergraduate Thesis.—*Prerequisite:* 24 hours of college mathematics. (2). Arrange.

Courses for Advanced Undergraduates and Graduates

Math. 17. Differential Equations and Advanced Calculus.—*Prerequisite:* Math. 16.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	156 Math.	PETERS
	E	1	MWF	110 L.H.	STEIMLEY

Math. 21. Theory of Probability.—*Prerequisite:* Math. 7 and 9 (or 8a-8b).

3	D	11	MWF	154 Math.	CRATHORNE

Math. 31. Actuarial Theory.—*Prerequisite:* Math. 30.

3	C	10	MWF	154 Math.	CRATHORNE

Math. 40b. Fundamental Concepts.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9.

3	C	10	MWF	206 U.H.	PEPPER

Math. 52b. Differential Equations of Mathematics.—*Prerequisite:* Math. 16 and 17.

3	E	1	MWF	254 Math.	BOURGIN

Math. 70b. Introduction to Higher Algebra.—*Prerequisite:* Math. 7 and 9.

3	B	9	MWF	155 Math.	MILES

Math. 71b. Introduction to Higher Analysis.—*Prerequisite:* Math. 7 and 9.

3	D	11	MWF	254 Math.	COBLE

Math. 72b. Introduction to Higher Geometry.—*Prerequisite:* Math. 7 and 9.

3	C	10	MWF	158 Math.	LEVY

Courses for Graduates

Math. 100. Seminar and Thesis.—(1 to 2 units).* Arrange.

Math. 101. Functions of Real Variables.—(1 unit). 9 TTS; 254 Math. Dr. DOOB.

Math. 110. Elliptic Functions.—(1 unit). 11 MWF; 366 Math. Professor CARMICHAEL.

Math. 114. Partial Differential Equations.—(1 unit). 8 MWF; 366 Math. Assistant Professor TRJITZINSKY.

Math. 126. Theory of Groups.—(1 unit). 9 MWF; 366 Math. Associate Professor BRAHANA.

Math. 131. Algebraic Geometry.—(1 unit). 10 MWF; 254 Math. Professor COBLE.

Math. 170. Algebra.—(1 unit). 9 MWF; 254 Math. Associate Professor HAZLETT.

Math. 171. Analysis.—(1 unit). 11 MWF; 155 Math. Dr. KETCHUM.

Math. 172. Geometry.—(1 unit). 10 MWF; 366 Math. Professor EMCH.

MECHANICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.50 to $4.50.

Courses for Undergraduates

M.E. 2. Steam Engineering.—*Prerequisite:* Math. 9, Physics 1 and 3.

Credit	Section	Hours	Days	Room	Instructor
3	Z1	8	MWF	216 M.E.L.	
	Z2	11	MWF	217 M.E.L.	

M.E. 6. Steam Engineering.—*Prerequisite:* Registration in M.E. 16.

4	PW	1	MTTF	208 M.E.L.	
	Q	8	TWTS	208 M.E.L.	

M.E. 10. Thermodynamics.—*Prerequisite:* Math. 9, Physics 1 and 3.

3	JKNVY	8	MWF	202 T.B.	
	LMT	9	TTS	202 T.B.	

M.E. 15. Heat Engineering.—*Prerequisite:* M.E. 16.

3	PQ	11	MWF	202 T.B.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

M.E. 16. Thermodynamics.—*Prerequisite:* M.E. 13.

Credit	Section	Hours	Days	Room	Instructor
2	PW	2	Th	216 T.B.	
		2–4	Tu	216 T.B.	
	Q	10	Tu	216 T.B.	
		10–12	Th	216 T.B.	

M.E. 17. Refrigeration Engineering.—*Prerequisite:* M.E. 16.

3	PQ	11	MW	208 M.E.L.
		8–10	S	112 T.B.

M.E. 28. Heating, Ventilating, and Air Conditioning.—*Prerequisite:* M.E. 16 and 65.

4	P	8	TT	M.E.L.
		9–11	Tu	112, 114 T.B.
		10–12	S	112, 114 T.B.
	Q	8	TT	M.E.L.
		9–11	Th	112, 114 T.B.
		10–12	S	112, 114 T.B.

M.E. 34. Areonautical Engineering.—*Prerequisite:* M.E. 33.

3	PQ	11	MWF	216 M.E.L.

M.E. 36. Petroleum Production Engineering.—*Prerequisite:* M.E. 35 or consent of instructor.

3 To be arranged.

M.E. 40. Mechanical Engineering Design.—*Prerequisite:* M.E. 31 and T.A.M. 3 and 63.

3	PW	8–11	MWF	216, 201 T.B.
	QT	1–4	MWF	216, 201 T.B.

M.E. 52. Power Plant Design.—*Prerequisite:* M.E. 65.

3	P	8–11	MWF	112, 114 T.B.
	Q	1–4	MWF	112, 114 T.B.

M.E. 62. Mechanical Engineering Laboratory.—*Prerequisite:* Junior standing.

3	OX	1	WF	216 M.E.L.
		1–4	M	M.E.L.

M.E. 64. Mechanical Engineering Laboratory.—*Prerequisite:* Registration in M.E. 6 and 16.

3	PWV	8–12	S	M.E.L.
		1–5	W	M.E.L.
	Q	8–12	MF	M.E.L.
	J	8–12	TT	M.E.L.

M.E. 85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing.

3	PKJO	8–11	TT	Pattern Lab.
	QL	8–11	MF	Pattern Lab.
	MR	1–4	TT	Pattern Lab.
	NSVW	1–4	MF	Pattern Lab.

M.E. 87. Machine Laboratory.—*Prerequisite:* M.E. 85 or junior standing.

3	LQ	8–11	MF	Machine Lab.
	NRS	1–4	MF	Machine Lab.

M.E. 88. Machine Laboratory.—*Prerequisite:* M.E. 87.

3	PW	8–11	TT	Machine Lab.
	Q	1–4	TT	Machine Lab.

M.E. 89. Heat Treatment of Metals.—*Prerequisite:* Senior standing in Mechanical or Railway Mechanical Engineering.

3	PT	2–4	MWF	Forge Lab.
	Q	8–10	MWF	Forge Lab.

M.E. 98. Thesis.—*Prerequisite:* Senior standing. (3). Arrange.

Courses for Graduates

M.E. 107. Thermodynamics.—Application of thermodynamics to the solution of physical and engineering problems. (1 unit). Twice a week. Arrange. Professor Goff.

M.E. 108. The Flow of Fluids and Heat Transfer.—The application of dimensional analysis and other rational formulas. Special problems. (1 unit). Twice a week. Arrange. Professor Macintire.

M.E. 109. Mechanical Engineering Design.—(a) Machine design; (b) power plant design; (c) dynamics of machinery. (1 unit). Twice a week. Arrange. Professors Leutwiler, Ham.

M.E. 110. Advanced Heating, Ventilating, and Air Conditioning.—Applications of various systems, notable developments, and results of research. Individual problems. (1 unit). Twice a week. Arrange. Professor Severns.

M.E. 112. Laboratory Investigations.—Special problems in: (a) combustion; (b) steam; (c) gas and oil engineering; (d) heating, ventilation, and air conditioning; (e) refrigeration; (f) flow of fluids; (g) heat transfer; (h) mechanical transmission of power. (1½ units). Three times a week. Arrange. Professors POLSON, KRATZ, HAM, MACINTIRE, and GOFF.

M.E. 117. Advanced Refrigerating Engineering.—Advanced theory and special cycles. Design of comfort cooling and other special installations. (1 unit). Twice a week. Arrange. Professor MACINTIRE.

MILITARY BANDS

Note: The following courses are open only to those who have passed the examination for admittance to one of the bands. All new students who play band instruments and who desire to try for places in the bands should make application at the Band Office, in the Band Building, at the earliest possible time. Those who are accepted for membership will be given a slip indicating the band to which they have been assigned, together with their rehearsal days and hours (twice a week). Former members of the bands whose work has been satisfactory will be permitted to register in these courses without further examination. Assignments are made according to proficiency. Service in the bands takes the place of the required military courses. Director HARDING, Assistant Director HINDSLEY, Mr. OVERGARD.

Bands 2. Freshman Band.—(1).

Bands 4. Sophomore Band.—(1).

Bands 6. Junior Band.—(No credit).

Bands 8. Senior Band.—(No credit).

MILITARY SCIENCE

Note: All military courses consist of two parts designated by the same number: a practical course lettered with "a" and a theoretical course lettered with "b". Students who have had training in a senior R. O. T. C. unit are permitted to register for work one year advanced for each year they have had in the senior unit. All students who register for junior and senior courses are required to sign a contract with the Government to take five hours of military per week during two years in the University and to attend one summer camp of six weeks.

Uniform is required for all practical instruction and is optional for classroom instruction.

INFANTRY

Mil. Sci. 2a. Freshman Infantry.—Practice.

Credit	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	W	Arm.	TABACHNIK
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 2b. Freshman Infantry.—Theory.

½	1	10	M	150 Arm.	TABACHNIK
	2	11	M	150 Arm.	
	3	1	Tu	150 Arm.	
	4	2	Tu	150 Arm.	
	5	10	Th	150 Arm.	
	6	9	F	150 Arm.	
	7	10	F	150 Arm.	

Mil. Sci. 4a. Sophomore Infantry.—Practice.

½	1st Bn.	3–5	W	Arm.	LUMMIS
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 4b. Sophomore Infantry.—Theory.

½	51	10	M	148 Arm.	LUMMIS
	52	11	M	148 Arm.	
	53	10	Tu	148 Arm.	
	54	11	Tu	148 Arm.	
	55	3	Th	148 Arm.	
	56	9	S	148 Arm.	

Mil. Sci. 6a. Junior Infantry.—Practice.

½	Group I	10–12	W	Arm.	MILAN
		4	F	Arm.	
	Group II	1–3	Th	Arm.	
		4	F	Arm.	

Mil. Sci. 6b. Junior Infantry.—Theory.

1	81	1–3	Tu	148 Arm.	MILAN
	82	10–12	F	148 Arm.	

Mil. Sci. 8a. Senior Infantry.—Practice.

½	Co.'s A-M	(See 2a and 4a for hours).			STEVENS
		4	F	Arm.	

Mil. Sci. 8b. Senior Infantry.—Theory.

Credit	Section	Hours	Days	Room	Instructor
1	91	9	TT	150 Arm.	STEVENS
	92	2	WF	150 Arm.	

FIELD ARTILLERY

Mil. Sci. 12a. Freshman Field Artillery.—Practice.

½	1st Bn.	3–5	M	Arm.	ROUTHEAU
	2nd Bn.	10–12	Tu	Arm.	MARR
	3rd Bn.	1–3	Tu	Arm.	CLAY
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	Th	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 12b. Freshman Field Artillery.—Theory.

½	100	9	M	155 Arm.	ROUTHEAU
	101	10	M	155 Arm.	MARR
	102	11	M	155 Arm.	CLAY
	103	2	M	155 Arm.	
	104	8	Tu	155 Arm.	
	105	9	Tu	155 Arm.	
	106	3	Tu	155 Arm.	
	107	8	W	155 Arm.	
	108	9	W	155 Arm.	
	109	10	W	155 Arm.	
	110	11	W	155 Arm.	
	111	3	W	155 Arm.	
	112	10	Th	155 Arm.	
	113	11	Th	155 Arm.	
	114	9	F	155 Arm.	
	115	10	F	155 Arm.	
	116	11	F	155 Arm.	

Mil. Sci. 14a. Sophomore Field Artillery.—Practice.

½	1st Bn.	3–5	M	Arm.	COLE
	2nd Bn.	10–12	Tu	Arm.	QUIGLEY
	3rd Bn.	1–3	Tu	Arm.	CLAY
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 14b. Sophomore Field Artillery.—Theory.

½	130	9	M	154 Arm.	COLE
	131	10	M	154 Arm.	QUIGLEY
	132	11	M	154 Arm.	CLAY
	133	8	Tu	154 Arm.	
	134	9	Tu	154 Arm.	
	135	8	W	154 Arm.	
	136	9	W	154 Arm.	
	137	10	W	154 Arm.	
	138	11	W	154 Arm.	
	139	10	Th	154 Arm.	
	140	11	Th	154 Arm.	
	141	9	F	154 Arm.	
	142	10	F	154 Arm.	
	143	11	F	154 Arm.	

Mil. Sci. 16a. Junior Field Artillery.—Practice.

½	1st Bn.	3–5	M	Arm.	DALFERES
	2nd Bn.	10–12	Tu	Arm.	
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 16b. Junior Field Artillery.—Theory.

1	160	9	M	152 Arm.	DALFERES
		9	W	152 Arm.	
		4	F	154 Arm.	
	161	10	M	152 Arm.	
		10	W	152 Arm.	
		4	F	154 Arm.	
	162	9	Tu	152 Arm.	
		9	Th	152 Arm.	
		4	F	154 Arm.	
	163	10	Tu	152 Arm.	
		10	Th	152 Arm.	
		4	F	154 Arm.	

Mil. Sci. 18a. Senior Field Artillery.—Practice.

Credit	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	M	Arm.	Burnell
	2nd Bn.	10–12	Tu	Arm.	
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 18b. Senior Field Artillery.—Theory.

1	190	10	M	153 Arm.	Burnell
		10	W	153 Arm.	
		4	F	153 Arm.	
	191	9	Tu	153 Arm.	
		9	Th	153 Arm.	
		4	F	153 Arm.	
	192	10	Tu	153 Arm.	
		10	Th	153 Arm.	
		4	F	153 Arm.	

CAVALRY

Mil. Sci. 22a. Freshman Cavalry.—Practice.

½	1A	10–12	M	Arm.	Bryan
	1B	8–10	Tu	Arm.	
	1C	8–10	W	Arm.	
	1D	1–3	Th	Arm.	
	1E	10–12	F	Arm.	

Mil. Sci. 22b. Freshman Cavalry.—Theory.

½	201	8	M	146 Arm.	Grener
	202	9	M	146 Arm.	
	203	10	Tu	146 Arm.	
	204	11	Tu	146 Arm.	
	205	3	Tu	146 Arm.	
	206	8	Th	146 Arm.	
	207	9	Th	146 Arm.	
	208	1	F	146 Arm.	
	209	2	F	146 Arm.	

Mil. Sci. 24a. Sophomore Cavalry.—Practice.

½	2A	1–3	Tu	Arm.	Stovall
	2B	10–12	Th	Arm.	Stovall
	2C	8–10	F	Arm.	Grener

Mil. Sci. 24b. Sophomore Cavalry.—Theory.

½	221	1	M	147 Arm.	Stovall
	222	2	M	147 Arm.	
	223	8	Tu	147 Arm.	
	224	9	Tu	147 Arm.	
	225	10	W	147 Arm.	
	226	11	W	147 Arm.	
	227	3	Th	147 Arm.	
	228	10	F	147 Arm.	

Mil. Sci. 26a. Junior Cavalry.—Practice. *Prerequisite:* Mil. Sci. 25a.

½	3A	10–12	Tu	Arm.	Batchelor
	3B	8–10	Th	Arm.	

Mil. Sci. 26b. Junior Cavalry.—Theory. *Prerequisite:* Mil. Sci. 25b.

1	241	1–3	Tu	146 Arm.	Batchelor
		4	F	146 Arm.	
	242	8–10	W	146 Arm.	
		4	F	146 Arm.	
	243	10–12	Th	146 Arm.	
		4	F	146 Arm.	

Mil. Sci. 28a. Senior Cavalry.—Practice. *Prerequisite:* Mil. Sci. 27a.

½	1A-1E incl. 2A-2C incl.	(See 22a and 24a for hours.)	Flint

Mil. Sci. 28b. Senior Cavalry.—Theory. *Prerequisite:* Mil. Sci. 27b.

1	251	10–12	M	147 Arm.	Flint
		4	F	147 Arm.	
	252	1–3	Tu	147 Arm.	
		4	F	147 Arm.	
	253	1–3	Th	147 Arm.	
		4	F	147 Arm.	

ENGINEERS

Prerequisite for all courses: Registration in College of Engineering or in Architecture.

Mil. Sci. 32a. Freshman Engineers.—Practice.

Credit	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	W	Arm.	McDonough
	2nd Bn.	3–5	Th	Arm.	Mount
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 32b. Freshman Engineers.—Theory.

½	301	9	Tu	144 Arm.	McDonough
	302	11	Tu	144 Arm.	
	303	9	W	144 Arm.	
	304	11	W	144 Arm.	
	305	10	Th	144 Arm.	
	306	11	Th	144 Arm.	
	307	8	F	144 Arm.	
	308	9	F	144 Arm.	
	309	10	F	144 Arm.	
	310	11	F	144 Arm.	

Mil. Sci. 34a. Sophomore Engineers.—Practice.

½	1st Bn.	3–5	W	Arm.	Matthews
	2nd Bn.	3–5	Th	Arm.	Mount
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 34b. Sophomore Engineers.—Theory.

½	321	9	W	145 Arm.	Matthews
	322	10	W	145 Arm.	
	323	11	W	145 Arm.	
	324	1	W	145 Arm.	
	325	2	W	145 Arm.	

Mil. Sci. 36a. Junior Engineers.—Practice. *Prerequisite:* Mil. Sci. 35a.

½	1st-3rd Bn. incl.	(See 32a for hours.)		Arm.	Matthews

Mil. Sci. 36b. Junior Engineers.—Theory. *Prerequisite:* Mil. Sci. 35b.

1	341	2–4	F	145 Arm.	Matthews
		4	F	145 Arm.	
	342	4	F	145 Arm.	
		10–12	S	145 Arm.	

Mil. Sci. 38a. Senior Engineers.—Practice. *Prerequisite:* Mil. Sci. 37a.

½	1st-3rd Bn. incl.	(See 32a for hours.)		Arm.	McDonough

Mil. Sci. 38b. Senior Engineers.—Theory. *Prerequisite:* Mil. Sci. 37b.

1	351	1–3	Th	144 Arm.	McDonough
		4	F	144 Arm.	
	352	4	F	144 Arm.	
		8–10	S	144 Arm.	

SIGNAL CORPS

Mil. Sci. 42a. Freshman Signal Corps.—Practice.

½	A	3–5	Tu	Arm.	James
	B	3–5	W	Arm.	Stice

Mil. Sci. 42b. Freshman Signal Corps.—Theory.

½	400	10	M	222 Arm.	Stice
	401	10	Tu	222 Arm.	
	402	1	W	222 Arm.	
	403	1	Th	222 Arm.	
	404	10	F	222 Arm.	

Mil. Sci. 44a. Sophomore Signal Corps.—Practice.

½	A-B incl.	(See 42a for hours.)	James, Stice

Mil. Sci. 44b. Sophomore Signal Corps.—Theory.

½	410	9	Tu	222 Arm.	James
	411	11	Tu	222 Arm.	
	412	9	F	222 Arm.	
	413	11	F	222 Arm.	

Mil. Sci. 46a. Junior Signal Corps.—Practice.

½	A-B incl.	(See 42a for hours.)	James, Stice

Mil. Sci. 46b. Junior Signal Corps.—Theory.

1	420	3–5	M	222 Arm.	James
		4	F	222 Arm.	

Mil. Sci. 48a. Senior Signal Corps.—Practice.

Credit	Section	Hours	Days	Room	Instructor
½	A-B incl.	(See 42a for hours.)			James, Stice

Mil. Sci. 48b. Senior Signal Corps.—Theory.

1	431	3–5	M	143 Arm.	Stice
		4	F	143 Arm.	

COAST ARTILLERY (ANTI-AIRCRAFT)

Mil. Sci. 52a. Freshman Coast Artillery (AA).—Practice.

½	1st Bn.	3–5	Tu	Arm.	Chapman
	2nd Bn.	1–3	Th	Arm.	Wortman
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 52b. Freshman Coast Artillery (AA).—Theory.

½	501	9	M	151 Arm.	Wortman
	502	10	M	151 Arm.	
	503	1	M	151 Arm.	
	504	10	Tu	151 Arm.	
	505	2	Tu	151 Arm.	
	506	9	Th	151 Arm.	
	507	11	Th	151 Arm.	
	508	4	Th	151 Arm.	
	509	11	F	151 Arm.	
	510	1	F	151 Arm.	

Mil. Sci. 54a. Sophomore Coast Artillery (AA).—Practice.

½	1st Bn.	3–5	Tu	Arm.	Hutson
	2nd Bn.	1–3	Th	Arm.	Cary
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 54b. Sophomore Coast Artillery (AA).—Theory.

½	521	11	M	151 Arm.	Hutson
	522	2	M	151 Arm.	
	523	9	Tu	151 Arm.	
	524	10	Th	151 Arm.	
	525	3	Th	151 Arm.	
	526	10	F	151 Arm.	
	527	2	F	151 Arm.	
	528	10	S	151 Arm.	

Mil. Sci. 56a. Junior Coast Artillery (AA).—Practice.

½	1st, 2nd, and 3rd Bns.	(See 52a and 54a for hours.)			Cary
		4	F	151 Arm.	

Mil. Sci. 56b. Junior Coast Artillery (AA).—Theory.

1	531	1–3	M	152 Arm.	Cary
	532	4	TT	152 Arm.	
	533	10–12	S	152 Arm.	

Mil. Sci. 58a. Senior Coast Artillery (AA).—Practice.

½	Group I	1–3	Tu	152 Arm.	Chapman
		4	F	152 Arm.	
	Group II	2–4	F	152 Arm.	
		4	F	152 Arm.	

Mil. Sci. 58b. Senior Coast Artillery (AA).—Theory.

1	541	3–5	M	152 Arm.	Chapman
	542	11	TT	152 Arm.	

MINING AND METALLURGICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.00 to $7.50.

A. MINING

Courses for Undergraduates

Mining 2. Mining Principles.—(For students in courses other than mining). *Prerequisite:* One year of college chemistry, and Math. 2.

Credit	Section	Hours	Days	Room	Instructor
3		9	MWF	206 T.B.	Mitchell

Mining 4a. Mining Methods.—*Prerequisite:* Mining 1 and registration in Geology 43.

4		8	TTS	206 T.B.	Nicholson
		2	W	206 T.B.	

Mining 13. Mining Geology.—*Prerequisite:* Mining 12.

Credit	Section	Hours	Days	Room	Instructor
3		10	M	206 T.B.	SMITH
		1–4	M	206 T.B.	
		10–12	S	Mining Lab.	

Mining 15. Mine Ventilation.—*Prerequisite:* Mining 4.

2		10	TT	207 T.B.	CALLEN

Mining 20. Mine Ventilation Laboratory.—*Prerequisite:* Registration in Mining 15.

2		11	Tu	207 T.B.	CALLEN
		8–11	W	Mining Lab.	

Mining 21. Examination, Valuation, and Reports.—*Prerequisite:* Mining 4, Geology 20 and 43 or equivalent.

3		11	MWF	206 T.B.	NICHOLSON

Mining 42. Mining Design.—*Prerequisite:* Mining 41.

2		1–4	WF	207 T.B.	MITCHELL

Mining 62. Mine Surveying.—*Prerequisite:* Mining 61.

3		4	M	207 T.B.	NICHOLSON
		2–5	TT	207 T.B.	

Mining 64. Coal and Ore Preparation Laboratory.—*Prerequisite:* Mining 9.

3		1–5	TT	Mining Lab.	MITCHELL

Mining 90. Mining and Metallurgical Reports.—*Prerequisite:* Senior standing in mining or metallurgical engineering.

1		10	F	206 T.B.	CALLEN

Mining 98. Thesis.—*Prerequisite:* Senior standing. (3). Arrange.

Courses for Graduates

Mining 101. Advanced Mining Practice.—(1 unit). Arrange. Professor CALLEN.

Mining 102. Advanced Preparation of Coal and Ores.—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 104.[1] **Mining Reports.**—(1 unit). Arrange. Professor CALLEN.

Mining 105.[1] **Welfare Work and Education among Mine Employees.**—(1 unit). Arrange. Professor CALLEN.

Mining 106.[1] **Advanced Coal, Ore, and Metallurgical Plant Design.**—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 107.[1] **Advanced Non-Ferrous Metallurgical Projects.**—(1 unit). Arrange. Assistant Professor MITCHELL.

B. METALLURGY

Courses for Undergraduates

Met. 5. Ferrous Metallurgy.—*Prerequisite:* Registration in Met. 6.

3		8	MWF	206 T.B.	WILDER

Met. 6. Metallurgical Calculations.—*Prerequisite:* Met. 4.

2		11	TT	206 T.B.	MITCHELL

Met. 10. Non-Ferrous Metallography.—*Prerequisite:* Met. 7 and 9.

4		11	WF	207 T.B.	WILDER
		9–12	TT	101 Mining Lab.	

Met. 11. Electrometallurgy.—*Prerequisite:* Met. 8.

3		9–12	M	Mining Lab.	WILDER
		9	WF	207 T.B.	

Met. 42. Metallurgical Design.—*Prerequisite:* Met. 41.

2		1–4	WF	207 T.B.	MITCHELL

MUSIC

Courses for Undergraduates

Music 2. History of Music.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
2	A	11	MWF	Lecture Room, 3rd floor, S.M.H.	SCHWARTZ

Music 4. Theory of Music (Harmony).—*Prerequisite:* Music 3.

3	A	8	MWF	106 S.M.H.	KESSLER
	B	1	MWF	103 S.M.H.	MILES

[1]Of courses 104 and 105, only one will be given, according to election of students; the same applies to courses 106 and 107.

Music 5b. Theory of Music (Advanced Harmony).—*Prerequisite:* Music 5a.

Credit	Section	Hours	Days	Room	Instructor
2	A	3	TT	103 S.M.H.	KESSLER

Music 6b. Theory of Music (Free Counterpoint).—*Prerequisite:* Music 6a.

2	A	11	WF	106 S.M.H.	MILES

Music 8. Strict Counterpoint.—*Prerequisite:* Music 7.

3	A	10	MWF	103 S.M.H.	KESSLER
	B	2	MWF	103 S.M.H.	METCALF
	C	11	MWF	103 S.M.H.	KESSLER
	D	{3	M	103 S.M.H.	METCALF
		{1	TT	103 S.M.H.	

Music 10. Analysis, Musical Form.—*Prerequisite:* Music 9.

2	A	9	MTh	103 S.M.H.	SCHWARTZ
	B	9	TT	103 S.M.H.	SCHWARTZ

Music 11b. Composition.—*Prerequisite:* Music 11a. (2). Arrange. Associate Professor MILES.

Music 12b. Advanced Composition.—*Prerequisite:* Music 12a. (4). Arrange. Associate Professor MILES.

Music 14. Music Appreciation.—*Prerequisite:* Music 13 or consent of instructor.

2	A	3	TT	Lecture Room, 3rd floor, S.M.H.	KITCHELL

Music 16. Instrumentation.—*Prerequisite:* Music 15.

1 or 2*	A	2	TT	Band Building	HARDING

Music 18. Advanced Orchestration.—*Prerequisite:* Music 17. (4). Arrange. Professor HARDING.

Music 20a. Double Counterpoint, Canon, and Fugue.—*Prerequisite:* Music 19a.

3	A	3	MWF	106 S.M.H.	KESSLER

Music 22. Ear Training and Sight Singing.—*Prerequisite:* Music 21.

1	A	9	MW	106 S.M.H.	PERCIVAL
	B	11	MTh	106 S.M.H.	PERCIVAL
	C	8	TT	106 S.M.H.	PERCIVAL

Music 24. Ear Training and Sight Singing.—*Prerequisite:* Music 23.

1	A	9	TT	106 S.M.H.	PERCIVAL
	B	10	MW	106 S.M.H.	PERCIVAL
	C	10	TT	106 S.M.H.	PERCIVAL

Music 25b. Instrumental Methods.—*Prerequisite:* Junior standing in School of Music or consent of instructor.

2	A	1	MWF	106 S.M.H.	HOLMES

Music 25c. Baton Technique.—*Prerequisite:* Sophomore standing in School of Music or consent of instructor.

1	A	1	Th	Orchestra Room	HOLMES

Music 26b. Junior High School Methods.—*Prerequisite:* Senior standing in School of Music or consent of instructor.

2	A	2	MWF	106 S.M.H.	KITCHELL

Music 27. Thesis.—(1). Arrange.

Music 30b. Ensemble.—*Prerequisite:* Music 30a or consent of instructor.

½ to 1*	A (Piano)	3	MTh	209 S.M.H.	WATT
	B (Vocal group ensemble)	4	MW	210 S.M.H.	HAMP
	C (Chorus)	7	Th	Recital Hall	MILES and DEMMING
		Arrange other hour			
	D (Opera)	3	TT	215 S.M.H.	SUTHERLIN
	E (Woman's Glee Club)	10	TT	Auditorium	DEMMING
	F (Orchestra)	4	TW	Orchestra Room	ROOSA
	G (Men's Glee Club)	11 or 1	TT	Orchestra Room	HAMP

Music 31b. Ensemble.—*Prerequisite:* Music 31a. (½ to 1). Sections same as in Music 30b.

Music 33. Advanced History of Music.—*Prerequisite:* Music 32.

2	A	9	WF	103 S.M.H.	SCHWARTZ
	B	10	TT	103 S.M.H.	SCHWARTZ

Music 35. Recital Course in Applied Music.—(Required of seniors in Instrumental major). *Prerequisite:* At least two satisfactory appearances in public students' recitals. (4). Arrange.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Music 36. Recital Course in Applied Music.—(Required of seniors in Voice major). *Prerequisite:* At least two satisfactory appearances in public students' recitals. (3). Arrange.

Music 37. Recital Course in Composition.—(Required of seniors in Theory major). (4). Arrange.

Music 38b. Conducting and Organization.—*Prerequisite:* Music 38a.

Credit	Section	Hours	Days	Room	Instructor
2	A	1–3	MWF	Band Building	HARDING

Music 68b. String Instruments.—*Prerequisite:* Junior standing in School of Music or consent of instructor.

2	A	8	MTWTF	Orchestra Room	COHEN

Music 98b. Wind Instruments.—*Prerequisite:* Junior standing in School of Music or consent of instructor.

2	A	9	MTWTF	Band Building	HINDSLEY

APPLIED MUSIC COURSES

Note: Students enrolled in the curricula in Music pay a flat fee of $25 per semester for one or more of the courses in Applied Music. Students enrolled in other curricula pay fees of $25 for each two hours of credit for which they register in courses in Applied Music.

Students in music curricula will receive 4 to 5 hours credit for their major subject in Applied Music. They will ordinarily receive 2½ hours credit for their minor subject. Students from other colleges will ordinarily receive 2 hours credit if in accordance with the regulations of their college.

Courses in Applied Music which require one 30-minute lesson per week of recitation and *one* hour daily of preparation receive 2 hours credit.

Courses in Applied Music which require two 20-minute lessons per week of recitation and *one* hour daily of preparation receive 2½ hours credit.

Courses in Applied Music which require two 30-minute lessons per week of recitation and *two* hours daily of preparation receive 4 hours credit.

Courses in Applied Music which require two 30-minute lessons per week of recitation and *three* hours daily of preparation receive 5 hours credit.

Music 42a, b to 47a, b. Piano.—(2 to 5).* Arrange. Professor VAN DEN BERG, Assistant Professors WATT, SCHOONMAKER, HILL; Mrs. SULLIVAN, Miss USRY, Mr. METCALF.

Music 52a-d to 57a-d. Voice.—(1 to 4).* Arrange. Mr. HAMP, Miss SUTHERLIN, Mr. FOOTE, Miss BOWEN, Mr. DEMMING. (Parts **a** and **b** in each course indicate individual instruction in Voice (2-3), and parts **c** and **d** indicate classes in Singing Diction (1), required of voice major students.)

Music 62a, b to 67a, b. Violin.—(2 to 5).* Arrange. Assistant Professor ROOSA, Mr. COHEN.

Music 72a, b to 77a, b. Violoncello.—(2 to 5).* Arrange. Mrs. SULLIVAN.

Music 82a, b to 87a, b. Organ.—(2 to 5).* Arrange. Associate Professor MILES, Mr. DEMMING.

Music 92a-d to 97a-d. Band and Orchestral Instruments.—(2 to 4).* All these courses are required for major work in this group. Parts *a* and *b* in each course are concerned with professional instruments, and parts *c* and *d* with supplementary instruments. Professor HARDING, Mr. HINDSLEY, Mr. HOLL.

PHILOSOPHY

Major: 20 hours from any courses offered by the department, including Phil. 2, 3, 4, 7. Six hours in psychology may be counted towards a major in philosophy.

Minor: 20 hours in (a) psychology (at least six additional hours if psychology is counted towards a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) astronomy, botany, chemistry, mathematics, physics, zoology, geology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Phil. 1. Introduction to Philosophy.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	117 L.H.	KUBITZ
	B	9	MWF	117 L.H.	NICHOLSON
	C	10	MWF	117 L.H.	TAWNEY
	D	11	MWF	117 L.H.	MORROW
	E	1	MWF	117 L.H.	NICHOLSON
	F	2	MWF	117 L.H.	NICHOLSON

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Phil. 2. Logic.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	123 L.H.	
	B	9	MWF	113 L.H.	
	C	10	MWF	123 L.H.	DeLargy
	D	11	MWF	123 L.H.	DeLargy
	E	1	MWF	123 L.H.	Kubitz
	F	2	MWF	104 L.H.	Kubitz

Phil. 20. Honors Course.—*Prerequisite:* Senior standing.

2 To be arranged

Courses for Advanced Undergraduates and Graduates

Phil. 4. History of Modern Philosophy.—*Prerequisite:* Three hours in philosophy and junior standing, or senior standing.

4	Lect.	10	TT	L.H. Theatre	Gotshalk
	A Disc.	11	Th	117 L.H.	Gotshalk
	B Disc.	11	Th	113 L.H.	DeLargy
	C Disc.	11	F	139 L.H.	Gotshalk
	D Disc.	2	Th	117 L.H.	Gotshalk
	E Disc.	3	Th	117 L.H.	Kubitz
	F Disc. (For graduate students)			To be arranged	Gotshalk

Phil. 9. Philosophy of Law and of the State.—*Prerequisite:* Senior standing, or the consent of the instructor.

3 A 9 MWF 123 L.H. Morrow

Phil. 11b. Philosophy of Religion (Historical).—*Prerequisite:* Three hours in philosophy.

3 A 11 MWF 104 L.H. Tawney

Phil. 16. Metaphysics.—*Prerequisite:* Three hours in philosophy.

3 A 10 MWF 306 L.H. Gotshalk

Phil. 22. American Philosophy (Royce, James, Santayana, Dewey).—*Prerequisite:* Three hours in philosophy.

3 A 2 MWF 148 L.H. DeLargy

Courses for Graduates

Phil. 103. Ethics.—(1 unit). Arrange. Professor Morrow.

Phil. 112. German Idealism (Kant).—(1 unit). Arrange. Assistant Professor Gotshalk.

Phil. 118. Mediaeval Philosophy.—(1 unit). Arrange. Professor Tawney.

Phil. 120. Seminar in Modern Philosophy.—(1 unit). Arrange. Dean McClure.

PHYSICAL EDUCATION FOR MEN

Note: Each student registering for a course or courses in physical education is assessed a locker fee of $1 for the semester.

Freshmen and Sophomores: Men entering the University as freshmen are required to obtain credit for four semesters of work in physical education; those entering as sophomores, two semesters. They may obtain this credit by courses listed below or by proficiency examinations which are offered at times specified by the department.

Major: For Curriculum in Physical Education for Men, see "Directions for Registration."
For information, late registration, changing sections, call at Room 201, Men's Old Gymnasium.

Courses for Undergraduates

P.E. 20a, 20b, 20c, 20d. Adapted Activities.—Open only to students who fail to pass the health examinations. Students enrolling for the first time should register for P.E. 20a. Students enrolling for the second, third, or fourth time should register for P.E. 20b, 20c, and 20d, respectively.

Credit	Section	Hours	Days	Room	Instructor
1	B	9	MWF	New Gym.	Prather
	C	10	MWF	New Gym.	Stafford
	D	11	MWF	New Gym.	Stafford
	F	2	MWF	New Gym.	McCristal
	G	3	MWF	New Gym.	McCristal
	H	4	MWF	New Gym.	McCristal
	K	9	MWF	Old Gym.	Florio
	L	10	MWF	Old Gym.	Florio
	M	11	MWF	Old Gym.	Florio
	O	2	MWF	Old Gym.	Kasch
	P	3	MWF	Old Gym.	Kasch
	Q	4	MWF	Old Gym.	Prather

P.E. 21a, 21b, 21c, 21d. Special Activity.—Open only to students assigned by the Department of Health Service. Students assigned to this course meet twice a week in connection with P.E. 20a, 20b, 20c, and 20d, Adapted Activities. Students enrolling for the first time should register for P.E. 21a. Students enrolling for the second, third, or fourth time should register for P.E. 21b, 21c, and 21d, respectively.

	Credit	Section	Hours	Days	Room	Instructor
	½		To be arranged			Stafford
P.E. 23. Volley Ball.—						
	½	J	8	TT	Old Gym.	Kasch
		K	9	TT	Old Gym.	Kasch
P.E. 24. Beginning Swimming.—						
	½	C	10	MW	Old Pool	Prather
		D	11	MW	Old Pool	Prather
		F	2	MW	Old Pool	Treece
		G	3	MW	Old Pool	Treece
		L	10	TT	Old Pool	Treece
		M	11	TT	Old Pool	Treece
		O	2	TT	Old Pool	Prather
		P	3	TT	Old Pool	Prather
P.E. 25. Individual Tumbling Stunts.—						
	½	B	9	MW	Old Gym.	Jennings
		C	10	MW	Old Gym.	Jennings
		D	11	MW	Old Gym.	Jennings
		F	2	MW	Old Gym.	Jennings
P.E. 26. Double Tumbling Stunts.—						
	½	L	10	TT	Old Gym.	McCristal
		M	11	TT	Old Gym.	McCristal
P.E. 27. Apparatus Stunts.—						
	½	O	2	TT	Old Gym.	McCristal
		P	3	TT	Old Gym.	McCristal
P.E. 28. Boxing.—						
	½	C	10	MW	Old Gym.	Kenney
		E	1	MW	Old Gym.	Law
		K	9	TT	Old Gym.	Law
		L	10	TT	Old Gym.	Law
P.E. 29. Wrestling.—						
	½	C	10	MW	Old Gym.	Monsson
		D	11	MW	Old Gym.	Monsson
		L	10	TT	Old Gym.	Kenney
		M	11	TT	Old Gym.	Kenney
		N	1	TT	Old Gym.	Kenney
		O	2	TT	Old Gym.	Kenney
		P	3	TT	Old Gym.	Law
P.E. 30. Fencing.—						
	½	G	3	MW	Old Gym.	Craig
		H	4	MW	Old Gym.	Craig
		P	3	TT	Old Gym.	Craig
		Q	4	TT	Old Gym.	Craig
P.E. 31. Soccer.—						
	½	H	4	MW	New Gym.	Florio
		K	9	MW	New Gym.	Monsson
		L	10	TT	New Gym.	Monsson
		M	11	TT	New Gym.	Monsson
		Q	4	TT	New Gym.	Palmer
P.E. 32. Golf.—						
	½	F	2	MW	New Gym.	Brown
		N	1	TT	New Gym.	Brown
		O	2	TT	New Gym.	Brown
P.E. 33. Tennis.—						
	½	E	1	MW	New Gym.	Dixon
		F	2	MW	New Gym.	Dixon
		G	3	MW	New Gym.	Dixon
		J	8	TT	New Gym.	Dixon
		K	9	TT	New Gym.	Dixon
		L	10	TT	New Gym.	Dixon
P.E. 34. Softball and Skating.—Laboratory fee, $2.25.						
	½	B	9	MW	New Gym.	Paterson
		C	10	MW	New Gym.	Paterson
		D	11	MW	New Gym.	Paterson
		K	9	TT	New Gym.	Paterson
		L	10	TT	New Gym.	Paterson
		M	11	TT	New Gym.	Paterson

P.E. 35. Tap Dancing.—

Credit	Section	Hours	Days	Room	Instructor
½	K	9	TT	New Gym.	Palmer
	N	1	TT	New Gym.	Palmer
	O	2	TT	New Gym.	Palmer

P.E. 36. Clog Dancing.—

½	L	10	TT	New Gym.	Brown
	M	11	TT	New Gym.	Brown

P.E. 37. Individual Athletics.—

½	B	9	MW	Old Gym.	Palmer
	C	10	MW	Old Gym.	Palmer
	D	11	MW	Old Gym.	Palmer

P.E. 38. Circus Stunts.—

½	H	4	MW	Old Gym.	Jennings
	Q	4	TT	Old Gym.	Jennings

P.E. 39. Advanced Circus Stunts.—

½	H	4	MW	Old Gym.	Jennings
	Q	4	TT	Old Gym.	Jennings

P.E. 40. Games, Contests, and Relays.—

½	F	2	MW	Old Gym.	Law
	G	3	MW	Old Gym.	Law

P.E. 41. Advanced Swimming.—Open only to students who can swim 100 yards.

½	D	11	MW	New Pool	Craig
	E	1	MW	New Pool	Treece
	L	10	TT	New Pool	Craig
	M	11	TT	New Pool	Craig
	O	2	TT	New Pool	Treece
	P	3	TT	New Pool	Treece

P.E. 42. Life Saving and Diving.—Open only to students who can swim 200 yards using two different strokes.

½	B	9	MW	New Pool	Craig
	C	10	MW	New Pool	Craig

P.E. 43. Water Polo and Ice Hockey.—Open only to students who can swim 100 yards and who can skate fairly well. Laboratory fee $2.25.

½	F	2	MW	New Pool	Paterson
	S	3	MW	New Pool	Paterson

P.E. 44. Handball.—

½	A	8	MW	New Gym.	Treece
	B	9	MW	New Gym.	Treece
	C	10	MW	New Gym.	Treece
	D	11	MW	New Gym.	Treece
	N	1	TT	New Gym.	Law

P.E. 45. Squash Raquets.—

½	O	2	TT	New Gym.	Dixon
	P	3	TT	New Gym.	Dixon

PROFESSIONAL COURSES

Note: Certain courses in this department require laboratory fees varying from $1 to $2.

First Year

P.E. 1. Beginning Basketball.—(First half of semester).

2	E	1–3	MTWTF	New Gym.	Mills

P.E. 2. Tumbling and Calisthenics.—(First half of semester).

2	A	8–10	MTWTF	New Gym.	Price

P.E. 4. Beginning Football.—(Second half of semester).

2	E	1–3	MTWTF	Armory Field	Mills

P.E. 10. Beginning Apparatus Stunts.—(Second half of semester).

2	A	8–10	MTWTF	New Gym.	Price

Second Year

P.E. 5. Advanced Football.—(Second half of semester).

2	A	8–10	MTWTF	Armory Field	Wilson

P.E. 6. Boxing and Wrestling.—(First half of semester).

2	A	8–10	MTWTF	Wrestling Room	Kenney and Law

P.E. 11. Swimming.—

Credit	Section	Hours	Days	Room	Instructor
2	A	8	MTWTF	New Pool	MANLEY

P.E. 12. Track and Field.—

2	B	9	MTWTF	Illinois Field and Armory	SEATON

THIRD YEAR

P.E. 8. Baseball.—(Second half of semester). Students registering for this course should also register for P.E. 16, Advanced Apparatus Stunts.

2	E	1–3	MTWTF	Illinois Field	ROETTGER

P.E. 9. The School Program in Health.—

4	B	9	MTWTF	209 New Gym.	STAFFORD

P.E. 15. Recreational Sports.—(First half of semester). Students registering for this course should also register for P.E. 19, Advanced Basketball.

2	C	10–12	MTWTF	New Gym.	STALEY

P.E. 16. Advanced Apparatus Stunts.—(First half of semester). Students registering for this course should also register for P.E. 8, Baseball.

2	E	1–3	MTWTF	Old Gym.	PRICE

P.E. 19. Advanced Basketball.—(Second half of semester). Students registering for this course should also register for P.E. 15, Recreational Sports.

2	C	10–12	MTWTF	New Gym.	RUBY

FOURTH YEAR

P.E. 3b. Theory of Sports.—

2	L	10–12	TT	207 New Gym.	MILLS

P.E. 7. Training and First Aid.—

2	K	9	TT	119-122 New Gym.	BULLOCK

P.E. 13. Program in Extra-curricular Sports.—

3	C	10	MWF	207 New Gym.	BROWN

P.E. 17. Dancing and Marching.—

2	A	8	MTWTF	300 New Gym.	McCRISTAL

P.E. 18. The Curriculum in Physical Education.—

5	E	1	MTWTF	209 New Gym.	STALEY

PHYSICAL EDUCATION FOR WOMEN

Note: Each student registering for a course or courses in physical education is assessed a locker fee of $1 for the semester.

Freshmen and Sophomores: Of the four required semesters in physical education, the department requires: one semester of gymnastics (P.E. 72) or rhythms (P.E. 51); one semester of swimming (P.E. 75, 76, 54); one semester of individual sports (P.E. 60) or seasonal sports (P.E. 73) or team games (P.E. 58); and one semester of an elective.

Proficiency examinations in any courses offered to freshmen and sophomores may be taken at times specified by the department. These will be given each semester.

Major: For Curriculum in Physical Education for Women, see "Directions for Registration."

Courses for Undergraduates

P.E. 51. Elementary Rhythms.—

Credit	Section	Hours	Days	Room	Instructor
1	B	9	MWF	South Room, W.Gym.	JOHNSON
	D	11	MWF	South Room, W.Gym.	CUTHBERT
	F	2	MWF	South Room, W.Gym.	JOHNSON

P.E. 54. Diving and Swimming.—*Prerequisite:* P.E. 76 or equivalent.

1	M	11	TT	Pool, W.B.	RENSHAW

P.E. 56. Individual Gymnastics.—Recommendation from Health Service is necessary for registration in this course. Registration in Section L is limited to students with free period following.

1	B	9	MWF	Corr. Room, W.Gym.	SCHNAUBER
	C	10	MWF	Corr. Room, W.Gym.	
	D	11	MWF	Corr. Room, W.Gym.	
	L	10	TT	Corr. Room, W.Gym.	
	F	2	MTT	Corr. Room, W.Gym.	

P.E. 57. Modified Activities.[1]—Recommendation from Health Service is necessary for registration in this course.

Credit	Section	Hours	Days	Room	Instructor
1	M	11	TT	South Room, W.Gym.	HUELSTER

P.E. 58. Team Games.—

1					
Indoor Group Games and Baseball....	K[1]	9	TT	North Room, W.Gym.	ROBERTSON and VAN VLEET
Volleyball and Speedball	M	11	TT	North Room, W.Gym.	ROBERTSON

P.E. 60. Individual Sports.—(Handball, quoitennis, and badminton.)

1	L[1]	10	TT	South Room, W.Gym.	HUELSTER
	O[1]	2	TT	South Room, W.Gym.	HUELSTER

P.E. 66. Elective Athletic Activities.—(Participation in W.A.A. sports; registration on recommendation of department.)

1 Two 45-minute periods to be arranged.

P.E. 70b. Gymnastics and Self-Testing Activities (Baseball and Rhythms).—For freshmen planning to major in physical education.

2	G	3	MTWTF	South Room, W.Gym.	VAN VLEET, JOHNSON, and ROBERTSON

P.E. 71b. Gymnastics and Self-Testing Activities (Tennis and Clogging).—For sophomores planning to major in physical education.

2	G	3	MTWTF	North Room, W.Gym.	VAN VLEET, HUELSTER, and ROBERTSON

P.E. 72. Gymnastics and Self-Testing Activities.—

1	B	9	MWF	North Room, W.Gym.	VAN VLEET
	C	10	MWF	North Room, W.Gym.	VAN VLEET

P.E. 73. Seasonal Sports.—(For Skating, Sections B, C, and O, laboratory fee, $3.)

1					
Skating and Tennis.....	B	9	MWF	Skating Rink	ROBERTSON
Skating and Tennis.....	C	10	MWF	Skating Rink	ROBERTSON
Volleyball and Golf (advanced)....	H[1]	4	MW	North Room, W.Gym.	LAWSON
Skating and Tennis.....	O[1]	2	TT	Skating Rink	ROBERTSON
Indoor Baseball and Golf (elementary)	Q[1]	4	TT	North Room, W.Gym.	LAWSON

P.E. 75. Elementary Swimming.—

1	B	9	MWF	Pool, W.B.	MOHN
	D	11	MWF	Pool, W.B.	RENSHAW
	F	2	MWF	Pool, W.B.	RENSHAW

P.E. 76. Intermediate Swimming.—

1	C	10	MWF	Pool, W.B.	MOHN
	G	3	MWF	Pool, W.B.	RENSHAW
(Sub-Int. & Int.)	Q[1]	4	TT	Pool, W.B.	MOHN

P.E. 77. Elementary Clog and Tap Dancing.—

1	D	11	MWF	Gym., W.B.	HUELSTER
	G	3	MWF	Gym., W.B.	CUTHBERT
	M[1]	11	TT	Gym., W.B.	VAN VLEET
	P[1]	3	TT	South Room, W.Gym.	HUELSTER

P.E. 78. Intermediate Clog and Tap Dancing.—

1	D	11	MWF	North Room, W.Gym.	VAN VLEET

P.E. 79. Elementary Folk Dancing.—

1	C	10	MWF	South Room, W.Gym.	CUTHBERT
	F	2	MWF	North Room, W.Gym.	ROBERTSON
	K[1]	9	TT	South Room, W.Gym.	JOHNSON

[1]This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

THEORY COURSES

P.E. 62. Rhythms.[1]—For juniors in the School of Physical Education.

Credit	Section	Hours	Days	Room	Instructor
2	O	2	TT	North Room, W.Gym.	JOHNSON

P.E. 80. Community Recreation.—For sophomores in the School of Physical Education. Elective for juniors and seniors.

2	L	10	TT	North Room, W.Gym.	FREER

P.E. 82. Methods of Teaching Swimming.—For sophomores and juniors in the School of Physical Education.

1	O	2	TT	Pool, W.B.	RENSHAW

P.E. 90b. Organization and Administration.—*Prerequisite:* Senior standing in the School of Physical Education.

2	M	11	TT	128 W.Gym.	FREER

P.E. 95b. Methods of Teaching.—*Prerequisite:* P.E. 95a and junior standing in the School of Physical Education or consent of instructor.

4	E	1	MTWTF	129 W.Gym.	ROBERTSON and VAN VLEET

P.E. 97b. Educational Practice.—*Prerequisite:* P.E. 95a, 96, and senior standing in the School of Physical Education.

3	E	1	MWF	128 W.Gym.	LAWSON

P.E. 98. Theory of Individual and Remedial Gymnastics.—*Prerequisite:* P.E. 96.

3	A	8	MWF	129 W.Gym.	SCHNAUBER

P.E. 99. Methods of Teaching Health.—*Prerequisite:* Senior standing in the School of Physical Education.

2	K	9	TT	129 W.Gym.	LAWSON

PHYSICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $10.00

Major: 20 hours from courses offered in the department. At least five hours must be offered from the group of courses for advanced undergraduates and graduates.

Minors: 20 hours in one or two of the following subjects, with not less than eight hours in each department if two subjects are chosen: mathematics (courses in calculus and beyond), astronomy, chemistry (except Chem. 1, 2, 3, 4, 5, 6 or 7), education, or engineering.

For undergraduate students taking advanced work or a major in physics, the following courses are suggested:

Freshman year: Trigonometry and analytic geometry.
Sophomore year: Physics 1a-1b, 3a-3b, and calculus.
Junior year: Physics 14, 23, 44, 60, 61, 62.
Senior year: Physics 30, 71, 72, 78, 80.

Physics 7a-7b and 8a-8b are recommended to students not specializing in physics, mathematics, chemistry, or engineering.

The general physics prerequisite for certain courses may be satisfied by either Physics 1a-1b and 3a-3b or by 7a-7b and 8a-8b. The calculus prerequisite may be satisfied either by Mathematics 7 and 9 or by Mathematics 8a-8b.

Introductory Courses for Undergraduates

Physics 1a. General Physics.—*Prerequisite:* Credit in Math. 2 and 4; registration in Physics 3a.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	11	W	119 P.L.	SCHULZ
	Quiz A	11	TTS	108, 302 P.L.	and others
	Quiz B	2	MWF	306 P.L.	

Physics 3a. General Physics Laboratory.—*Prerequisite:* Physics 1a or registration therein.

2	A	2–5	Tu	403, 406 P.L.	SCHULZ
	B	1–4	Th	406 P.L.	and others

Physics 1b. General Physics.—*Prerequisite:* Math. 2, 4; Physics 1a; registration in Physics 3b.

3	Lect. A	11	M	100 P.L.	LOOMIS, KRUGER,
	Lect. B	1	M	100 P.L.	ALMY, and others
	Quiz A	8	MWF	305, 306, 403, 406 P.L.	
	Quiz B	9	MWF	305, 403, 406 P.L.	
	Quiz E	8	TTS	305, 306, 403 P.L.	
	Quiz H	11	TTS	305, 403, 406 P.L.	

[1]This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

Physics 3b. General Physics Laboratory.—*Prerequisite:* Physics 1b or registration therein.

Credit	Section	Hours	Days	Room	Instructor
2	B	2–5	M	302, 305 P.L.	KRUGER and others
	C	9–12	Tu	305, 403 P.L.	
	D	2–5	Tu	306, 305 P.L.	
	F	2–5	W	302, 305 P.L.	
	G	9–12	Th	305, 403 P.L.	
	H	1–4	Th	302, 305 P.L.	
	J	2–5	F	302 P.L.	
	K	9–12	S	302, 305 P.L.	

Physics 7b. General Physics.—*Prerequisite:* Physics 7a, and registration in Physics 8b.

3	Lect.	11	TT	100 P.L.	WATSON, PATON, and others
	Quiz A	8	WF	208 P.L.	
	Quiz B	9	WF	208, 302 P.L.	
	Quiz C	10	WF	208, 302 P.L.	
	Quiz D	11	WF	208, 302 P.L.	

Physics 8b. General Physics Laboratory.—*Prerequisite:* Physics 7b or registration therein.

2	A	9–12	M	208 P.L.	PATON and others
	B	1–4	M	208, 302 P.L.	
	D	2–5	Tu	208, 302 P.L.	
	H	1–4	Th	208 P.L.	
	J	1–4	F	208, 302 P.L.	

Intermediate Courses

Physics 15. Electricity and Magnetism.—*Prerequisite:* General physics.

3	Lect.	8	MW	204 P.L.	WILLIAMS
	Lab.	1–4	W	112 P.L.	

Physics 23. Sound.—*Prerequisite:* General physics.

3	Lect.	11	MWF	204 P.L.	WATSON

Physics 25. Architectural Acoustics.—*Prerequisite:* General Physics.

2	Lab.	9	MW	119 P.L.	WATSON

Courses for Advanced Undergraduates and Graduates

Physics 14b. Theoretical Mechanics.—*Prerequisite:* Physics 14a.

3	Quiz	9	TTS	306 P.L.	MOTT-SMITH

Physics 44b. Electric and Magnetic Measurements.—*Prerequisite:* Physics 44a.

3	A	8–11	MF	108 P.L.	KNIPP, WILLIAMS, and others
	B	1–4	MF	104, 108 P.L.	
	C	8–11	TT	104, 108 P.L.	
	D	1–4	TT	104, 108 P.L.	

Physics 51. Practical Optics.—*Prerequisite:* Physics 17 or 71a.

3	Lect.	9	TT	302 P.L.	SCHULZ
	Lab.	1–4	Th	313 P.L.	

Physics 60. Heat.—*Prerequisite:* General physics and calculus.

3	Lect.	8	TTS	208 P.L.	PATON

Physics 61. Heat Laboratory.—*Prerequisite:* Registration in Physics 60.

1	Lab.	2–5	Tu	213 P.L.	PATON

Physics 71b. Light.—*Prerequisite:* Physics 71a.

2	Lect.	11	TT	204 P.L.	ALMY

Physics 72b. Light Laboratory.—*Prerequisite:* Registration in Physics 71b.

2	Lab.	2–5	MW	313 P.L.	ALMY

Physics 80. Atomic Physics.—*Prerequisite:* General physics and calculus.

3	Lect.	9	TTS	204 P.L.	KRUGER

Physics 98. Thesis.—(3). Arrange. Professors in the department.

Courses for Graduates

Physics 122b. Dynamics.—(1 unit). 10 TTS; 302 P.L. Assistant Professor BARTLETT.

Physics 131a. Physical Laboratory Technique.—(½ or 1 unit).* Arrange. Professor KNIPP.

Physics 163. Statistical Mechanics.—(1 unit). 11 TTS; 306 P.L. Assistant Professor MOTT-SMITH.

Physics 170b. Light.—(1 to 2 units).* 11 TT, 204 P.L.; 2-5 MW, 313 P.L. Assistant Professor ALMY.

Physics 183b. Nuclear Structure.—(1 unit). 9 MWF; 204 P.L. Assistant Professor BARTLETT.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Physics 190. Research.—(1 to 3 units).* Arrange. Professors in the department.

Physics 198. Seminar.—(1 to 2 units).* Arrange. Professors in the department.

Physics 199. Physics Colloquium.—(No credit). 4:45 Th; 119 P.L. Assistant Professor MOTT-SMITH.

PHYSIOLOGY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $3.50.

Major: 20 hours from courses offered in the department, exclusive of Physiology 1.

Minors: 20 hours in not more than two of the following: bacteriology, botany, chemistry, entomology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Physiol. 1. Mammalian Physiology.—A survey of the field of mammalian physiology.

Credit	Section	Hours	Days	Room	Instructor
3[1]	[2]Lect. A	10	TT	228 N.H.	BURGE
	Quiz A1	3	M	425 N.H.	WICKWIRE
[1]Seniors will receive	Quiz A2	9	Tu	425 N.H.	
only 2 hours credit.	Quiz A3	1	Tu	425 N.H.	
[2]Students in Lect. A	Quiz A4	9	Th	425 N.H.	
must elect an A quiz.	[3]Lect. B	11	MW	228 N.H.	STEGGERDA
[3]Students in Lect. B	Quiz B1	8	M	425 N.H.	STEGGERDA
must elect a B quiz.	Quiz B2	10	T	425 N.H.	
	Quiz B3	8	W	425 N.H.	
	Quiz B4	10	Th	425 N.H.	

Physiol. 1a. Mammalian Physiology Laboratory.—*Prerequisite:* Physiology 1, or registration therein.

2	[1]Lab. A	10–12	MW	413 N.H.	JONES, KNEER
	Lab. B	1–3	MW	413 N.H.	
[1]Open for Home Econ.	Lab. C	10–12	TT	413 N.H.	
students only.	[1]Lab. D	2–4	TT	413 N.H.	

Physiol. 3b. Physiological Anatomy.—(For Physical Education students).

5[1]	Lect.	11	TT	228 N.H.	ELHARDT
	Lab. A	8–10	MW	405 N.H.	ORTH
[1]Seniors will receive	[2]Lab. B	10–12	MW	408 N.H.	NEILD
only 4 hours credit.	Lab. C	1–3	MW	405 N.H.	
	Lab. D	8–10	TT	408 N.H.	
[2]For women.	Lab. E	1–3	TT	405 N.H.	
	Quiz F	9	F	425 N.H.	ELHARDT
	Quiz G	10	F	425 N.H.	ORTH
	[2]Quiz H1	11	F	425 N.H.	NEILD
	Quiz H2	11	F	106 U.H.	ELHARDT
	Quiz I	2	F	425 N.H.	ORTH

Physiol. 5 (formerly 9). Physiology of the Special Senses and Nervous System.—(Recommended for the general student). *Prerequisite:* Physiology 1 or 3.

5	Lect.	10	MW	423 N.H.	WICKWIRE
	Quiz	10	F	423 N.H.	
	Lab. 4 hours per week.		Arrange.	415 N.H.	

Physiol. 8. Thesis.—*Prerequisite:* Senior standing and 15 hours of physiology. (3 to 5).* Time to be arranged before registration. Associate Professor BURGE.

Courses for Advanced Undergraduates and Graduates

Physiol. 7. Advanced Mammalian Physiology of Respiration, Digestion, and Endocrine Glands.—*Prerequisite:* Physiology 1 and 1a, one semester of general chemistry, or consent of instructor.

5	Lecture	9	TT	423 N.H.	STEGGERDA
	Quiz	11	F	423 N.H.	STEGGERDA
	Lab.	8–12	S	415 N.H.	

Courses for Graduates

Physiol. 101. Journal Club.—Review of literature. (¼ unit). Arrange. Members of the staff.

Physiol. 102. Research.—(1 to 2 units).* Arrange. Associate Professor BURGE.

Physiol. 103. Experimental Physiology.—(½ to 1 unit).* Arrange. Associate Professor BURGE and Dr. STEGGERDA.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

POLITICAL SCIENCE

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 44 or 62).

Minor: 20 hours selected from one or two of the following subjects: history, economics, law, sociology, philosophy, and education. At least eight hours must be offered in each subject, if two are chosen.

Courses 1a and 1b give a general survey of national, state, and local government in the United States. Undergraduates beginning the study of political science are advised to take, first, course 1a-1b, or 16, and those planning for advanced work should take course 1a and either 1b or 16 in their sophomore year.

Courses for Undergraduates

Pol. Sci. 1a. American Government.—*Prerequisite:* Sophomore standing; not open to those who have had Pol. Sci. 1 or 3.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	340 L.H.	
	B	9	MWF	340 L.H.	
	C	10	MWF	300 L.H.	Waltz
	E	1	MWF	300 L.H.	
	F	2	MWF	300 L.H.	

Pol. Sci. 1b. American Government.—(Continuation of Pol. Sci. 1a; may not be taken independently). *Prerequisite:* Sophomore standing and Pol. Sci. 1a.

3	A1	8	MWF	300 L.H.	Isakoff
	B1	9	MWF	300 L.H.	Berdahl
	B2	9	MWF	238 L.H.	Jobst
	C1	10	MWF	240 L.H.	Isakoff
	C2	10	MWF	238 L.H.	Jobst
	D1	11	MWF	240 L.H.	Isakoff
	D2	11	MWF	340 L.H.	Hyneman
	E1	1	MWF	240 L.H.	Snider
	F1	2	MWF	238 L.H.	Snider
	F2	2	MWF	204 L.H.	Jobst
	G	3	MWF	204 L.H.	Jobst
	K	9	TTS	238 L.H.	Isakoff

Pol. Sci. 36b. Thesis and Honors Course.—*Prerequisite:* Senior standing. (2 to 5).* Arrange. Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: Junior standing is required for admission to the following courses.

Pol. Sci. 6b. International Law.—(Continuation of 6a). *Prerequisite:* Open to seniors, graduate students, and law students of junior standing.

3	A	10	MWF	202 L.H.	Garner

Pol. Sci. 8. International Organization.—*Prerequisite:* Junior standing.

3	A	11	TT	304 L.H.	Berdahl

Pol. Sci. 9. Principles of Jurisprudence.—*Prerequisite:* Pol. Sci. 1, or 1a, or equivalent; junior standing.

3	A	9	MWF	204 L.H.	Fairlie

Pol. Sci. 11. The Constitution and Industrial Legislation.—*Prerequisite:* Senior standing, or junior standing with five hours of political science or of economics, or of both.

3	A	10	MWF	340 L.H.	Hyneman
	B	1	MWF	340 L.H.	Hyneman

Pol. Sci. 21. British Government.—*Prerequisite:* Graduate or senior standing, or junior standing with six hours of political science.

2 to 3*	A	2	TT	308 L.H.	Fairlie

Pol. Sci. 22. Continental European Governments.—*Prerequisite:* Graduate or senior standing, or junior standing with six hours of political science; History 32b and 34b recommended.

3	A	11	MWF	308 L.H.	Garner

Pol. Sci. 34. Municipal Problems.—*Prerequisite:* Open to graduate students and to undergraduate students who have had Pol. Sci. 4 or Economics 1, or who have senior standing.

3	Lect.	9	TT	L.H. Theatre	Kneier
	A Quiz	11	Th	305 L.H.	Kneier
	B Quiz	2	Th	304 L.H.	Kneier
	C Quiz	3	Th	304 L.H.	Kneier
	D Quiz	9	F	302 L.H.	Kneier
	E Quiz	10	F	227 L.H.	Kneier
	F Quiz	11	F	300 L.H.	Kneier
	G Quiz	1	F	304 L.H.	Kneier
	H Quiz	2	F	308 L.H.	Kneier

Courses for Graduates

Pol. Sci. 101. History of Political Theories.—(1 unit). Twice a week. Arrange. Professor Fairlie.

Pol. Sci. 103b. Seminar in Political Science and Public Law.—(1 to 2 units). Once a week. Arrange. Members of the department.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Pol. Sci. 104. Municipal Administration.—(1 unit). Twice a week. Arrange. Associate Professor KNEIER.

Pol. Sci. 106b. Special Topics in International Law.—(1 unit). Twice a week. Arrange. Professor GARNER.

Pol. Sci. 114. Political Parties.—(1 unit). Twice a week. Arrange. Professor BERDAHL.

Pol. Sci. 121. Problems in British Government.—(1 unit). Once a week. Arrange. Professor FAIRLIE.

PSYCHOLOGY

Note: Certain courses in this department require a laboratory fee of $1.

Major: 20 hours chosen from courses announced by the department, excepting Psych. 1. At least eight hours must be offered in the advanced group.

Minors: 20 hours chosen from not more than two of the following subjects: education, mathematics, philosophy, sociology, physiology, and zoology. At least eight hours must be offered in each, if two are chosen.

Courses for Undergraduates

Psych. 1. Introduction to Psychology.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
4	Lect. A	11	MW	218 U.H.	CULLER
	Quiz A1	8	TT	403 U.H.	
	Quiz A2	9	TT	403 U.H.	
	Quiz A3	10	TT	404 U.H.	
	Quiz A4	11	TT	403 U.H.	
	Quiz A5	1	TT	403 U.H.	
	Quiz A6	2	TT	403 U.H.	
	Lect. B	9	TT	218 U.H.	YOUNG
	Quiz B1	8	MW	403 U.H.	
	Quiz B2	9	MW	213 U.H.	
	Quiz B3	10	MW	213 U.H.	
	Quiz B4	11	MW	403 U.H.	
	Quiz B5	2	MW	403 U.H.	
	Quiz B6	3	MW	407 U.H.	
	Lect. C	2	TT	218 U.H.	RUCH
	Quiz C1	8	MW	404 U.H.	
	Quiz C2	9	MW	403 U.H.	
	Quiz C3	10	MW	403 U.H.	
	Quiz C4	11	MW	404 U.H.	
	Quiz C5	2	MW	407 U.H.	
	Quiz C6	3	MW	403 U.H.	

Psych. 2. General Psychology (Survey of the Fields of Psychology).—*Prerequisite:* Psych. 1 or junior standing.

4	Lect.	9	MW	410 U.H.	HIGGINSON and assistants
	Quiz A	9	TT	406 U.H.	
	Quiz B	10	TT	406 U.H.	
	Quiz C	11	TT	406 U.H.	
	Quiz D	1	TT	404 U.H.	
	Quiz E	2	TT	404 U.H.	

Psych. 3. Laboratory Practice (Elementary).—*Prerequisite:* Psych. 1.

2	Lab. A	10–12	MW	417, 418 U.H.	HIGGINSON and assistants
	Lab. B	10–12	TT	417, 418 U.H.	
	Lab. C	2–4	TT	417, 418 U.H.	

Psych. 13. Minor Problems (Advanced Laboratory).—*Prerequisite:* Psych. 3, and consent of instructor. (3). Arrange. Associate Professor HIGGINSON and Dr. SEARS.

Psych. 27b. Thesis and Honors Course.—(Primarily designed for major students and for candidates for honors). *Prerequisite:* Twelve hours of psychology, and consent of instructor. (2). Arrange; 402 U.H. Professor WOODROW.

Courses for Advanced Undergraduates and Graduates

Psych. 10. Mental and Physical Work (Industrial Psychology).—*Prerequisite:* Psych. 1 and junior standing.

2	A	11	TT	412 U.H.	RUCH

Psych. 14. Social Psychology.—*Prerequisite:* Psych. 1 and junior standing.

3	Lect.	9	MW	315 U.H.	MCALLISTER
	Quiz A	9	F	315 U.H.	MCALLISTER
	Quiz B	10	F	213 U.H.	MCALLISTER

Psych. 18. Perception.—*Prerequisite:* Six hours of psychology.

2	A	10	TT	412 U.H.	CULLER

Psych. 20. Systematic Psychology.—*Prerequisite:* Six hours of psychology and senior standing.

2	A	9	TT	412 U.H.	WOODROW

Psych. 23. Abnormal Psychology.—*Prerequisite:* Six hours of psychology.

3	Lect.	11	MW	410 U.H.	SEARS
	Quiz A	11	F	410 U.H.	SEARS
	Quiz B	10	F	403 U.H.	SEARS

Psych. 28. Psychology of Motivation.—*Prerequisite:* Six hours of psychology.

Credit	Section	Hours	Days	Room	Instructor
2	A	2	TT	211 U.H.	YOUNG

Courses for Graduates

Psych. 103b. Research.—(½ to 2 units).* Arrange. Professors WOODROW and YOUNG; Associate Professors CULLER and HIGGINSON.

Psych. 105b. Seminar.—(1 unit). Once a week. Arrange; 419 U.H. Professor WOODROW.

Psych. 108. Quantitative Methods.—(1 unit). Once a week. Arrange. Associate Professor CULLER.

RAILWAY ENGINEERING

Note: Certain courses in this department require a laboratory fee of $3.

Courses for Undergraduates

R.E. 4. Locomotives.—*Prerequisite:* R.E. 3; T.A.M. 2 and 3; registration in M.E. 64.

Credit	Section	Hours	Days	Room	Instructor
3	W	11	MWF	104 T.B.	SCHRADER

R.E. 7. Locomotive and Car Design.—*Prerequisite:* R.E. 2.

3	W	1–4	MWF	104 T.B.	SCHRADER

R.E. 8. Railway Laboratory.—*Prerequisite:* R.E. 5.

2	W	8–11	TT	104 T.B.	SCHRADER

R.E. 33. Economic Theory of Railway Location.—*Prerequisite:* C.E. 3; T.A.M. 2.

4	U	9 1–4	TTS Th	117 T.B. 117 T.B.	KING

R.E. 33a. Economic Theory of Railway Location.—*Prerequisite:* C.E. 3; T.A.M. 2 (An abridgment of course 33, for students in departments other than railway engineering.)

3	U	9	TTS	117 T.B.	KING

R.E. 36. Railway Maintenance.—*Prerequisite:* Registration in C.E. 3.

3	U	10 1–4	TT W	117 T.B. 117 T.B.	KING

R.E. 37. Railway Design Problems.—*Prerequisite:* Registration in C.E. 65.

2	U	11	TT	117 T.B.	KING

R.E. 51. Seminar.—Open to railway students only.

1	U	11	S	117 T.B.	KING

R.E. 60. Electric Railway Principles.—*Prerequisite:* R.E. 59.

2	V	9	TT	105 T.B.	TUTHILL

R.E. 61. Electric Traction.—*Prerequisite:* E.E. 11, 61 or 25, 75.

3	V	9	MWF	117 T.B.	TUTHILL

R.E. 67. Seminar.—Open to seniors in railway courses only.

1	V	10	Th	105 T.B.	SCHMIDT

R.E. 70. Electric Railway Design.—*Prerequisite:* R.E. 64; registration in R.E. 74.

2	V	1–3	MTuF	117 T.B.	TUTHILL

R.E. 74. Electric Railway Economics.—*Prerequisite:* R.E. 64.

3	V	11	MWF	117 T.B.	TUTHILL

R.E. 98. Thesis.—(3). Arrange.

Courses for Graduates

R.E. 102. Locomotive Design.—(1 unit). Arrange. Professor YOUNG.

R.E. 106. Locomotive Operation.—(1 unit). Arrange. Professor SCHMIDT.

R.E. 110. Railway Location.—(1 unit). Arrange. Professor KING.

ROMANCE LANGUAGES AND LITERATURE

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, and 6b, and including at least five hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), German, Greek, history, Italian, Latin, philosophy, Spanish, provided that at least eight hours be taken in any subject chosen.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, and 2a, and including at least five hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), French, German, Greek, history, Italian, Latin, philosophy, provided that at least eight hours be taken in any subject chosen.

A. FRENCH

Courses for Undergraduates

French 1a. Elementary Course.—For students who have no credit in French.

Credit	Section	Hours	Days	Room	Instructor
4[1]	A	8	TWTF	204 U.H.	Ralph
	B	9	TWTF	303 Adm.(E)	Bussard
[1]Seniors will receive only 3 hours credit.	C	10	TWTF	203 U.H.	Stuttle
	F1	2	MTWT	105 L.H.	Hilton
	F2	2	MTWT	139 L.H.	Klingner

French 1b. Elementary Course (continued).—*Prerequisite:* French 1a, or one year of high school French.

4[1]	A1	8	TWTF	208 U.H.	Giovanelli
	A2	8	TWTF	212 U.H.	Alexander
[1]Seniors will receive only 3 hours credit.	A3	8	TWTF	122 New Agr.	Stults
	A4	8	TWTF	139 L.H.	Edwards
	A5	8	TWTF	232 L.H.	Wallins
	B1	9	TWTF	118 New Agr.	Hill
	B2	9	TWTF	123 New Agr.	Goggin
	C1	10	TWTF	122 New Agr.	Carter
	C2	10	TWTF	106 U.H.	Stults
	D1	11	TWTF	122 New Agr.	Amiel
	D2	11	TWTF	116 New Agr.	Allen
	E1	1	MTWT	211 U.H.	Rowe
	E2	1	MTWT	212 U.H.	Alexander
	F	2	MTWT	212 U.H.	Alexander
	G	3	MTWT	214 U.H.	LaSage

French 2a. Modern French.—*Prerequisite:* French 1b, or two years of high school French.

4	A	8	TWTF	235 L.H.	Ramsey
	B	9	TWTF	122 New Agr.	Ramsey
	C	10	TWTF	123 New Agr.	Allen
	F	2	MTWT	214 U.H.	Rowe

French 2b. Modern French.—*Prerequisite:* French 2a, or three years of high school French.

4	[1]A1	8	TWTF	148 L.H.	Hilton
[1]Sections A1, B1, C1, D1, and E1 are primarily for students who expect to go beyond French 2b. More attention is paid to the speaking and hearing of French.	A2	8	TWTF	120 L.H.	Goggin
	A3	8	TWTF	116 New Agr.	Beadle
	[1]B1	9	TWTF	303a L.H.	Roche
	B2	9	TWTF	214 U.H.	Ralph
	[1]C1	10	TWTF	114 L.H.	Bussard
	C2	10	TWTF	116 New Agr.	Dismukes
	[1]D1	11	TWTF	123 New Agr.	Bussard
	D2	11	TWTF	127 New Agr.	Carter
	[1]E1	1	MTWT	207 U.H.	Pietrangeli
	E2	1	MTWT	122 New Agr.	Beadle
	F	2	MTWT	312 U.H.	Pietrangeli
	G	3	MTWT	139 L.H.	Amiel

French 3b. Introduction to French Literature.—*Prerequisite:* French 2b, or four years of high school French.

3	A	8	MWF	211 L.H.	Jacob
	B	9	MWF	224 L.H.	Will
	C	10	MWF	224 L.H.	Will
	D	11	MWF	334 L.H.	Gullette
(In French).....	E	1	MWF	128 L.H.	Roche
	F	2	MWF	303a L.H.	Jacob

French 6b. Second-Year Composition and Conversation.—*Prerequisite:* French 6a, or 2a, or three years of high school French.

2	K	9	TT	233 L.H.	Hilton
	N	1	TT	113 L.H.	Hilton

French 7b. Intermediate Composition and Conversation.—*Prerequisite:* French 7a. (*Note:* Prospective teachers of French are strongly advised to take French 7a and 7b.)

2	K	9	TT	300 L.H.	Amiel
	L	10	TT	211 L.H.	Roche
	M	11	TT	211 L.H.	Roche
	O	2	TT	227 L.H.	Amiel

French 8b. Advanced Composition and Conversation.—*Prerequisite:* French 8a.

2	O	2	TT	104 L.H.	Roche

French 28b. Senior Thesis.—For candidates for university honors in French. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in French have the following prerequisites: French 3b or the equivalent, and junior standing; or senior standing and consent of the instructor.

French 10b. Survey of French Literature.—

Credit	Section	Hours	Days	Room	Instructor
3	C	10	MWF	106 L.H.	JACOB

French 17b. French Drama of the Nineteenth Century.—

2	K	9	TT	224 L.H.	WILL
	N	1	TT	235 L.H.	HAMILTON

French 24b. French Drama of the Seventeenth and Eighteenth Centuries.—

3	B	9	MWF	114 L.H.	OLIVER

French 32b. French Novel of the Nineteenth Century.—

3	B	9	MWF	133 L.H.	JACOB

French 34b. Balzac et le roman social.—(In French).

2	M	11	TT	224 L.H.	MICHAUD

Courses for Graduates

French 101. Old French Literature.—(1 unit). 11 TT; 212 L.H. Professor OLIVER.

French 102. Villon, Rabelais, Montaigne, La Pléiade.—(1 unit). 4 TT; 425a Lib. Assistant Professor WILL.

French 103. Seventeenth Century Literature.—(1 unit). 9 TT; 219 L.H. Professor OLIVER.

French 133. Victor Hugo, His Influence and His Critics.—(1 unit). 3 MW; 238 L.H. Professor MICHAUD.

French 145. Doctrines Littéraires et Courants d'Idées Contemporains.—(In French). (1 unit). 3-5 F; 120 L.H. Professor MICHAUD.

French 195. Seminar.—Research work in special topics. (1 to 2 units).* Members of the department.

B. ITALIAN

Courses for Undergraduates

Italian 1b. Elementary Course (continued).—*Prerequisite:* Italian 1a.

4[1]	B	9	TWTF	206 L.H.	DISMUKES
[1]Seniors will receive only 3 hours credit.	C	10	TWTF	318 U.H.	PIETRANGELI

Italian 2b. Intermediate Italian.—*Prerequisite:* Italian 2a.

3	D	11	MWF	312 U.H.	PIETRANGELI

Course for Advanced Undergraduates and Graduates

Italian 3b. Dante: The Divine Comedy.—*Prerequisite:* Italian 3a; junior standing.

2	P	3	TT	214 L.H.	VAN HORNE

Courses for Graduates

Italian 143. Italian Literature in the Renaissance.—(1 unit). 1 TT; 214 L.H. Professor VAN HORNE.

Italian 195. Seminar.—Research work in special topics. (1 to 2 units).* Professor VAN HORNE.

C. SPANISH

Courses for Undergraduates

Spanish 1a. Elementary Course.—For students who have no credit in Spanish.

4[1]	A	8	TWTF	214 U.H.	FLORES
	B	9	TWTF	116 New Agr.	KIDDER
[1]Seniors will receive only 3 hours credit.	C	10	TWTF	208 U.H.	YOUNG
	D	11	TWTF	411 U.H.	HARTSOOK
	F	2	MTWT	142 L.H.	LODGE

Spanish 1b. Elementary Course (continued).—*Prerequisite:* Spanish 1a, or one year of high school Spanish.

4[1]	A1	8	TWTF	312 U.H.	YOUNG
	A2	8	TWTF	318 U.H.	HARTSOOK
[1]Seniors will receive only 3 hours credit.	B	9	TWTF	208 U.H.	YOUNG
	C1	10	TWTF	105 L.H.	UTLEY
	C2	10	TWTF	109 L.H.	GULLETTE
	D1	11	TWTF	208 U.H.	YOUNG
	D2	11	TWTF	204a L.H.	KIDDER
	E	1	MTWT	106 L.H.	LODGE
	F	2	MTWT	311 U.H.	KILER
	G	3	MTWT	211 L.H.	WILLIAMS
	H	4	MTWT	211 L.H.	BUTTERFIELD

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Spanish 2a. Modern Spanish.—*Prerequisite:* Spanish 1b, or two years of high school Spanish.

Credit	Section	Hours	Days	Room	Instructor
4	C	10	TWTF	148 L.H.	Bushart
	F	2	MTWT	232 L.H.	Adam

Spanish 2b. Modern Spanish.—*Prerequisite:* Spanish 2a, or three years of high school Spanish.

4	[1]A1	8	TWTF	240 L.H.	Bushart
	A2	8	TWTF	227 L.H.	Williams
[1]In Section A1, more attention is paid to the speaking and hearing of Spanish.	B	9	TWTF	311 L.H.	Utley
	C	10	TWTF	204 L.H.	Adam
	D	11	TWTF	233 L.H.	Hamilton
	E1	1	MTWT	204a L.H.	Utley
	E2	1	MTWT	120 L.H.	Butterfield
	F	2	MTWT	235 L.H.	Burner

Spanish 3b. Introduction to Spanish Literature.—*Prerequisite:* Spanish 2b, or four years of high school Spanish.

3	B	9	MWF	211 L.H.	Adam
	D	11	MWF	113 L.H.	Burner

Spanish 5b. Commercial Spanish.—*Prerequisite:* Spanish 5a.

2	K	9	TT	133 L.H.	Burner

Spanish 7b. Intermediate Composition and Conversation.—*Prerequisite:* Spanish 7a. (*Note:* Prospective teachers of Spanish are strongly advised to take Spanish 7a and 7b.)

2	B	9	MW	107 U.H.	Kiler
	L	10	TT	113 L.H.	Flores

Spanish 8b. Advanced Composition and Conversation.—*Prerequisite:* Spanish 8a.

2	M	11	TT	123 L.H.	Adam

Spanish 25. Methods of Teaching Spanish.—Discussion and laboratory work in phonetics. *Prerequisite:* 20 hours in Spanish, or 16 hours in Spanish plus 20 in French. Not open to students other than seniors except by permission of the instructor. *Note:* Spanish 25 is given only in second semester of the college year; French 25 only in the first semester. Laboratory fee, 50 cents.

3	F	2	MWF	310 U.H.	Gullette

Spanish 28b. Senior Thesis.—For candidates for university honors in Spanish. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in Spanish have the following prerequisites: Spanish 3b, or the equivalent, and junior standing; or senior standing and consent of instructor.

Spanish 10b. Survey of Spanish Literature.—

3	C	10	MWF	104 L.H.	Burner

Spanish 11b. Cervantes: Don Quijote.—

2	M	11	TT	114 L.H.	Van Horne

Spanish 17b. Modern Spanish Drama.—

2	L	10	TT	216 L.H.	Hamilton

Courses for Graduates

Spanish 130. Spanish Literature in the Sixteenth Century.—(1 unit). Arrange; 425a Lib. Professor Van Horne.

Spanish 137. Spanish Literary Criticism.—(1 unit). 9 TT; 216 L.H. Associate Professor Hamilton.

Spanish 185. Old Spanish Readings.—(1 unit). Arrange; 216 L.H. Associate Professor Hamilton.

Spanish 195. Seminar.—Research work in special topics. (1 to 2 units).* Members of the department.

SOCIOLOGY

Major: 20 hours from any courses in the department.

Minors: 20 hours from one or two of the following subjects: history, philosophy, psychology, economics, political science. At least eight hours must be offered in either minor subject, if two are chosen.

Courses for Undergraduates

Sociol. 1. Principles of Sociology.—*Prerequisite:* Junior standing, or sophomore standing with a course in either economics or psychology or history.

Credit	Section	Hours	Days	Room	Instructor
3	Lect. 1	9	MW	303 L.H.	Hiller
	Lect. 2	9	TT	303 L.H.	Hiller
	Lect. 3	11	TT	303 L.H.	Hiller
	Quiz A	1	M	306 L.H.	Houghton
	Quiz B	2	M	306 L.H.	Houghton
	Quiz C	10	Tu	326 L.H.	Birky
	Quiz D	1	Tu	306 L.H.	Tylor
	Quiz E	2	Tu	306 L.H.	Houghton
	Quiz F	3	Tu	306 L.H.	Houghton
	Quiz G	10	W	305 L.H.	Tylor

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Sociol. 1. Principles of Sociology (concluded)

Credit	Section	Hours	Days	Room	Instructor
3	Quiz H	11	W	303 L.H.	Birky
	Quiz J	8	Th	306 L.H.	Houghton
	Quiz K	10	Th	306 L.H.	Houghton
	Quiz L	1	Th	326 L.H.	Birky
	Quiz M	8	F	306 L.H.	Hiller
	Quiz N	10	F	326 L.H.	Hiller
	Quiz O	2	F	306 L.H.	Birky

Sociol. 2. Social Factors in Personality.—*Prerequisite:* Sociol. 1.

3	A	8	MWF	202 L.H.	Ahrens
	B	9	MWF	326 L.H.	Ahrens

Sociol. 90b. Honors Course.—For senior majors in sociology. Consent of instructor required.

2	To be arranged	Members of the department

Courses for Advanced Undergraduates and Graduates

Sociol. 3. Social Evolution.—*Prerequisite:* Sociol. 1 and junior standing.

3	A	11	MWF	326 L.H.	Ahrens

Sociol. 5. The Family.—*Prerequisite:* Sociol. 1 and junior standing.

3	A	10	MWF	304 L.H.	Timmons

Sociol. 6. Urban Sociology.—*Prerequisite:* Sociol. 1 and junior standing.

3	A	8	MWF	334 L.H.	Tylor

Sociol. 7. Rural Sociology.—*Prerequisite:* Sociol. 1 and junior standing.

3	Lect.	8	TT	304 L.H.	Tylor
	Quiz A	1	Th	334 L.H.	Tylor
	Quiz B	11	F	302 L.H.	Tylor

Sociol. 8. Charities.—*Prerequisite:* Sociol. 1 and junior standing.

3	Lect.	10	TT	303 L.H.	Timmons
	Quiz A	11	Th	326 L.H.	Timmons
	Quiz B	2	Th	326 L.H.	Timmons
	Quiz C	1	F	326 L.H.	Timmons

Sociol. 9. Criminology.—*Prerequisite:* Sociol 2 or senior standing. Open to pre-legal juniors by consent of instructor.

3	A	9	MWF	334 L.H.	Taft
	B	2	MWF	334 L.H.	Taft

Sociol. 20. Social Progress and Social Values.—*Prerequisite:* Sociol. 1 and junior standing.

3	A	10	MWF	334 L.H.	Odum

Sociol. 24. Penology.—*Prerequisite:* Sociol. 9.

3	A	1	MWF	334 L.H.	Taft

Sociol. 27. Community Welfare Organization.—*Prerequisite:* Fourteen credit hours in the Department of Sociology.

3	A	9	MWF	240 L.H.	Timmons

Sociol. 28. Immigration and Assimilation.—*Prerequisite:* Five hours of sociology.

3	A	11	MWF	306 L.H.	Hiller

Courses for Graduates

Sociol. 109. Research in Criminology.—(1 unit). Twice a week. Arrange; 330 L.H. Professor Taft.

Sociol. 121. Folk Sociology.—(1 unit). Twice a week. Arrange; 332 L.H. Professor Odum.

Sociol. 122. Regional Problems and Planning.—(1 unit). Twice a week. Arrange; 332 L.H. Professor Odum.

Sociol. 150. Seminar.—Preparation of theses. (½ to 3 units).* Arrange. Members of the department.

THEORETICAL AND APPLIED MECHANICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $2.50.

Courses for Undergraduates

T.A.M. 1. Analytical Mechanics (Statics).—*Prerequisite:* Math. 7; registration in Math. 9.

Credit	Section	Hours	Days	Room	Instructor
2	B	8	TT	313 M.T.L.	
	Ch1	8	TT	316 M.T.L.	
	E	8	TT	202 E.H.	
	X	8	TT	105 E.H.	
	M	9	TT	310 M.T.L.	
	F	9	TT	316 M.T.L.	
	Q	9	TT	313 M.T.L.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

T.A.M. 1. Analytical Mechanics (Statics) (concluded)

Credit	Section	Hours	Days	Room	Instructor
2	R	9	TT	202 E.H.	
	N	10	TT	310 M.T.L.	
	S	10	TT	313 M.T.L.	
	J	11	TT	313 M.T.L.	
	Ch2	1	TT	305 M.T.L.	
	G	1	TT	310 M.T.L.	
	K	1	TT	313 M.T.L.	
	P	1	TT	202 E.H.	
	L	2	TT	305 M.T.L.	

T.A.M. 2. Analytical Mechanics (Dynamics).—*Prerequisite:* T.A.M. 1.

3	B	9	MWF	202 E.H.	
	Y	11	MWF	202 E.H.	
	Z	4	MWF	202 E.H.	

T.A.M. 3. Resistance of Materials.—*Prerequisite:* T.A.M. 1.

3	Y	9	MWF	310 M.T.L.	
	N	10	MWF	305 M.T.L.	
	K	11	MWF	305 M.T.L.	
	L	1	MWF	305 M.T.L.	
	M	1	MWF	310 M.T.L.	

T.A.M. 4. Hydraulics.—*Prerequisite:* T.A.M. 1 and registration in T.A.M. 2.

2	E	8	TT	305 M.T.L.	
	J	8	TT	310 M.T.L.	
	F	9	TT	305 M.T.L.	
	G	10	TT	305 M.T.L.	
	O	11	TT	305 M.T.L.	

T.A.M. 18. Strength of Materials.—*Prerequisite:* T.A.M. 17.

3	A	8	WF	305 M.T.L.	
		8–10	M	305 M.T.L.	

T.A.M. 63. Resistance of Materials Laboratory.—*Prerequisite:* Registration in T.A.M. 3.

1	X	8–10	M	223 M.T.L.	
	L	3–5	M	223 M.T.L.	
	N	1–3	Tu	223 M.T.L.	
	K	3–5	Tu	223 M.T.L.	
	Z	10–12	W	223 M.T.L.	
	M	3–5	W	223 M.T.L.	
	Y	3–5	Th	223 M.T.L.	

T.A.M. 64. Hydraulics Laboratory.—*Prerequisite:* Registration in T.A.M. 4.

1	J	1–3	M	M.T.L.	
	O	3–5	Tu	M.T.L.	
	F	3–5	W	M.T.L.	
	E	1–3	Th	M.T.L.	
	G	8–10	F	M.T.L.	

Courses for Advanced Undergraduates and Graduates

T.A.M. 42. Properties of Engineering Materials: Specifications and Inspection.—*Prerequisite:* T.A.M. 3 and 63. (3). Arrange. Professor SEELY and Mr. DOLAN.

T.A.M. 43. Laboratory Work in Hydraulics.—*Prerequisite:* T.A.M. 4 and 64. (3). Twice a week. Arrange. Professor ENGER and Mr. LANSFORD.

T.A.M. 44. Laboratory Work in Testing Materials.—*Prerequisite:* T.A.M. 3 and 63. (3 semester hours or ½ to 1 unit).* Arrange. Professor MOORE and Professor PUTNAM.

Courses for Graduates

T.A.M. 101. The Development of Basic Ideas in Mechanics.—(1 unit). Twice a week. Arrange. Professor MOORE.

T.A.M. 103. Hydraulics.—(1 unit). Twice a week. Arrange. Professor ENGER.

T.A.M. 107. Laboratory Investigations in Strength of Materials.—(1 to 2 units).* Twice a week. Arrange. Professor MOORE.

T.A.M. 108. Laboratory Investigations in Hydraulics.—(1 to 2 units).* Twice a week. Arrange. Professor ENGER.

T.A.M. 109. Laboratory Investigations in Plain and Reinforced Concrete.—(1 to 2 units).* Twice a week. Arrange. Professor RICHART.

T.A.M. 111. Analytical Study of Experimental Work on Reinforced Concrete: Columns and Slabs.—(1 unit). Twice a week. Arrange. Professor RICHART.

T.A.M. 113. Graphical and Approximate Methods of Structural Analysis.—(½ unit). Twice a week. Arrange. Professor WESTERGAARD.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

T.A.M. 115. Theory of Elasticity with Application to Engineering Problems.—(Continuation of T.A.M. 114). (1 unit). 9 TT. Professor WESTERGAARD.

T.A.M. 117. The Properties of Engineering Materials.—(1 unit). Three times a week. Arrange. Professor SEELY.

ZOOLOGY

Note: Certain courses in this department require laboratory fees varying from $1 to $4.50.

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: animal husbandry, bacteriology, botany, chemistry, entomology, geology, physics, physiology, psychology. At least eight hours must be offered in each subject, if two are chosen.

Note: Credit for seniors who take Zoology 1 or 2 will be reduced one hour.

Courses for Undergraduates

Zool. 1. General Zoology.—

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	9	MWF	228 N.H.	THOMAS, KUDO, LUCE, BROWN, and assistants
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	TTS	310 N.H.	
	B Lab. & Quiz	8–10	TTS	312 N.H.	
	D Lab. & Quiz	10–12	MWF	310 N.H.	
	E Lab. & Quiz	10–12	MWF	312 N.H.	
	G Lab. & Quiz	1–3	MWF	310 N.H.	
	H Lab. & Quiz	1–3	MWF	312 N.H.	
	K Lab. & Quiz	1–4	TT	310 N.H.	
	L Lab. & Quiz	1–4	TT	312 N.H.	

Zool. 2. Vertebrate Zoology and Comparative Anatomy.—*Prerequisite:* Zool. 1.

5[1]	Lect.	10	MWF	228 N.H.	ADAMS, HALL, and assistants
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	MWF	330 N.H.	
	B Lab. & Quiz	8–10	MWF	314 N.H.	
	C Lab. & Quiz	10–12	TTS	330 N.H.	
	D Lab. & Quiz	8–10	TTS	330 N.H.	
	E Lab. & Quiz	1–3	MWF	330 N.H.	
	F Lab. & Quiz	1–3	MWF	314 N.H.	
	G Lab. & Quiz	1–4	TT	330 N.H.	
	H Lab. & Quiz	1–4	TT	314 N.H.	

Zool. 3. Vertebrate Embryology.—*Prerequisite:* Zool. 1 and 2.

5	Lect.	1	TT	228 N.H.	SHUMWAY, ADAMSTONE, and assistants
	A Lab.	8–10	MWF	323 N.H.	
[1]Lab. section D and quiz section 4 will not be opened until others are filled.	B Lab.	10–12	MWF	323 N.H.	
	C Lab.	1–3	MWF	323 N.H.	
	[1]D Lab.	3–5	MWF	323 N.H.	
	1 Quiz	8	Tu	423 N.H.	
	2 Quiz	10	Th	247 N.H.	
	3 Quiz	2	Tu	229 N.H.	
	[1]4 Quiz	2	Th	229 N.H.	

Zool. 4. Invertebrate Zoology.—*Prerequisite:* Zool. 1 and sophomore standing.

3	Lect. or Quiz	3	TT	229 N.H.	VAN CLEAVE and assistant
	A Lab.	10–12	TT	420 N.H.	
	B Lab.	1–3	TT	420 N.H.	

Zool. 5. Heredity.—*Prerequisite:* Sophomore standing. Credit may not be received in both Zool. 5 and Zool 15.

3	Lect.	9	MW	229 N.H.	ZELENY, LUCE, and assistant
	A Quiz	8	F	423 N.H.	
	B Quiz	9	F	423 N.H.	
	C Quiz	9	Th	247 N.H.	

Zool. 6. Vertebrate Histology.—*Prerequisite:* Zool. 3.

3	Lect.	2	Th	323 N.H.	ADAMSTONE
	Lab.	3–5	TT	323 N.H.	

Zool. 10. Field Ecology and Ornithology.—Study in forests, streams, and lakes in the vicinity of Reelfoot Lake, Tenn. Covering Easter vacation. Expenses about $23. *Prerequisite:* Registration in Zool. 9 or 16 or their equivalent, and sophomore standing. (1). Professor SHELFORD, Mr. TWOMEY.

Zool. 16. Bird Study.—*Prerequisite:* Sophomore standing.

2	Lect.	2	TT	228 N.H.	TWOMEY and assistant

Field Study second half of the semester: Four hours to be arranged each week from 5:30 to 7:30 a.m. TT; 4:00 to 6:00 p.m. MF; or occasionally Saturdays. The lectures on Tuesday will be discontinued after mid-semester.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates

Zool. 8b. Thesis Investigation.—*Prerequisite:* Two years of zoology.

Credit	Section	Hours	Days	Room	Instructor
3 to 5*	To be arranged				Members of the department

Zool. 9. Animal Ecology.—*Prerequisite:* One year of zoology and junior standing.

3 to 4*[1]	Lect.	9	TT	229 N.H.	SHELFORD
[1]For 4 hours credit, additional field work is assigned.	Lab.	9–11	S	202 Exp.Zool.Lab. (1st half semester)	
	Field	9–12	S and two or three all-day trips (2d half semester)		

Courses for Advanced Undergraduates and Graduates

Zool. 19b. Vertebrate Ecology.—*Prerequisite:* Zool. 1 and 2. (Zool. 9 or registration therein also recommended.)

2 or 3*	Lect.	11	TT	202 Exp.Zool.Lab.	TWOMEY and SHELFORD
	Lab. and Field	To be arranged			

Zool. 20b. Current Investigation.—Required of all graduate students majoring in zoology; may be elected by seniors majoring in zoology with consent of instructor.

1	A	3	F	425 N.H.	Members of the department

Zool. 21b. Introduction to Zoological Research.—*Prerequisite:* One year in zoology courses; senior standing.

2 to 5*		To be arranged			Members of the department

Zool. 23. Comparative Anatomy of Vertebrates.—*Prerequisite:* Zool. 3 and 22.

2 to 4*	Lect.	4	Tu	419 N.H.	ADAMS
	Lab.	1–5	TT	419 N.H.	

Zool. 25. Experimental Genetics.—*Prerequisite:* Zool. 1 and Zool. 5 (may be taken concurrently) and junior standing.

3 to 5*	Lab.	1–3	MWF	418 N.H.	LUCE

Zool. 31. Helminthology.—*Prerequisite:* Zool. 1 and 2 and junior standing.

2	A	3–5	MW	418 N.H.	THOMAS

Zool. 66. Vertebrate Organogeny.—*Prerequisite:* Zoology 3 or 63.

2 to 5*	A	10	MW	326 N.H.	SHUMWAY
		Other hours to be arranged			

Zool. 74. Advanced Invertebrate Zoology.—*Prerequisite:* Zool. 4 or its equivalent, and junior standing.

3 to 5*		Arrange		420 N.H.	VAN CLEAVE

Courses for Graduates

Students entering on graduate study in the department of zoology should have had two years of undergraduate work in the subject. When chosen as a minor the courses listed for graduates and advanced undergraduates must be preceded by at least one full year of undergraduate work in zoology. Work done at other institutions will be evaluated on conference with the head of the department.

Zool. 106. General Embryology.—Problems of development. (1 unit). 2 MW; 432 N.H. Professor SHUMWAY.

Zool. 110. Climatic Ecology.—(½ to 1 unit).* 4 WF; 202 Exp. Zool. Lab.

Zool. 111. Experimental and Field Ecology.—(½ to 2 units).* Arrange. Professor SHELFORD.

Zool. 115. Factors of Individual and Racial Development.—(1 unit). 3 MW; 340 N.H. Professor ZELENY.

Zool. 117. Invertebrate Taxonomy.—(½ to 1 unit).* Arrange; 420 N.H. Professor VAN CLEAVE.

Zool. 118. Advanced Protozoology.—(1 unit). 1–4 TT; 418 N.H. Assistant Professor KUDO.

Individual Research Courses

Zool. 121. Invertebrate Zoology and Parasitology.—(1 to 2 units).* Arrange. Professor VAN CLEAVE, Assistant Professor THOMAS.

Zool. 122. Vertebrate Morphology.—(1 to 2 units).* Arrange. Associate Professor ADAMS.

Zool. 124. Experimental Zoology and Genetics.—(1 to 2 units).* Arrange. Professor ZELENY.

Zool. 125. Animal Ecology and Behavior.—(1 to 2 units).* Arrange. Professor SHELFORD.

Zool. 126. Vertebrate Embryology and Cytology.—(1 to 2 units).* Arrange; 432 N.H. Professor SHUMWAY.

Zool. 128. Protozoology.—(1 to 2 units).* Arrange. Assistant Professor KUDO.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

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UNIVERSITY OF ILLINOIS BULLETIN

Vol. XXXIV September 1, 1936 No. 1

TIME TABLE

FIRST SEMESTER
1936-1937

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UNIVERSITY OF ILLINOIS

This Time Table is issued early, for the convenience of faculty members and students. Preserve your copy for use during the period of registration, as there will not be a supply for general distribution at that time.

[Published Twice a Week by The University of Illinois. Entered as second-class matter December 11, 1912, at the post office at Urbana, Illinois, under the Act of August 24, 1912. Acceptance for mailing at the special rate of postage provided for in section 1103, Act of October 3, 1917, authorized July 31, 1918.]

REGISTRATION CALENDAR

1936-37

FIRST SEMESTER

1936

Sept. 9-12, Wed.-Sat. . . . . Entrance examinations (get programs and permits at the Registrar's Office).
Sept. 17, Thurs., 7:30 P.M. . . . . Freshman Welcome.
Sept. 18, Fri., 8 A.M. . . . . Meetings for freshman groups with advisers.
Sept. 18, Fri., 9 A.M. . . . . Placement test in rhetoric.
Sept. 18, Fri., 1 P.M. . . . . Meetings for freshman groups with advisers.
Sept. 18, Fri., 7:30 P.M. . . . . Student night meeting.
Sept. 18-19, Fri.-Sat. . . . . Registration for graduate students.
Sept. 19, Sat., 8 A.M.-5 P.M. . . . . Registration for freshmen.
Sept. 21-22, Mon.-Tues. . . . . Registration for upperclassmen.
Sept. 21, Mon., 1:30 P.M. . . . . Hygiene examination.
Sept. 22, Tues., 8 A.M. . . . . Talks for freshmen by Dean of Men and Dean of Women.
Sept. 23, Wed., 8 A.M. . . . . Instruction begun.
Sept. 28, Mon., 12 M. . . . . Latest date for change of study-lists without fee.
Oct. 3, Sat., 12 M. . . . . Latest date for rebates in full.
Oct. 27, Tues. . . . . Latest date for announcement of subjects for theses.
Nov. 5-7, Thurs.-Sat. . . . . High School Conference.
Nov. 21, Sat., 12 M. . . . . Latest date for rebates of one-half fees, and latest date for seniors graduating in February to make substitutions in courses or to remove failures of the last semester or the summer session.
Nov. 25, Wed., 12 M. . . . . Thanksgiving recess begun.
Nov. 30, Mon., 1 P.M. . . . . Instruction resumed.
Dec. 23, Wed., 12 M. . . . . Holiday recess begun.

1937

Jan. 4, Mon., 8 A.M. . . . . Instruction resumed.
Jan. 15, Fri. . . . . Latest date for special examinations.
Jan. 26, Tues. . . . . Semester examinations begun.
Feb. 3., Wed. . . . . Semester examinations ended.

SECOND SEMESTER

Feb. 3-6, Wed.-Sat. . . . . Entrance examinations (get programs and permits at the Registrar's Office).
Feb. 5-6, Fri.-Sat. . . . . Registration for graduate students.
Feb. 8-9, Mon.-Tues. . . . . Registration for undergraduate students.
Feb. 10, Wed., 8 A.M. . . . . Instruction begun.
Feb. 15, Mon. . . . . Earliest date for special examinations.
Feb. 15, Mon., 12 M. . . . . Latest date for change of study-lists without fee.
Feb. 20, Sat., 12 M. . . . . Latest date for rebates in full.
Mar. 25, Thurs., 12 M. . . . . Easter recess begun.
Mar. 30, Tues., 1 P.M. . . . . Instruction resumed.
April 10, Sat., 12 M. . . . . Latest date for rebates of one-half fees, and latest date for seniors to make substitutions in courses or to remove failures of the first semester.
April 30, Fri., 10 A.M. . . . . Honors day convocation.
May 17, Mon. . . . . Latest date for special examinations.
May 27, Thurs. . . . . Military day.
May 28, Fri. . . . . Semester examinations begun.
June 7, Mon. . . . . Semester examinations ended.
June 14, Mon. . . . . Sixty-sixth Annual Commencement.

SUMMER SESSION, 1937

June 21, Mon. . . . . Registration day.

KEY TO NAMES OF DEPARTMENTS AND DIVISIONS

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EXPLANATION OF LISTING OF COURSES

The arrangement of subjects in the following Time Table is alphabetical by names of departments. The connections of allied departments and divisions are indicated by cross references. (See page 3 for key to names of departments and divisions.)

The courses offered by each department or division are listed, in numerical order, in groups with headings that indicate the students for whom they are designed. Groups of general, elementary, and introductory courses are listed as "Courses for Undergraduates." Intermediate and advanced groups are listed as "Courses for Advanced Undergraduates and Graduates." Courses with numbers beginning at 100 are listed as "Courses for Graduates" and are not open to undergraduates.

Following the title of each course of instruction will be found the requirements, if any, for admission to that particular course. The sequence indicated by these prerequisites must be followed. For example, on page 12, in Art 35a-35b, Commercial Art, the prerequisites given are Art 28 and Architecture 72; these two courses must be completed before Art 35a-35b may be taken.

If a course not required for graduation is selected by fewer than five students it may be withdrawn for the semester.

Credit

Credit for undergraduate students is reckoned in *semester hours,* or simply *hours.* An *hour* is one class period a week for one semester or the equivalent in laboratory, shop, or drafting room. The number of hours for which each course counts is shown in parentheses in the description of the course, thus, (2), except where the credits, sections, etc., are tabulated.

Credit for first-year graduate students, candidates for the master's degree, is counted in *units.* A *unit* course is one which requires ten hours of time per week through one semester, irrespective of the distribution of that time in class work, laboratory work, and private study. Four such courses or their equivalent constitute a full minimum program for one semester. The unit values of graduate courses (numbered 100 and upwards) are indicated in parentheses following the titles of these courses. Courses of the intermediate groups "for graduates and advanced undergraduates" generally are evaluated for graduate credit as follows: (a) courses open only to students having at least senior standing, 1 unit for a 4-hour or a 5-hour course, ½ unit for a 1-hour, 2-hour, or 3-hour course; (b) courses open to juniors, ½ unit for a 4-hour or 5-hour course, ¼ unit for a 1-hour, 2-hour, or 3-hour course.

Buildings

University buildings are designated by the following abbreviations:

Administration Building (East)	Adm.(E)
Agriculture Building (Old)	Agr.
Agricultural Engineering Building	Agr.Eng.
Animal Pathology Laboratory	An.Path.L.
Architecture Building	Arch.
Armory	Arm.
Ceramics Building	Cer.
Chemistry Annex	Chem.A.
Chemistry Building	Chem.
Civil Engineering Surveying Building	C.E.S.B.
Commerce Building	Com.
Dairy Manufactures Building	D.Mfrs.
Electrical Engineering Annex	E.E.A.
Electrical Engineering Laboratory	E.E.L.
Engineering Hall	E.H.
Entomology Building	Entom.
Floriculture Greenhouses	F.G.
Genetics Building	Gen.Bldg.
Highway Laboratory	H.L.
Horticultural Field Laboratory	H.F.L.
Law Building	Law
Library	Lib.
Lincoln Hall	L.H.
Materials Testing Laboratory	M.T.L.
Mathematics Building	Math.
Mechanical Engineering Laboratory	M.E.L.
Men's New Gymnasium	New Gym.
Men's Old Gymnasium	Old Gym.
Mining Engineering Laboratory	Min.L.
Natural History Building	N.H.
New Agriculture Building	New Agr.
Physics Laboratory	P.L.
Smith Memorial Music Hall	S.M.H.
Stock Judging Pavilion	S.P.
Transportation Building	T.B.
University Hall	U.H.
University High School	U.H.S.
Vegetable Greenhouse	V.G.
Woman's Building	W.B.
Woman's Gymnasium	W.Gym.

AGRICULTURAL ADMINISTRATION

Courses for Undergraduates

Agr. Adm. 1. Agricultural and Home Economics Writing.—(Same as Journalism 24). Farm and home news, features, and radio. Open to students in agriculture, home economics, and journalism. *Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	D	11	MWF	302 Old Agr.	KEILHOLZ

AGRICULTURAL ECONOMICS

Courses for Undergraduates

Agr. Econ. 1. Introductory Agricultural Economics.—(Laboratory fee, 50 cents).

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	3	W	103 New Agr.	ROSS
	A	10	MW	313 New Agr.	ROSS
[1]No credit for juniors and seniors.	B	1	MF	313 New Agr.	GREEN
	C1	3	MF	313 New Agr.	ROSS
	C2	3	MF	316 New Agr.	ACKERMAN
	D	10	TT	313 New Agr.	ROSS
	E	11	TT	313 New Agr.	ACKERMAN
	F	2	TT	313 New Agr.	ROSS
	G	11	WF	313 New Agr.	ACKERMAN

Agr. Econ. 20. Farm Management.—*Prerequisite:* Sophomore standing. Local field trips will be arranged; estimated cost, $2.

3	Lect. and Disc.	10	TT	316 New Agr.	CASE
	S Lab.	1–3	Th	331 New Agr.	WILCOX
	T Lab.	1–3	F	331 New Agr.	WILLS

Agr. Econ. 30. Marketing of Agricultural Products.—*Prerequisite:* Sophomore standing.

3	Lect.	10	M	316 New Agr.	JORDAN and NORTON
	A Quiz	10	WF	316 New Agr.	
	B Quiz	9	WF	313 New Agr.	

Agr. Econ. 40a. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. (5). Arrange. Work may be taken in the following subjects:

Agricultural Marketing.—Members of the department.
Agricultural Prices and Statistics.—Associate Professor WORKING.
Farm Management.—Professor CASE.
Land Economics.—Professor STEWART.

Agr. Econ. 41. Problems in Agricultural Economics.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Arrange. Work may be taken in the following subjects:

Agricultural Marketing.—Members of the department.
Agricultural Prices and Statistics.—Associate Professor WORKING.
Farm Management.—Professor CASE.
Land Economics.—Professor STEWART.

Courses for Advanced Undergraduates and Graduates

Agr. Econ. 10. Economic Relationships of Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing

3	A	11	MWF	316 New Agr.	STEWART

Agr. Econ. 22. Types and Systems of Farming.—*Prerequisite:* Agr. Econ. 20. Field trips will be arranged; estimated cost, $3.

3	Lect. and Quiz	8	MWF	316 New Agr.	WILCOX

Agr. Econ. 24. Farm Operation.—*Prerequisite:* Agr. Econ. 20; junior standing. Local field trips will be arranged; estimated cost, $3.

2	A	11	TT	316 New Agr.	WILLS

Agr. Econ. 26. Farm Administration.—*Prerequisite:* Agr. Econ. 20; senior standing. Field trips will be arranged; estimated cost, $3.

2	A	9	TT	316 New Agr.	CASE and ACKERMAN

Agr. Econ. 36. Marketing Horticultural Products.—*Prerequisite:* Econ. 1 or 2; Agr. Econ. 30; senior standing. Inspection trip required; estimated cost, $12.

3	A	3	MWF	203 V.G.	LLOYD

Courses for Graduates

Agr. Econ. 109. Seminar. Thesis Course.—All graduate students whose major is Agricultural Economics must register in Agr. Econ. 109, but only those students writing theses acceptable for the degree of Master of Science will be given credit. (1 to 2 units).* Once a week. Arrange. Members of the department.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Agr. Econ. 110. Theory of Agricultural Economics.—(1 unit). Arrange. Professor STEWART.

Agr. Econ. 111. Agricultural Prices and Statistics.—(1 unit). Arrange. Associate Professor WORKING.

Agr. Econ. 112. Agricultural Economics Research.—(1 to 2 units).* Credit is conditional on completion of acceptable report of investigation. Arrange. Members of the department.

Agr. Econ. 120. Farm Management Principles and Investigational Methods.—(1 unit). Twice a week. Arrange. Professor CASE.

Agr. Econ. 135. Marketing Fruits and Vegetables.—(1 to 2 units).* Arrange. Professor LLOYD.

AGRICULTURAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.00 to $8.00.

Courses for Undergraduates

Agr. Eng. 1. Introduction to Agricultural Engineering.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	9	MF	201 Agr. Eng.	YOUNG
	A1 Disc.	8	M	201 Agr. Eng.	HANSEN
[1]Seniors will receive only 2 hours credit.	J Disc.	8	Tu	205 Agr. Eng.	
	K Disc.	9	Tu	205 Agr. Eng.	
	A2 Disc.	8	F	201 Agr. Eng.	
	A Lab.	8–10	W		
	J Lab.	8–10	Th		
	N1 Lab.	1–3	Tu		
	N2 Lab.	1–3	Th		

Agr. Eng. 2. Field and Power-Driven Machinery.—*Prerequisite:* Agr. Eng. 1.

3	Lect.	9	TT	201 Agr. Eng.	SHAWL
	J Quiz	8	Tu	201 Agr. Eng.	
	A Quiz	8	W	201 Agr. Eng.	
	N Lab.	2–4	Th		
	A Lab.	8–10	F		

Agr. Eng. 5. Drainage and Surveying.—*Prerequisite:* Sophomore standing.

3	Lect.	1	M	205 Agr. Eng.	LEHMANN
	Quiz	1	W	205 Agr. Eng.	
	Lab.	1–4	F		

Agr. Eng. 20. Farm Concrete Construction.—*Prerequisite:* Agr. Eng. 1.

2	Lect.	3	Tu	205 Agr. Eng.	FOSTER
	P Lab.	3–5	Th		
	J Lab.	8–10	S		

Courses for Advanced Undergraduates

Agr. Eng. 18a. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. (5). Arrange. Professor LEHMANN, Assistant Professor SHAWL.

Agr. Eng. 28. Advanced Gas Engines and Tractors.—*Prerequisite:* Agr. Eng. 3; consent of the instructor.

3	Lab.	2–5	MW	201 Agr. Eng.	SHAWL
	Lect.	Arrange		201 Agr. Eng.	

Agr. Eng. 51. Special Problems.—*Prerequisite:* Senior standing; approval of the head of the department. (3). Arrange. Members of the department.

AGRONOMY

Note: Certain courses in this department require laboratory fees varying from $2.00 to $4.00.

Agron. 18a. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. (5). Arrange. Work may be taken in either of the following subjects:

Soils.—Professors BAUER, DETURK, R. S. SMITH; Associate Professor SEARS.

Crops.—Professors BURLISON, WOODWORTH, DUNGAN.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Agron. 25. Farm Crops.—

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	2	MW	103 New Agr.	PIEPER, BONNETT, and MUMM
	Lab. A	1–3	Tu	600 Agr.	
	Lab. B	1–3	Th	600 Agr.	
	Quiz F1	2	F	116 New Agr.	
	Quiz F2	2	F	302 Agr.	
	Quiz F3	2	F	118 New Agr.	
	Quiz F4	2	F	122 New Agr.	

Agron. 28. Soils.—*Prerequisite:* Chem. 5; Geol. 44. (Local field trip, cost not to exceed $1.00)

5	Lect.	8	MWF	302 Agr.	WIMER and CRANE
	Quiz	8	TT	302 Agr. 553 Agr.	
	A Lab.	1–4	Th	650 Agr.	
	C Lab.	8–11	S	650 Agr.	

Courses for Advanced Undergraduates and Graduates

Agron. 7. Crop Production as Affected by Environmental Factors.—*Prerequisite:* Agron. 25; Bot. 5; junior standing.

3	Lect.	8	MWF	553 Agr.	BURLISON and DUNGAN

Agron. 11. Role of Micro-organisms in Soil Fertility.—*Prerequisite:* Agron. 28; Bact. 5a; junior standing.

3	Lect.	9	MWF	302 Agr.	SEARS

Agron. 29. Principles of Field Plot Experimentation.—(Given in 1936-37 and in alternate years). *Prerequisite:* Junior standing.

3	Lect.	11	MWF	302 Agr.	WOODWORTH and MUMM

Agron. 32. Physical Methods of Soil Investigation.—(Given in 1936-37 and in alternate years). *Prerequisite:* Agron. 28; junior standing.

3	Lect., Disc., Lab.	1–3	MWF	657 Agr.	STAUFFER

Courses for Graduates

Agron. 101. Chemical Properties of Soils; Their Relation to Soil Development and Plant Growth.—(1 unit). Twice a week. Arrange; 306 Agr. Professor DETURK.

Agron. 104. Seminar.—(¼ unit). Once a week. Arrange. Graduate staff.

Agron. 112. Theory and Analysis of Plant Breeding Problems.—(1 unit). Three times a week. Arrange. Professor WOODWORTH.

Agron. 118. Research.—(½ to 4 units).* Arrange.

Soils.—Professors BAUER, DETURK, R. S. SMITH.

Crops.—Professors BURLISON, WOODWORTH, DUNGAN.

ANIMAL HUSBANDRY

Courses for Undergraduates

An. Husb. 1. Introduction to Animal Husbandry.—Required of students not having had livestock judging in high school. (No credit in this course allowed to juniors and seniors.)

Credit	Section	Hours	Days	Room	Instructor
2	A	3–5	TT	S.P.	CRAWFORD

An. Husb. 3. Livestock Judging.—*Prerequisite:* An. Husb. 1 or equivalent.

5	A	10–12	MTWTF	S.P.	SNAPP

An. Husb. 9a. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including 20 hours pertinent to the thesis problem; approval of the head of the department. (5). Arrange. Work may be taken in the following subjects:

Beef Cattle.—Professor RUSK, Associate Professor SNAPP.
Horses.—Professor EDMONDS.
Sheep.—Associate Professor KAMMLADE.
Swine.—Professor CARROLL.
Poultry.—Professor CARD.
Animal Nutrition.—Professor MITCHELL.
Animal Genetics.—Professor ROBERTS.
Animal Pathology.—Professor GRAHAM.
Meats.—Associate Professor BULL.

An. Husb. 12. Special Problems.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Arrange. Members of the department.

An. Husb. 21. Principles of Feeding.—*Prerequisite:* Chem. 1 or 2.

3	Lect.	2	W	553 Agr.	BULL and CARROLL
	A Quiz	2	MF	553 Agr.	
	B Quiz	11	TT	553 Agr.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

An. Husb. 34. Anatomy and Physiology, and Non-Contagious and Parasitic Diseases of Farm Animals.—*Prerequisite:* An. Husb. 21.

Credit	Section	Hours	Days	Room	Instructor
3	A	10	MWF	An.Path.Lab.	GRAHAM and BOLEY

An. Husb. 36. Selection and Use of Meat.—

2	A	9	TT	403 Agr.	BULL

An. Husb. 38. Poultry Breeds and Judging.—*Prerequisite:* An. Husb. 37. (This course is concluded at the beginning of the Christmas recess.) From the students taking or having had this course will be chosen the team to represent the University in the Annual Mid-West Intercollegiate Poultry Judging Contest. The class will visit a near-by poultry show. The cost of the trip will be from $10 to $15.

3	A	3-4:30	MTWTF	Poultry Plant	SCOTT

Courses for Advanced Undergraduates and Graduates

An. Husb. 7. Principles of Animal Nutrition.—*Prerequisite:* Senior standing, including An. Husb. 21; Chem. 32.

5	A	Arrange		553 Agr.	HAMILTON

An. Husb. 22. Advanced Stock Judging.—*Prerequisite:* An. Husb. 3. From the students in this class will be chosen the team to represent the University in the Annual Intercollegiate Student Judging Contest.

3	A	3	MTWTF	S.P.	Heads of divisions

An. Husb. 24. Meat Judging and Special Problems.—*Prerequisite:* An. Husb. 10 or 36. From the students in this class will be chosen the team to represent the University in the Annual Intercollegiate Student Judging Contest. Students registering for meat judging only should register for 2 hours credit. This part of the course will terminate at Thanksgiving. (2 to 5).* Arrange. Associate Professor BULL.

An. Husb. 25. Beef Production.—*Prerequisite:* An. Husb. 6.

3	A	2	MWF	316 New Agr.	RUSK and SNAPP

An. Husb. 26. Pork Production.—*Prerequisite:* An. Husb. 21.

3	A	9	MWF	316 New Agr.	CARROLL

An. Husb. 39. Poultry Breeding and Improvement.—*Prerequisite:* An. Husb. 37.

3	A	11	MWF	118 New Agr.	CARD

Courses for Graduates

An. Husb. 112. Research.—Arrange. One to three times a week. (½ to 2 units).*

Economic Factors in Meat Production.—Professors RUSK, CARROLL.
Systems of Livestock Farming.—Professor CASE.
Animal Pathology.—Professor GRAHAM.
Animal Nutrition.—Professor MITCHELL.
Animal Genetics.—Professor ROBERTS.
Poultry Husbandry.—Professor CARD.

An. Husb. 117. Animal Genetics.—(1 unit). One to three times a week. Arrange. Professor ROBERTS.

An. Husb. 118. Animal Nutrition Seminar.—(½ unit). Two hours a week. Arrange. Professor MITCHELL.

An. Husb. 119. Laboratory Methods in Animal Nutrition.—(½ to 1 unit).* Two to five times a week. Arrange. (Laboratory fee, $5). Professor MITCHELL.

An. Husb. 120. Laboratory Methods in the Diagnosis of Animal Diseases.—(½ to 1 unit).* Two to five times a week. Arrange. (Laboratory fee, $2). Professor GRAHAM.

An. Husb. 121. Laboratory Methods in Animal Genetics.—(½ to 1 unit).* Two to five times a week. Arrange. (Laboratory fee, $3). Professor ROBERTS.

ARCHITECTURE

Note: Certain courses in this department require a laboratory fee of $1.

Courses for Undergraduates

Arch. 11. History of Architecture.—(Not open to students expecting a degree in Architecture).

Credit	Section	Hours	Days	Room	Instructor
3	A	3	MWF	117 L.H.	

Arch. 13. History of Architecture.—*Prerequisite:* Arch. 31 and 32, or sophomore standing in Architecture.

2	A	11	MW	120 Arch.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Arch. 15. History of Architecture.—*Prerequisite:* Arch. 14.

Credit	Section	Hours	Days	Room	Instructor
2	A	11	TT	120 Arch.	

Arch. 17. History of Architecture.—*Prerequisite:* Arch. 16.

2	A	9	TT	120 Arch.

Arch. 31. Architectural Design.—

3	Lect.	10	W	120 Arch.
	A	1–4	TT	210 Arch.
	B	8–11	MF	210 Arch.
	C	8–11	TT	210 Arch.

Arch. 33. Architectural Design.—*Prerequisite:* Arch. 32.

3	A	1–4	MW	210 Arch.
		8–11	S	210 Arch.
	B	1–4	WF	210 Arch.
		8–11	S	210 arch.

Arch. 34. Architectural Design.—*Prerequisite:* Arch. 33.

3 (See Arch. 33 for sections)

Arch. 35. Architectural Design.—*Prerequisite:* Arch. 34 and registration in Arch. 65.

5	A	9–12	F	200 Arch.
		1–5	MWF	200 Arch.

Arch. 36. Architectural Design.—*Prerequisite:* Arch. 35.

5 (See Arch. 35 for sections)

Arch. 37. Architectural Design.—*Prerequisite:* Arch. 36; senior standing in Architecture.

7	A	8–11	S	200 Arch.
		1–4	MTu	200 Arch.
		1–5	WThF	200 Arch.

Arch. 38. Architectural Design.—*Prerequisite:* Arch. 37; senior standing in Architecture.

7	A	8–11	S	200 Arch.
		1–4	MTu	200 Arch.
		1–5	WThF	200 Arch.

Arch. 43. Technology of Materials.—*Prerequisite:* Arch. 31 and 32.

3	A	1–4	TT	310 Arch.
	Lect.	11	F	302 Arch.
	B	1–4	MW	310 Arch.
	Lect.	11	W	302 Arch.

Arch. 45. Graphic Statics.—*Prerequisite:* T.A.M. 1 or 18, and registration in continuing T.A.M.

3	A	8–11	M	310 Arch.
		9–12	W	310 Arch.
	Lect.	9	Tu	302 Arch.
	B	1–4	TT	310 Arch.
	Lect.	11	M	302 Arch.

Arch. 47. Steel Construction.—*Prerequisite:* Arch. 46 and registration in Arch. 57.

5	A	10	TT	301 Arch.
		1–4	MWF	300 Arch.

Arch. 57. Reinforced Concrete, Theory.—*Prerequisite:* Arch. 46 and registration in Arch. 47.

3	A	2	TT	301 Arch.
		10	S	301 Arch.

Arch. 65. Theory of Architecture.—*Prerequisite:* Arch. 34 and registration in Arch. 35.

1	A	9	Th	302 Arch.

Arch. 68. Specifications.—*Prerequisite:* Senior standing in Architecture.

3	A	11	MWF	301 Arch.

Arch. 71. Architectural Design.—Not open to students expecting a degree in Architecture.

3	A	1–4	TWT	210 Arch.
	B	9–12	TT	310 Arch.
		2–5	W	310 Arch.

Arch. 75. Frame Construction Details.—*Prerequisite:* Consent of the instructor. Not open to students expecting a degree in Architecture.

2	A	1–4	TT	310 Arch.

Arch. 83. Office Practice.—*Prerequisite:* Senior standing in Architecture.

2	A	11	TT	301 Arch.

Arch. 99. Inspection Trip.—*Prerequisite:* Senior standing in Architecture. Required for graduation. (No credit).

Courses for Graduates

Arch. 101. Architectural Construction.—Theory and design. (½ to 2 units).* Professor PALMER.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Arch. 103. Architectural Construction.—Special problems. (½ to 2 units).* Professor MORGAN.

Arch. 104. Architectural Design.—(1 to 3 units).* Professor DEAM.

Arch. 105. Architectural Practice.—(¼ to ½ unit).* Professor PROVINE.

Arch. 106. Architectural History.—(½ to 2 units).* Professor NEWCOMB.

ART

Note: Certain courses in this department require laboratory fees varying from $1.50 to $6.00.

Courses for Undergraduates

Art 1a. Design.—

Credit	Section	Hours	Days	Room	Instructor
2	A	8–10	TT	342 L.H.	GOUGLER
	B	8–10	WF	342 L.H.	GOUGLER
	C	10–12	WF	342 L.H.	ANDERSON, GOUGLER
	D	1–3	MW	342 L.H.	ANDERSON, GOUGLER

Art 1b. Design.—*Prerequisite:* Art 1a.

2	A	10–12	TT	342 L.H.	ANDERSON

Art 2a-2b. Water Color.—*Prerequisite:* Art 26.

2	A	1–4	TT	403a Arch.	NEARPASS

Art 3a-3b. Water Color.—*Prerequisite:* Art 2b.

2	A	1–4	TT	403a Arch.	NEARPASS

Art 4a-4b. Interior Design.—*Prerequisite:* Art 32a concurrently or Art 1b.

2	A	1–3	TT	342 L.H.	ANDERSON

Art 10a. Course for Teachers.—*Prerequisite:* Art 32a or junior standing.

3	Lect.	9	M	342 L.H.	ANDERSON
	Dem.	10	M	342 L H.	ANDERSON
	Quiz	11	M	342 L.H.	ANDERSON

Art 11. History of Fine Arts.—*Prerequisite:* Sophomore standing.

2	A	8	TT	120 Arch.	LAKE

Art 13a. History of Ancient Art.—*Prerequisite:* Art 12 or junior standing.

2	A	1	TT	120 Arch.	NICHOLSON

Art 15a. History of Renaissance Art.—*Prerequisite:* Junior standing.

2	A	3	TT	120 Arch.	NICHOLSON

Art 17a. Art Appreciation.—Not open to students expecting a degree in Art. *Prerequisite:* Junior standing.

3	A	9	MWF	120 Arch.	NICHOLSON

Art 21a-21b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architectur e).

2	A	8–11	TT	407 E.H.	RAUSHENBERGER
	B	2–5	MF	407 E.H.	RAUSHENBERGER
	C	9–12	MF	407 E.H.	HOGAN

Art 22a-22b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture). *Prerequisite:* Art 21b.

2	A	8–11	TT	Hall of Casts	KENNEDY
	B	1–4	TT	410b Arch.	KENNEDY

Art 23a-23b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture). *Prerequisite:* Art 22b.

2	A	1–4	TT	Hall of Casts	WOODROOFE

Art 24a-24b. Freehand Drawing.—(Primarily for students in Architecture). *Prerequisite:* Art 23 b.

2	A	8–11	MW	10 Arch.	BAILEY

Art 25. Art Form.—

5	A	1–4	M	20 Arch.	LAKE
		9–12	TT	410b Arch.	DONOVAN
		1–4	F	410b Arch.	DONOVAN
		9–12	S	410a Arch.	HOGAN
	B	9–12	MWF	410a Arch.	RAUSHENBERGER
		2–5	Th	20 Arch.	LAKE
		9–12	S	403b Arch.	KENNEDY
	C[1]	1–4	MWF	Hall of Casts	NEARPASS

[1]Section C, for students other than those in Painting curriculum, 3 hours credit.

Art 26. Art Form.—*Prerequisite:* Art 25.

5 (See Art 25 for sections.)

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Art 27. Life Drawing.—*Prerequisite:* Art 26.

Credit	Section	Hours	Days	Room	Instructor
5	A	1–4	MF	10 Arch.	Hogan
		1–4	TWT	10 Arch.	Bailey
	B	1–4	MF	10 Arch.	Hogan
		9–12	TT	10 Arch.	Bailey
		1–4	W	10 Arch.	Bailey

Art 28. Life Drawing.—*Prerequisite:* Art 27.

5 (See Art 27 for sections.)

Art 29. Life Drawing and Portrait.—*Prerequisite:* Art 28.

5	A	9–12	MWF	403a Arch.	Bradbury
		9–12	TT	403a Arch.	Hogan

Art 30. Life Drawing and Portrait.—*Prerequisite:* Art 29.

5	A	9–12	MWF	403a Arch.	Bradbury
		9–12	TT	403a Arch.	Hogan

Art 32a-32b. Elements of Composition.—*Prerequisite:* Sophomore standing in Art.

2	A	9–12	TT	200 Arch.	Nearpass
	B	8–11	MW	200 Arch.	Woodroofe

Art 33a-33b. Intermediate Composition.—*Prerequisite:* Art 32b.

3	A	1–4	MWF	310 Arch.	Woodroofe

Art 34a-34b. Advanced Composition.—*Prerequisite:* Art 33b.

3	A	1–4	MWF	403b Arch.	Bradbury

Art 35a-35b. Commercial Art.—*Prerequisite:* Art 28 and Arch. 72.

2	A	8	TT	301 Arch.	Donovan
		9–12	S	310 Arch.	Donovan

Art 36a-36b. Commercial Art.—*Prerequisite:* Art 35b.

2	A	8	TT	301 Arch.	Donovan
		9–12	S	310 Arch.	Donovan

Art 37a-37b. Illustration.—*Prerequisite:* Art 32b.

2	A	1–4	TT	403a Arch.	Nearpass

Art 41a-41b. Still Life.—*Prerequisite:* Art 25a.

2	A	9–12	MW	410b Arch.	Kennedy
	B	1–4	TT	410a Arch.	Donovan

Art 42a-42b. Landscape.—*Prerequisite:* Art 41b.

2	A	1–4	TT	410a Arch.	Donovan

Art 43a-43b. Landscape.—*Prerequisite:* Art 42b.

2	A	1–4	TT	410a Arch.	Donovan

Art 47. Life Painting.—*Prerequisite:* Art 30.

5	A	9–12	MTWTF	403b Arch.	Bradbury

Art 48. Life Painting.—*Prerequisite:* Art 47.

5	A	9–12	MTWTF	403b Arch.	Bradbury

Art 50. Modeling.—*Prerequisite:* Art 25 or consent of the instructor.

2	A	1–4	TT	20 Arch.	Lake

Art 51a-51b. Modeling.—*Prerequisite:* Art 50 or equivalent.

2	A	1–4	TT	20 Arch.	Lake

Art 52a-52b. Modeling.—*Prerequisite:* Art 51b.

2	A	1–4	TT	20 Arch.	Lake

ASTRONOMY

Courses for Undergraduates

Astron. 1. Descriptive Astronomy.—*Prerequisite:* Sophomore standing.

Credit	Section	Hours	Days	Room	Instructor
3	A	11	MWF	229 N.H.	Baker
		One hour Wednesday evening		Observatory	

Courses for Advanced Undergraduates and Graduates

Astron. 15. Geodetic Astronomy.—*Prerequisite:* Consent of the instructor.

3	A	10	MWF	Observatory	Baker

Courses for Graduates

Astron. 101. Seminar.—(1 unit). Arrange; Observatory. Professor BAKER.

Astron. 103. Celestial Mechanics.—(1 unit). 11 TTS; Observatory. Professor BAKER.

BACTERIOLOGY

Note: Certain courses in this department require laboratory fees varying from $4.50 to $5.50.

Major: 20 hours chosen from the courses offered by this department. Dairy Husbandry 10 (Advanced Dairy Bacteriology) may be offered in partial satisfaction of this requirement. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: agronomy, botany, chemistry, entomology, physiology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Bact. 5a. Introductory Bacteriology.—*Prerequisite:* Sophomore standing or consent of the instructor.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	8	TT	100 Chem.	TANNER
	A	8	S	301 Chem.	CLARK, EDWARDS, BEAMER, DONOVIK and others
	B	2	Tu	303 Chem.	
	C	3	Tu	163 Chem.	
	D	2	Th	204 Chem.	
	E	3	Th	163 Chem.	
	F	2	W	301 Chem.	
	G	3	W	301 Chem.	
	H	10	M	103 Chem.	
	I	10	W	163 Chem.	
	J	10	F	163 Chem.	

Bact. 5b. Introductory Bacteriology Laboratory.—*Prerequisite:* Bact. 5a or concurrent registration in it.

2	A Lab.	8–10	MW	367 Chem.	CLARK and assistant
	B Lab.	10–12	MW	367 Chem.	CLARK and assistant
	C Lab.	1–3	MW	367 Chem.	EDWARDS and assistant
	D Lab.	1–3	TT	367 Chem.	EDWARDS and assistant

Course for Advanced Undergraduates

Bact. 7a. Research and Special Problems.—*Prerequisite:* Junior standing; 10 hours in bacteriology; consent of the instructor. (3 to 5).* Arrange. Conference, 2-4 W. Professor TANNER, Assistant Professor WALLACE.

Courses for Advanced Undergraduates and Graduates

Bact. 20. General Bacteriology.—*Prerequisite:* Two years of college chemistry; senior standing; consent of instructor. Students with credit in Bact. 5a and 5b will not be allowed credit for Bact. 20.

5	Lect.	11	MWF	303 Chem.	WALLACE
	Lab.	1–3	MW	360 Chem.	

Bact. 26. Pathogenic Bacteriology.—*Prerequisite:* Bact. 5a and 5b (or 20); junior standing.

5	Lect.	8	MWF	308 Chem. A.	WALLACE and assistant
	Lab.	8–11	TT	367 Chem.	

Courses for Graduates

Bact. 103. Physiology of Bacteria.—(1 unit). Lect., 9 MW. Professor TANNER.

Bact. 107. Research in Bacteriology.—(1 to 4 units).* Conference, arrange. Lab., arrange; 365 Chem. Professor TANNER.

Bact. 118a. Current Literature.—Required of all graduate students whose major is bacteriology. *Prerequisite:* 10 hours of bacteriology and consent of the instructor. (¼ unit). 9 Tu; 366 Chem. Professor TANNER.

BOTANY

Note: Certain courses in this department require laboratory fees varying from $1.00 to $6.00.

Major: 20 hours of botany exclusive of Bot. 1 and 5, and inclusive of Bot. 2 or 12, 3, and at least five hours in courses listed for advanced undergraduates and graduates.

Minors: 20 hours in one or two departments chosen in consultation with the head of the department from the following list: agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least eight hours must be offered in each department, if two are chosen.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Undergraduates

Bot. 1a. Introductory Botany (Cultural Course).—The relation of the plant world to the physical and animal worlds. The progressive development of the plant world and its evolutional significance; its part in the formation of soils, the production of food, and the maintenance of life. Lectures, demonstrational quiz, one or two field trips. Designed to accompany Bot. 1b, but may be elected without it.

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	9	TT	228 N.H.	HOTTES, STEVENS,
	Discussion sections for students taking Botany 1a only.				VESTAL, FULLER,
[1]Seniors will receive	Disc. 1	8	Tu	258 N.H.	and others
only 2 hours credit.	Disc. 2	10	Tu	258 N.H.	
	Disc. 4	1	Tu	258 N.H.	
	Discussion sections for students taking both Botany 1a and 1b.				
	Disc. 3	11	Tu	258 N.H.	
	Disc. 5	1	Tu	349 N.H.	
	Disc. 6	2	Tu	258 N.H.	
	Disc. 7	8	Th	258 N.H.	
	Disc. 8	10	Th	258 N.H.	

Bot. 1b. Introductory Botany (Laboratory).—Morphology, physiology, and ecology of representative groups of the plant world. *Prerequisite:* Bot. 1a or concurrent registration therein.

2	A Lab.	8–10	MW	258 N.H.	FULLER and
	B Lab.	10–12	MW	258 N.H.	assistants
	C Lab.	1–3	MW	258 N.H.	

Bot. 2. Morphology.—*Prerequisite:* Bot. 1a-1b or 5.

3	A	1–3	MWF	204 Entom.	HAGUE

Bot. 3. Plant Physiology.—*Prerequisite:* Bot. 1a-1b or 5.

5	Lect.	11	TT	229 N.H.	HOTTES and
	A Lab.	8–10	MWF	153 N.H.	assistants
	B Lab.	10–12	MWF	154 N.H.	

Bot. 5. Botany for Students in Agriculture.—

3[1]	Lect.	8	Th	228 N.H.	HOTTES, STEVENS,
[1]Seniors will receive	A Lab.	10–12	TT	259 N.H.	VESTAL, FULLER,
only 2 hours credit.	B Lab.	1–3	TT	259 N.H.	and assistants

Bot. 7. Plant Pathology.—*Prerequisite:* Bot. 1a-1b or 5.

3	Lect.	9	M	425 N.H.	STEVENS and
	A Lab.	8–10	WF	349 N.H.	assistant
	B Lab.	10–12	WF	349 N.H.	

Courses for Advanced Undergraduates

Bot. 90a. Thesis Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

Bot. 91a. Honors Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

Courses for Advanced Undergraduates and Graduates

Bot. 33. Plant Physiology.—*Prerequisite:* Bot. 3; junior standing.

3 or 5*	A	1–3	MWF	155 N.H.	HOTTES and assistant

Bot. 43. Pteridophytes.—*Prerequisite:* One year of botany, inclusive of Bot. 2 or 12; junior standing.

3 or 5*	A	10–12	TTS	201 Entom.	BUCHHOLZ

Bot. 45. Plant Histology, Anatomy, and Technic.—*Prerequisite:* One year of botany, inclusive of Bot. 2 or 12; junior standing.

3 or 5*	A	8–10	MWF	206 Entom.	BUCHHOLZ

Bot. 56. Plant Geography.—*Prerequisite:* One year of botany; junior standing.

3 or 5*	A	10–12	MWF	216 N.H.	VESTAL

Bot. 60. Advanced Systematic Botany.—Systems of classification of flowering plants, phylogeny, use of regional manuals in the identification of plants, field trips, etc. *Prerequisite:* Bot. 6; junior standing.

3 or 5*	Lect.	1	TT	350 N.H.	FULLER
	Lab.	2–3	Tu		
		2–4	Th		
	Field	Arrange			

Bot. 70. Mycology.—*Prerequisite:* One year of botany; junior standing.

3 or 5*	Lect.	11	Tu	304 N.H.	STEVENS
	Lab.	10–12	ThS	304 N.H.	

Bot. 81. Plant Ecology.—*Prerequisite:* One year of botany; junior standing.

3 or 5*	Lect.	8	TT	229 N.H.	VESTAL
	Field work on four or five Saturdays.				

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

Bot. 110. Botanical Discussion.—Required of all graduate students in botany and members of the instructional staff. (No credit). 4 Tu; 258 N.H.

Bot. 112. Discussions in Plant Morphology.—(¼ unit). 4 F; 205 Entom. Professor BUCHHOLZ.

Bot. 113. Discussions in Physiology.—(¼ unit). 4 Th; 155 N.H. Professor HOTTES.

Bot. 117. Discussions in Pathology and Mycology.—(¼ unit). 4 W; 304 N.H. Professor STEVENS.

Bot. 118. Discussions in Ecology.—(¼ unit). 4 M; 204 N.H. Associate Professor VESTAL.

Research Courses

Bot. 120. Morphology.—(½ to 2 units).* (Botany 112 to be taken concurrently.) One hour on either W or F, from 1 to 3, the rest to be arranged; 201 Entom. Professor BUCHHOLZ.

Bot. 130. Physiology.—(½ to 2 units).* (Botany 113 to be taken concurrently.) One hour on M, W, or F, from 1 to 3, the rest to be arranged; Botany Annex. Professor HOTTES.

Bot. 170. Pathology or Mycology.—(½ to 2 units).* (Botany 117 to be taken concurrently.) One hour on either M or W, from 2 to 4, the rest to be arranged; 304 N.H. Professor STEVENS.

Bot. 180. Plant Ecology or Geography.—(½ to 2 units).* (Botany 118 to be taken concurrently.) Conf., 1 M or 10 Tu, the rest to be arranged; 204 N.H. Associate Professor VESTAL.

BUSINESS ORGANIZATION AND OPERATION

(Including Accountancy and Business Law)

A. ACCOUNTANCY

Courses for Undergraduates

Accy. 1a. Principles of Accounting.—Beginners' course. (Students who present one unit of bookkeeping for entrance will not be allowed credit in Accy. 1a and should register in Accy. 1e.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	125 Com.	SLATER
	A2	8	MWF	119 Com.	
[1]Seniors will receive	A3	8	MWF	328 Com.	
only 2 hours credit.	A4	8	MWF	106 Com.	GRIFFITH
Students who have	J1	8	TTS	123 Com.	GRIFFITH
failed in Accy. 1a may	J2	8	TTS	325 Com.	
register in Accy. 1e	J3	8	TTS	122 Com.	
and will receive 3	B1	9	MWF	115 Com.	
hours credit if their	K1	9	TTS	325 Com.	
final grade is "C" or	K2	9	TTS	123 Com.	GRIFFITH
above.	K3	9	TTS	222 Com.	
	K4	9	TTS	306 Com.	
	C1	10	MWF	306 Com.	SLATER
	C2	10	MWF	114 Com.	BAILY
	L1	10	TTS	306 Com.	MOYER
	L2	10	TTS	224 Com.	
	L3	10	TTS	312 Com.	
	L4	10	TTS	108 Com.	
	D1	11	MWF	125 Com.	SLATER
	D2	11	MWF	122 Com.	BAILY
	D3	11	MWF	223 Com.	
	M1	11	TTS	322 Com.	MOYER
	M2	11	TTS	326 Com.	
	M3	11	TTS	119 Com.	
	F1	2	MWF	113 Com.	HIGGINBOTHAM
	F2	2	MWF	329 Com.	
	G1	3	MWF	119 Com.	SLATER
	G2	3	MWF	329 Com.	

Accy. 1b. Accounting Procedure.—A continuation of Accy. 1a. (Credit is given for Accy. 1a without Accy. 1b.) *Prerequisite:* Accy. 1a.

3[1]	A	8	MWF	108 Com.	KARRENBROCK
	B	9	MWF	101 Com.	KARRENBROCK
[1]Seniors will receive	J	8	TTS	113 Com.	HACKETT
only 2 hours credit.	K	9	TTS	113 Com.	HACKETT
	F	2	MWF	101 Com.	MCMAHAN
	G	3	MWF	101 Com.	MCMAHAN

Accy. 1e. Principles of Accounting.—Similar to Accy 1a. (Students who have one unit of bookkeeping must take this course rather than Accy. 1a)

2[1]	J	8	TT	106 Com.	NEWCOMER
[1]Seniors will receive	K	9	TT	106 Com.	NEWCOMER
only 1 hour credit.	L	10	TT	125 Com.	THEISS
Students who have	M	11	TT	106 Com.	NEWCOMER
failed Accy. 1a may	N	1	TT	125 Com.	BREEN
register in Accy. 1e	O	2	TT	125 Com.	BREEN

and will receive 3 hours credit if their semester grade is "C" or above.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Accy. 2a. Elementary Cost Accounting.—*Prerequisite:* Accy. 1b; registration or credit in Econ. 1.

Credit	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	113 Com.	Moyer
	A2	8	MWF	115 Com.	Kessler
	J1	8	TTS	108 Com.	Higginbotham
	J2	8	TTS	115 Com.	McMahan
	B	9	MWF	113 Com.	Moyer
	K1	9	TTS	115 Com.	McMahan
	K2	9	TTS	119 Com.	Higginbotham
	C1	10	MWF	222 Com.	Schlatter
	C2	10	MWF	111 Com.	Hackett
	D1	11	MWF	113 Com.	Moyer
	D2	11	MWF	106 Com.	Hackett
	M1	11	TTS	111 Com.	Higginbotham
	M2	11	TTS	115 Com.	McMahan
	F	2	MWF	122 Com.	Kessler
	G1	3	MWF	122 Com.	Kessler
	G2	3	MWF	123 Com.	Breen

Accy. 2b. Intermediate Accounting.—*Prerequisite:* Accy. 2a.

3	A	8	MWF	126 Com.	Theiss
	C	10	MWF	113 Com.	Theiss
	G	3	MWF	108 Com.	Newcomer

Courses for Advanced Undergraduates

Accy. 12. Fundamentals of Accounting.—A survey course for non-commerce students only. *Prerequisite:* Junior standing.

3	D	11	MWF	329 Com.	Karrenbrock

Accy. 90a. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis as part of the requirement. (2 to 4).* Arrange. Professor Littleton and others.

Accy. 91a. Independent Study.—Seniors registered in the College of Commerce and Business Administration who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this department or sixteen semester hours if divided between this department and any other department. This course may be elected by candidates for high honors in lieu of a thesis. (3 to 5).* Arrange. Professor Littleton and others.

Courses for Advanced Undergraduates and Graduates

Accy. 3a. Advanced Accounting.—*Prerequisite:* Accy. 2a-2b; Econ. 3; an average of "C" or better in Accy. 1 and 2.

3	B	9	MWF	224 Com.	Littleton
	C	10	MWF	224 Com.	Filbey
	D	11	MWF	224 Com.	Filbey
	F	2	MWF	115 Com.	Newcomer

Accy. 3b. Auditing.—*Prerequisite:* Accy. 3a.

3	A	8	MWF	224 Com.	Filbey

Accy. 4a. Cost Accounting.—*Prerequisite:* Accy. 2a-2b.

2	K	9	TT	125 Com.	Karrenbrock
	L	10	TT	219 Com.	Schlatter

Accy. 4b. Accounting Systems.—*Prerequisite:* Accy. 2a-2b; Econ. 3. (Credit is given for either 4a or 4b separately.)

2	J	8	TT	219 Com.	Baily
	K	9	TT	219 Com.	Baily

Accy. 5a. C.P.A. Problems.—*Prerequisite:* Accy. 3a-3b.

3	C	10	MWF	317 Com.	Scovill
	D	11	MWF	317 Com.	Scovill

Accy. 13. Governmental Accounting.—*Prerequisite:* Accy. 3a.

2	O	2	TT	206 Adm.(E)	Morey

Accy. 30. Budgets and Accounting Control.—*Prerequisite:* Accy. 2b.

3	F	2	MWF	119 Com.	Theiss

Courses for Graduates

Accy. 103. Advanced Theory.—(1 unit). 4-6 Tu; 209 Com. Professor Littleton.

Accy. 104. Accounting Systems.—(1 unit). 3-5 Th; 209 Com. Professor Scovill.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Accy. 120. Income Tax Development.—(1 unit). Arrange. Professor FILBEY.

Accy. 129. Thesis.—(1 unit). 4-6 W; 420 Com. Professor LITTLETON and others.

B. BUSINESS ORGANIZATION AND OPERATION

Courses for Undergraduates

B.O.O. 1. Industrial Organization and Management.—*Prerequisite:* 45 credit hours. Junior and senior engineering students are admitted with the consent of the instructor.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	223 Com.	MANDEVILLE
	B	9	MWF	223 Com.	MANDEVILLE
	L	10	TTS	326 Com.	MANDEVILLE
	C	10	MWF	305 Com.	ANDERSON
	D	11	MWF	305 Com.	ANDERSON
	M	11	TTS	223 Com.	MANDEVILLE
	F	2	MWF	224 Com.	MANDEVILLE

B.O.O. 2. Marketing Organization and Operation.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	A	8	MWF	322 Com.	JONES
	J	8	TTS	223 Com.	HUEGY
	K	9	TTS	223 Com.	HUEGY
	B	9	MWF	125 Com.	WHITLO
	C	10	MWF	310 Com.	CONVERSE
	D1	11	MWF	310 Com.	CONVERSE
	D2	11	MWF	126 Com.	JONES
	M	11	TTS	222 Com.	HUEGY
	F1	2	MWF	125 Com.	WHITLO
[1]Section F2 is for non-commerce students.	[1]F2	2	MWF	317 Com.	CONVERSE
	G	3	MWF	125 Com.	WHITLO

B.O.O. 10. Newspaper Advertising.—(Same as Journalism 10). For non-commerce students only (Offered first semester only). *Prerequisite:* Junior standing.

3	A	8	MWF	310 Com.	RUSSELL
	B	9	MWF	310 Com.	RUSSELL

B.O.O. 12a. Typewriting.—A course for beginners who intend to apply their knowledge later in teaching the subject. Required of all students in the Curriculum in Commercial Teaching in the College of Commerce and Business Administration. To be taken concurrently with B.O.O. 13a. Continued as B.O.O. 12b in the second semester. *Prerequisite:* Junior standing; credit or concurrent registration in Ed. 25. Laboratory fee $5. (No University credit allowed). 4 MTWTF; 204 U.H.S. Mrs. HAGAN.

B.O.O. 13a. Shorthand.—A course for beginners who intend to apply their knowledge later in teaching the subject. Required of all students in the Curriculum in Commercial Teaching in the College of Commerce and Business Administration. To be taken concurrently with B.O.O. 12a. Continued as B.O.O. 13b in the second semester. *Prerequisite:* Junior standing; credit or concurrent registration in Ed. 25. (No University credit allowed). 3 MTWTF; 214 U.H.S. Mrs. HAGAN.

Courses for Seniors Only

B.O.O. 90a. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis as part of the requirement. (2 to 4).* Arrange. Professor RUSSELL and others.

B.O.O. 91a. Independent Study.—Seniors registered in the College of Commerce and Business Administration who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this department or sixteen semester hours if divided between this department and any other department. This course may be elected by candidates for high honors in lieu of a thesis. (3 to 5).* Arrange. Professor RUSSELL and others.

Courses for Advanced Undergraduates and Graduates

B.O.O. 3. Retail and Chain Store Organization and Operation.—*Prerequisite:* B.O.O. 2.

3	A	8	MWF	306 Com.	WHITLO

B.O.O. 4. Management in Manufacturing.—(Offered first semester only). *Prerequisite:* B.O.O. 1.

3	A	8	MWF	329 Com.	ANDERSON

B.O.O. 7. Salesmanship.—*Prerequisite:* B.O.O. 2.

2	J	8	TT	101 Com.	JONES
	K	9	TT	224 Com.	JONES
	L	10	TT	223 Com.	HESLIP
	M	11	TT	101 Com.	JONES

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

B.O.O. 8. Advertising.—*Prerequisite:* B.O.O. 2.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	312 Com.	HESLIP
	B	9	MWF	126 Com.	HESLIP
	D	11	MWF	306 Com.	RUSSELL
	F	2	MWF	123 Com.	HESLIP

B.O.O. 11. Types of Business Organization.—Effective management of a business under various forms of organization. *Prerequisite:* Accy. 2b.

3	A	8	MWF	219 Com.	DILLAVOU

B.O.O. 17. Problems in Sales Administration.—*Prerequisite:* Credit or concurrent registration in B.O.O. 7.

2	K	9	TT	312 Com.	HESLIP

B.O.O. 20. Credits and Collections.—*Prerequisite:* B.O.O. 2; junior standing.

3	D	11	MWF	123 Com.	HUEGY

Courses for Graduates

B.O.O. 102. Marketing Research and Policies.—(1 unit). Arrange. Professor CONVERSE.

B.O.O. 104. Scientific Management.—(1 unit). Arrange. Professor ANDERSON.

B.O.O. 107. Sales Campaigns.—(1 unit). Arrange. Professor RUSSELL.

B.O.O. 129. Seminar.—(1 unit). Arrange. Professor RUSSELL and others.

C. BUSINESS LAW

Courses for Undergraduates

Bus. Law 1a. General Principles of Business Law.—*Prerequisite:* 60 hours of university credit, including Econ. 1 and Accy. 1b.

3	A	8	MWF	222 Com.	CURTIS
	B	9	MWF	222 Com.	ROBERTS
	K1	9	TTS	328 Com.	JEANBLANC
	K2	9	TTS	329 Com.	ROBERTS
	C	10	MWF	115 Com.	CURTIS
	L	10	TTS	115 Com.	JEANBLANC
	D	11	MWF	215 Com.	ROBERTS
	E	1	MWF	325 Com.	JEANBLANC
	F	2	MWF	223 Com.	DILLAVOU

Bus. Law 1b. General Principles of Business Law.—*Prerequisite:* Bus. Law 1a.

3	D	11	MWF	100 Com.	CURTIS
	F	2	MWF	126 Com.	CURTIS

Bus. Law 2. Elementary Law of Business.—This course is offered exclusively for non-commerce students. *Prerequisite:* Junior standing.

3	A	8	MWF	122 Com.	ROBERTS

Courses for Advanced Undergraduates and Graduates

Bus. Law 10. Law of Security Relations and Banking.—*Prerequisite:* Senior standing and registration or credit in Bus. Law 1b.

3	C	10	MWF	100 Com.	DILLAVOU
	D	11	MWF	219 Com.	DILLAVOU

D. BUSINESS ENGLISH

(See Rhetoric 10, 21, and 22 under English Department.)

CERAMIC ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2.00 to $12.50.

Courses for Undergraduates

Cer.E. 1. Ceramic Materials.—*Prerequisite:* Chem. 4.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	218 Cer.	
	B	8	MWF	214 Cer.	
	C	11	TTS	218 Cer.	

Cer.E. 5. Ceramic Bodies.—*Prerequisite:* Cer. 1 and 4.

Credit	Section	Hours	Days	Room	Instructor
5	Lect.	9	TT	218 Cer.	
	Quiz A	11	W	218 Cer.	
	Quiz B	3	W	218 Cer.	
	Lab. A	2–5	MWF	113-114 Cer.	
	Lab. B	9–12	MWF	113-114 Cer.	

Cer.E. 7. Structural Clay Products.—*Prerequisite:* Cer. 1 and 4.

3	Lect. and Quiz	1	MWF	218 Cer.	

Cer.E. 17. Enamel Laboratory.—*Prerequisite:* Cer. 14.

3	Lect.	1	Tu	214 Cer.	
	Lab. A	9–12	TT	102, 113-114 Cer.	
	Lab. B	2–5	MW	102, 113-114 Cer.	

Cer.E. 18. Ceramic Microscopy.—*Prerequisite:* Chem. 40; Geol. 47 and 49 or equivalent.

3	A	1–4	TT	312 Cer.	
		8–11	S	312 Cer.	

Cer.E. 21. Ceramic Pyrometry.—*Prerequisite:* General physics; inorganic chemistry.

1	A	1	Th	218 Cer.	

Cer.E. 22. Kilns and the Burning of Clay Products.—*Prerequisite:* Cer. 5 and 11.

3	A	9	MW	218 Cer.	
		9	Th or F	218 Cer.	

Cer.E. 23. Dryer and Kiln Design.—*Prerequisite:* Cer. 11; registration in Cer. 22; G.E.D. 1 or 4.

2	A	2–5	TT	212 Cer.	

Cer.E. 97. Thesis.—(3 to 5).* Arrange.

Cer.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. (No credit).

Courses for Graduates

Cer.E. 101. The Chemistry of the Compounds of Silicon.—*Prerequisite:* Elementary courses in organic and physical chemistry. (1 unit).

Cer.E. 102. General Technology of the Clay Industries.—*Prerequisite:* The elements of mineralogy and of physical chemistry. (1 or 2 units).*

Cer.E. 103. Chemistry of the Silicates.—Laboratory to supplement Ceramic Engineering 101, which must precede or accompany it. (1 to 2 units).*

Cer.E. 106. Research.—Professors Parmelee, Hursh, Andrews.

CHEMISTRY

(Including Chemical Engineering)

Note: Certain courses in this department require laboratory fees varying from $2.50 to $18.00.

Students in the curricula of chemistry and chemical engineering, majors in chemistry, and all others who desire a thorough training in the fundamentals of chemistry and their applications to modern life, should select courses from the following, and usually in the sequence given: Chemistry 1 or 2, 6, 10, 24, 34a, 36b, 37b, 40, 41, 42, 43, 50a, and courses in the chemical engineering, sanitary chemistry, and miscellaneous groups. Students in engineering should register for Chemistry 3 or 2, 4, 24. Students who are compelled to meet chemical requirements briefly may register for the following sequence: Chemistry 1 or 2, 5, 24, 32 or 33.

Students who find it impossible to take more than one semester's work are requested to register in Chemistry 1 or 2 in the second semester rather than in the first.

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, 6, 7, and inclusive of courses in qualitative, quantitative, and organic chemistry. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from not more than two of the following: bacteriology, botany, ceramic engineering, entomology, geology, mathematics, philosophy, physiology, physics, psychology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in Chemistry 1, 2, 3, 4, 5, 6, and 7.

Courses for Undergraduates

Chem. 7. General Chemistry.—Not open to students who have earned credit in high school chemistry. This course may be applied toward the science group requirements. After completing Chem. 7, a student is permitted to register in Chem. 2; by securing special permission, he may register in Chem. 4, 5, or 6.

5[1]	Lect.	10	TT	112 Chem.A.	Hopkins
	70 Quiz	8	MW	9, 8 Chem.A.	
[1]Seniors will receive only 3 hours credit.	Lab.	8–10	TT	1 Chem.A.	
	71 Quiz	10	MW	8 Chem.A.	
	Lab.	1–3	TT	1 Chem.A.	
	72 Quiz	1	MW	9 Chem.A.	
	Lab.	1–3	TT	1 Chem.A.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 1. Inorganic Chemistry.—*Prerequisite:* One unit of entrance credit in physics, or 2½ units of entrance credit in mathematics, or registration in Math. 2 or 3. Students may register in either lecture section, but are required to take the quiz and laboratory in some one section.

Credit	Section	Hours	Days	Room	Instructor
3 or 5[1]	A Lect.	11	TT	100 Chem.	Bailar
	B Lect.	9	TT	100 Chem.	Reed
	1 Quiz	3	TT	300 Chem., 210 Chem.A.	
	Lab.	10–12	MWF	1, 101 Chem.A.	
	2 Quiz	10	TT	103, 163 Chem., 210 Chem.A.	
	Lab.	10–12	MWF	1, 101 Chem.A.	
	3 Quiz	1	TT	103, 163 Chem.	
	Lab.	2–5	TT	101 Chem.A.	
	4 Quiz	2	WF	103 Chem.	
	Lab.	1–4	TT	101 Chem.A.	
	5 Quiz	11	MW	103 Chem.	
	Lab.	1–4	TT	212 Chem.A.	
	6 Quiz	8	TT	163, 116, 303 Chem., 9 Chem.A.	
	Lab.	8–10	MWF	1 Chem.A.	
	7 Quiz	1	TT	204 Chem., 308 Chem.A.	
	Lab.	1–3	MWF	212, 201 Chem.A.	
Primarily for students in premedical courses:					
	8 Quiz	10	TT	301 Chem., 9 Chem.A.	
	Lab.	1–3	MWF	101, 201 Chem.A.	
	9 Quiz	11	MW	201 Chem.	
	Lab.	1–4	TT	212 Chem.A.	
	10 Quiz	2	WF	300 Chem.	
	Lab.	1–4	TT	101 Chem.A.	
	11 Quiz	10	TT	116 Chem.	
	Lab.	10–12	MWF	1 Chem.A.	
	12 Quiz	3	TT	204 Chem.	
	Lab.	10–12	MWF	1 Chem.A.	
For students whose major is in home economics:					
	18 Quiz	1	TT	301 Chem.	
	Lab.	1–3	MWF	1 Chem.A.	
	19 Quiz	8	TT	204 Chem., 8 Chem.A.	
	Lab.	8–10	MWF	101 Chem.A.	

[1]Students who have received entrance credit for high school chemistry are given only 3 hours credit for Chem. 1. Seniors will receive only 3 hours credit.

Chem. 2. Inorganic Chemistry.—(For all students who have had high school chemistry.) *Prerequisite:* One unit of entrance credit in chemistry. Students may register for any lecture section, but are required to take the quiz and laboratory in some one section. Students in the curricula of chemistry, chemical engineering, and ceramics, and chemistry majors who are not premedics, should register in Lecture G and Sections 47 and 48. *Note:* Students whose preparation in chemistry is inadequate are advised to register for Chem. 1 or 3 rather than Chem. 2.

2, 3, or 5[1]	D Lect.	10	F	100 Chem.	Nicholson
	E Lect.	11	F	100 Chem.	Copley
	F Lect.	9	F	100 Chem.	Copley
	G Lect.	10	M	100 Chem.	Bailar
	20 Quiz	1	TT	9, 210 Chem.A.	
	Lab.	8–10	S	1 Chem.A.	
	21 Quiz	10	TT	204, 303, 300 Chem., 8 Chem.A.	
	Lab.	8–10	Th	201 Chem.A.	
	22 Quiz	2	MW	201 Chem., 8 Chem.A.	
	Lab.	8–10	Tu	101 Chem.A.	
	23 Quiz	1	WF	201 Chem.	
	Lab.	2–4	W	212 Chem.A.	
	24 Quiz	9	MW	162 Chem., 435 N.H.	
	Lab.	1–3	M	1 Chem.A.	
	25 Quiz	10	MW	201 Chem.	
	Lab.	10–12	Th	212 Chem.A.	
Primarily for students in premedical courses:					
	26 Quiz	10	TT	308 Chem.A., 105 Entom.	
	Lab.	8–10	Th	212 Chem.A.	
	27 Quiz	2	MW	204 Chem.	
	Lab.	8–10	Tu	201 Chem.A.	
	28 Quiz	10	MW	300 Chem.	
	Lab.	10–12	Th	212 Chem.A.	
	29 Quiz	11	TT	103, 204 Chem.	
	Lab.	3–5	Th	201 Chem.A.	
	30 Quiz	9	TT	9 Chem.A., 103 Chem.	
	Lab.	1–3	M	201 Chem.A.	
Primarily for students in the College of Engineering:					
	31 Quiz	11	TT	201, 303 Chem.	
	Lab.	8–10	Th	101 Chem.A.	
	32 Quiz	11	TT	300 Chem.	
	Lab.	1–3	Tu	1 Chem.A.	
	33 Quiz	8	TT	103, 300 Chem., 308 Chem.A.	
	Lab.	8–10	S	1, 201 Chem.A.	
	34 Quiz	9	TT	8 Chem.A., 116 Chem.	
	Lab.	1–3	W	201 Chem.A.	
	35 Quiz	1	TT	303 Chem.	
	Lab.	8–10	S	212 Chem.A.	

[1]Students who have received credit in Chem. 7 and seniors will receive only 2 hours credit in Chem. 2. Students below the rank of senior receive 5 hours credit, provided their high school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.

Chem. 2. Inorganic Chemistry (concluded)

Credit	Section	Hours	Days	Room	Instructor
2, 3, or 5	36 Quiz	8	WF	210 Chem.A., 103 Chem.	
	Lab.	8–10	M	101 Chem.A.	
	37 Quiz	1	WF	210, 8 Chem.A.	
	Lab.	2–4	W	101 Chem.A.	
	38 Quiz	9	MW	210 Chem.A., 163 Chem.	
	Lab.	1–3	M	101 Chem.A.	

For students whose major is in home economics:

44 Quiz	8	TT	301, 111 Chem.	
Lab.	8–10	M	201 Chem.A.	

For students in the curricula of chemistry, chemical engineering, and ceramics, and chemistry majors who are not premedics. (Students in these sections must register in Lect. G.)

47 Quiz	11	WF	300, 301 Chem., 210 Chem.A.	
Lab.	1–3	Tu	201 Chem.A.	
48 Quiz	10	WF	9, 308, 210 Chem.A., 103 Chem.	
Lab.	1–3	Th	1, 201 Chem.A.	

Chem. 3. Inorganic Chemistry.—(For engineering students who have had no chemistry.) Students may register for any lecture section, but are required to take the quiz and laboratory in some one section. *Note:* Students who have credit for high school chemistry should register for Chem. 2 rather than Chem. 3.

Credit	Section	Hours	Days	Room	Instructor
3 or 4[1]	A Lect.	11	TT	100 Chem.	Bailar
	B Lect.	9	TT	100 Chem.	Copley
[1]Students who have used their high school chemistry for entrance credit are given only 3 hours credit for Chem. 3. Seniors will receive only 3 hours credit.	81 Quiz	8	WF	300 Chem.	
	Lab.	1–3	TT	201 Chem.A.	
	82 Quiz	1	WF	103, 303 Chem.	
	Lab.	8–10	TT	101 Chem.A	
	83 Quiz	11	MW	163, 111 Chem.	
	Lab.	8–10	MW	212 Chem.A.	
	84 Quiz	10	TT	162, 111 Chem.	
	Lab.	1–3	WF	1 Chem.A.	
	85 Quiz	9	TT	210 Chem.A.	
	Lab.	3–5	MW	201 Chem.A.	

Chem. 4. Chemistry of the Metallic Elements.—(For students in engineering.) *Prerequisite:* Chem. 1, 2, or 3.

Credit	Section	Hours	Days	Room	Instructor
3 or 4[1]	Lect.	11	MW	100 Chem.	Nicholson
	90 Quiz	8	MW	111 Chem.	
[1]Seniors will receive only 3 hours credit.	Lab.	1–3	TT	1 Chem.A.	
	91 Quiz	1	MW	111 Chem.	
	Lab.	8–10	TT	1 Chem.A.	
	92 Quiz	9	TT	111 Chem.	
	Lab.	1–3	WF	1 Chem.A.	

Chem. 5. Inorganic and Qualitative Analysis.—(For all students except those in engineering and in the curricula of chemistry, chemical engineering, and ceramics, and chemistry majors who are not premedics.) *Prerequisite:* Chem. 1, 2, or 3.

Credit	Section	Hours	Days	Room	Instructor
3 or 5[1]	Lect.	9	TT	112 Chem.A.	Reed
	50 Quiz	8	TT	201 Chem., 210 Chem.A.	
[1]Seniors will receive only 3 hours credit.	Lab.	8–10	MWF	201 Chem.A.	
	51 Quiz	3	TT	8, 9 Chem.A.	
	Lab.	3–5	MWF	201 Chem.A.	
	52 Quiz	11	TT	8, 9 Chem.A.	
	Lab.	10–12	MWF	201 Chem.A.	
	53 Quiz	1	TT	8 Chem.A.	
	Lab.	3–5 8–10	TT S	201 Chem.A.	

Chem. 6. Inorganic Chemistry.—(For students in the curricula of chemistry, chemical engineering, and ceramics, and chemistry majors who are not premedics.) *Prerequisite:* Chem. 1, 2, or 3.

Credit	Section	Hours	Days	Room	Instructor
3 or 5[1]	Lect.	10	TT	100 Chem.	Audrieth
[1]Seniors will receive only 3 hours credit.	60 Quiz	11	TT	210 Chem.A.	
	Lab.	10–12	MWF	101 Chem.A.	
	61 Quiz	1	TT	111 Chem.	
	Lab.	1–3	MWF	101 Chem.A.	

Chem. 10. Qualitative Analysis.—(Open to all students; required of those whose major is chemistry and those registered in the curricula of chemistry or chemical engineering.) *Prerequisite:* Chem. 6.

Credit	Section	Hours	Days	Room	Instructor
5	Lect.	9	W	100 Chem.	Reedy
	1 Quiz	9	MF	103, 111, 301 Chem.	
	Lab.	8–11	TTS	310 Chem.A.	
	2 Quiz	9	MF	116, 201, 300 Chem., 308 Chem.A.	
	Lab.	1–4	MWF	310 Chem.A.	
	3 Quiz	9	MF	8, 9 Chem.A.	
	Lab.	1–4 8–11	TT S	310 Chem.A. 310 Chem.A.	

Chem. 22. Elementary Quantitative Analysis.—*Prerequisite:* Chem. 4 or 5. (For all students who have not followed the sequence Chemistry 1, 2, or 3, 6 and 10.)

Credit	Section	Hours	Days	Room	Instructor
5	Lect.	11	W	112 Chem.A.	SMITH
	A Quiz	11	MF	8, 308 Chem.A.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	11	MF	9 Chem.A.	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S	301 Chem.A.	

Chem. 24. Quantitative Analysis.—*Prerequisite:* Chem. 10.

5	Lect.	9	F	112 Chem.A.	ENGLIS
	A Quiz	9	MW	204 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	9	MW	303 Chem.	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S	301 Chem.A.	

Chem. 32. Elementary Organic Chemistry.—(Especially for students in Agriculture.) *Prerequisite:* Chem. 5 or 10.

3	Lect.	8	TT	112 Chem.A.	FUSON
	A Quiz	1	Tu	116, 161 Chem.	
	Lab.	2–5	Tu	218 Chem.	
	B Quiz	1	Th	116, 161 Chem.	
	Lab.	2–5	Th	218 Chem.	

Chem. 33. Elementary Organic Chemistry.—(For students in home economics and pre-medical courses.) *Prerequisite:* Chem. 10 or 5. (Limited to 120 students.)

5	Lect.	8	MW	100 Chem.	SHRINER and assistants
	Quiz	8	F	100 Chem.	
				204 Chem.	
Quiz section assignments will be made by the instructor after registration is complete.				163 Chem.	
				217 Chem.	
				303 Chem.	
	Conf.	8	Tu	217 Chem.	
	Lab.	9–11	Tu	250 Chem.	
		8–11	Th	250 Chem.	

Chem. 34a. Organic Chemistry.—(For students whose major is chemistry or for those registered in the curriculum of chemistry or of chemical engineering.) *Prerequisite:* Chem. 6, 10, and 24.

5	Lect.	9	MWF	217 Chem.	MARVEL and assistants
	A Conf.	1	M	217 Chem.	
	Lab.	2–4	M	250 Chem.	
		1–4	W	250 Chem.	
[1]Section B is limited to 20 students.	[1]B Conf.	1	Tu	201 Chem.	
	Lab.	2–4	Tu	250 Chem.	
		1–4	Th	250 Chem.	

Chem. 90a. Thesis.—(*Note:* Senior research in chemistry and chemical engineering optional instead of required. Each student who desires research must receive special permission both from the instructor under whom he is to work and from the head of the division in which the research is to be taken. Such written permission should be presented, at the time of registration, to the adviser for the chemists or chemical engineers.) *Prerequisite:* Chem. 24, 34a, 40, 41, 42, and 43, or the consent of the head of the department. (3 to 5).* Professor ADAMS (in charge).

Courses for Advanced Undergraduates and Graduates

Chem. 15a. Inorganic Chemistry.—*Prerequisite:* Senior standing with 10 hours credit in chemistry in addition to the elementary courses.

2		9	MW	112 Chem.A.	COPLEY

Chem. 16a. Inorganic Chemistry.—(Laboratory). *Prerequisite:* Registration or credit in Chem. 15a.

2	Conf.	9	F	210 Chem.A.	COPLEY
	Lab.	Arrange		350 Chem.	

Chem. 27. Special Methods and Instruments in Quantitative Analysis.—*Prerequisite:* Chem. 24, 34a, and registration or credit in Chem. 40 and 41.

3	Lect.	11	Tu	161 Chem.	SMITH
	A Lab.	1–4	TT	305 Chem.	
	B Lab.	1–4	F	305 Chem.	
		8–11	S	305 Chem.	

Chem. 38a. Qualitative Organic Analysis.—*Prerequisite:* Chem. 36b and 37b.

3	Conf.	1	TT	217 Chem.	FUSON
	Lab.	2–4	TT	250 Chem.	

Chem. 40. Elementary Physical Chemistry.—*Prerequisite:* Chem. 24; Physics 1a-1b or 7a-7b; Math. 7 or 8.

3	Lect.	10	MWF	112 Chem.A.	RODEBUSH

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 41. Elementary Physical Chemistry.—(Laboratory). To accompany Chem. 40.

Credit	Section	Hours	Days	Room	Instructor
1	A Lab.	1–4	Tu	124 Chem.	PHIPPS
	B Lab.	1–4	Th	124 Chem.	
	C Lab.	1–4	F	124 Chem.	
	D Lab.	1–4	W	124 Chem.	

Chem. 42. Elementary Physical Chemistry.—*Prerequisite:* Chem. 40.

3	Lect.	9	TTS	161 Chem.	PHIPPS

Chem. 43. Elementary Physical Chemistry.—(Laboratory). *Prerequisite:* Chem. 40, 41, and registration in Chem. 42.

1	A Lab.	1–4	Th	124 Chem.	PHIPPS
	B Lab.	1–4	F	124 Chem.	

Chem. 44a. Advanced Physical Chemistry.—*Prerequisite:* Chem. 40 and 41.

2	Lect.	10	TT	161 Chem.	RODEBUSH

Chem. 50a. Biochemistry.—*Prerequisite:* Chem. 24 or 22, and 33 or 34a.

5	Lect.	9	TT	217 Chem.	ROSE, CARTER and assistants
	A Lab.	1–4	TT	450 Chem.	
		8–11	S	450 Chem.	
	B Lab.	1–4	MWF	450 Chem.	

Chem. 60a. Chemical Technology.—*Prerequisite:* Senior standing. (Estimated cost of optional inspection trip is $15 to $20 per student.)

4	Lect.	11	MWF	161 Chem.	JOHNSTONE
	A Lab.	1–5	M	50 Chem.	COMINGS and JOHNSTONE
	B Lab.	1–5	Tu	50 Chem.	COMINGS and JOHNSTONE
	C Lab.	1–5	Th	50 Chem.	COMINGS and JOHNSTONE
	D Lab.	1–5	F	50 Chem.	COMINGS and JOHNSTONE

Chem. 61a. Principles of Chemical Engineering.—*Prerequisite:* Chem. 42 or senior standing.

4	Lect.	9	MWF	161 Chem.	COMINGS
	A Lab.	1–5	M	50 Chem.	COMINGS
	B Lab.	1–5	Tu	50 Chem.	COMINGS
	C Lab.	1–5	W	50 Chem.	COMINGS
	D Lab.	1–5	Th	50 Chem.	COMINGS

Chem. 62a. Principles of Research and Development in Chemical Engineering.—*Prerequisite:* Senior standing in chemistry or chemical engineering.

2	Lect.	10	MW	161 Chem.	KEYES

Chem. 73a. Metallurgy.—*Prerequisite:* Senior standing in engineering courses only.

3	Lect.	8	MWF	161 Chem.	

Chem. 86a. Water Treatment.—*Prerequisite:* Chem. 24. Lectures, demonstrations, and field trips. Methods for determining water quality. Special water requirements of industries. Chemistry of water conditioning for municipal and industrial use. By-product recovery from industrial and other wastes.

3	A	10	MWF	217 Chem.	BUSWELL and assistant

Chem. 92a. Chemical Literature and Reference Work.—(Required of juniors in chemistry; expected also of juniors taking major work in chemistry.) *Prerequisite:* 18 hours of chemistry; one year of French or German; junior standing.

1	A	10	Th	201 Chem.	BARTOW
	B	8	F	201 Chem.	
	C	10	Tu	201 Chem.	

Chem. 95a. History of Science with Particular Reference to Chemistry.—*Prerequisite:* Junior standing with 20 hours of laboratory science.

2	A	8	TT	161 Chem.	BARTOW

Courses for Graduates

Chem. 101a. Inorganic Chemistry.—(½ unit). (For laboratory work see Chem. 102a.) 8 MW; 303 Chem. Professor HOPKINS.

Chem. 102a. Inorganic Chemistry.—(Laboratory work to accompany or follow Chem. 101a.) Arrange. (¼ to ¾ unit).* Professor HOPKINS.

Chem. 105a. Inorganic Seminar.—(¼ unit.) Seminar, 4 Tu; 162 Chem. Professor HOPKINS.

Chem. 106a. Special Topics in Inorganic Chemistry.—Lectures, discussions, and reports. (¾ unit). Non-aqueous solvents as media for chemical reactions. 8 TT; 162 Chem. Assistant Professor AUDRIETH.

Chem. 123a. Qualitative Analysis.—(½ unit). Lectures, 11 MF; 116 Chem. Associate Professor REEDY.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 123c. Qualitative Analysis and Microanalysis.—(Laboratory work, optional, to accompany Chem. 123a.) (¼ to ¾ unit).* Arrange. Associate Professor REEDY.

Chem. 125a. Analytical Chemistry.—(Seminar). (Required of all students taking a major or minor in analytical chemistry.) (¼ to 1 unit).* 4 Th; 162 Chem. Professor CLARK.

Chem. 126a. Quantitative Instrumental and Chemical Methods of Analysis in Chemical Research.—Ultimate bomb analysis, gas density, polarimetry, refractometry, spectrophotometry, colorimetry, microscopy, etc. (½ unit). Lectures, 9 TT; 303 Chem. Associate Professor ENGLIS.

Chem. 126c. Quantitative Instrumental and Chemical Methods of Analysis in Chemical Research.—(Laboratory work, optional, to accompany Chem. 126a.) (¼ to ¾ unit).* Arrange; 305a Chem. Associate Professor ENGLIS.

Chem. 127a. Applied X-rays.—(½ unit). Lectures, 10 TT; 217 Chem. Professor CLARK.

Chem. 127c. Applied X-rays.—(Laboratory work, optional, to accompany Chem. 127a.) (¼ to ½ unit).* Arrange; 308 Chem. Professor CLARK.

Chem. 132a. Organic Chemistry.—(First course). (¾ unit). 11 TT; 217 Chem. Professor SHRINER.

Chem. 134. Organic Chemistry.—Chiefly laboratory work. (½ to 1 unit).* Arrange; 219 Chem. Professor SHRINER.

Chem. 135a. Organic Chemistry.—(Seminar). (¼ unit). 11 W; 217 Chem. Professor ADAMS.

Chem. 136a. Organic Chemistry.—Special topics. (¾ unit). 11 TT; 112 Chem.A. Professor MARVEL.

Chem. 145a. Physical Chemistry.—(Seminar). (¾ unit). 10-12 S; 176 Chem. Professor RODEBUSH.

Chem. 152a. Biochemistry.—Chiefly laboratory. (½ to 1 unit).* Arrange; 467b Chem. Professor ROSE.

Chem. 155a. Biochemistry.—(Seminar required of all students whose major is in biochemistry.) (¾ unit). 9-11 F; 456 Chem. Professor ROSE.

Chem. 160a. Advanced Chemical Engineering.—*Prerequisite:* Chem. 61a and 61b. (½ unit). Lecture, arrange. Professor KEYES.

Chem. 161a. Chemical Plant Design.—Calculations and layout of equipment for recently developed processes. *Prerequisite:* Chem. 61a and 61b. (½ unit). Lecture, arrange. Associate Professor JOHNSTONE.

Chem. 185a. The Chemistry of Water Treatment.—(Seminar). (½ to 1¼ units).* Arrange; 60b Chem. Professor BUSWELL.

Chem. 190a. Research.—Work may be taken in the following subjects:

Physical and Electrochemistry.—Professor RODEBUSH, Associate Professor PHIPPS, Assistant Professor COPLEY.

Inorganic Chemistry.—Professor HOPKINS, Associate Professor REEDY, Assistant Professors AUDRIETH, BAILAR; Dr. REED.

Analytical Chemistry.—Professor CLARK, Associate Professors REEDY, SMITH, ENGLIS.

Food Chemistry.—Associate Professor ENGLIS.

Applied X-rays.—Professor CLARK.

Organic Chemistry.—Professors ADAMS, MARVEL, FUSON, SHRINER; Assistant Professor BAILAR.

Zymochemistry.—Professor BUSWELL.

Phytochemistry.—Associate Professor ENGLIS.

Biochemistry.—Professor ROSE, Dr. CARTER.

Chemical Engineering.—Professor KEYES, Associate Professor JOHNSTONE, Assistant Professor SWANN.

Ceramic Chemistry.—Professor PARMELEE.

Chem. 192a. Chemical Literature and Reference Work.—(¼ unit). 4 W; 201 Chem. Dr. BARTOW.

CIVIL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $0.50 to $2.00.

Courses for Undergraduates

C.E. 1. Plane Surveying.—*Prerequisite:* Math. 4; G.E.D. 1 or 4.

Credit	Section	Hours	Days	Room	Instructor
3	E	8–10	MWF	108 C.E.S.B.	RAYNER
	F	1–3	MWF	109 C.E.S.B.	DELL
	G	10–12	MWF	109 C.E.S.B.	DELL
	H	1–3	MWF	201 C.E.S.B.	PICKELS

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

C.E. 3. Railway and Highway Surveying.—*Prerequisite:* C.E. 1, 15, 16 or 18.

Credit	Section	Hours	Days	Room	Instructor
4	E	10–12	MTWF	102 E.H., 202 C.E.S.B.	Wiley

C.E. 15. General Surveying.—*Prerequisite:* Math. 4; G.E.D. 1 or 4.

3	E	8–11	TT	108 C.E.S.B.	Dell
	F	1–4	MF	109 C.E.S.B.	
	G	1–4	TT	202 C.E.S.B.	Rayner

C.E. 17. Surveying for Landscape Architects.—*Prerequisite:* Math. 4.

3	E	1–3	MWF	108 C.E.S.B.	Rayner

C.E. 20a. Highway Construction.—*Prerequisite:* C.E. 2, 15, or 18, or consent of instructor.

3	E	8	MWF	102 E.H.	Wiley

C.E. 22. Highway and Municipal Design.—*Prerequisite:* C.E. 20a.

4	E	9	MWF	101 E.H.	Crandell
		1–4	Th	309 E.H.	

C.E. 30. Highway Materials Laboratory.—*Prerequisite:* Junior standing in engineering, architecture, or landscape architecture.

1	E	1–4	W	201 M.T.L.	Wiley
	F	1–4	Th	201 M.T.L.	Bauer
	G	1–4	Tu	201 M.T.L.	Bauer

C.E. 31. Advanced Highway Materials.—*Prerequisite:* C.E. 30, 35, or consent of instructor.

2	E	9	Tu	201 M.T.L.	Bauer
		1–4	W	112 M.T.L.	

C.E. 35. Plain Concrete.—*Prerequisite:* Junior standing in engineering, architecture, or landscape architecture.

2	E	8	Tu	112 M.T.L.	Bauer
		8–11	Th	112 M.T.L.	
	F	1	M	112 M.T.L.	Bauer
		1–4	F	112 M.T.L.	
	G	11	Th	112 M.T.L.	
		9–12	Tu	112 M.T.L.	

C.E. 36. Construction Materials.—*Prerequisite:* Junior standing in engineering, architecture, or landscape architecture.

1	E	9	Tu	400 E.H.	Oliver
	F	8	Tu	400 E.H.	Oliver

C.E. 40. Water Supply.—*Prerequisite:* T.A.M. 3 and 4.

4	E	10	MWF	208 E.H.	Babbitt
		1–4	Tu	211 E.H.	
	F	11	MWF	208 E.H.	Babbitt
		1–4	Tu	214 E.H.	

C.E. 41. Sewage.—*Prerequisite:* C.E. 40 or 40a.

3	E	8	TT	208 E.H.	Doland
		1–4	Th	211 E.H.	

C.E. 42. Public Health Engineering.—*Prerequisite:* Registration or credit in C.E. 40 and Bact. 5a.

4	E	9	MF	208 E.H.	Babbitt
		9–12	TT	214 E.H.	

C.E. 50. Hydrology.—*Prerequisite:* Senior standing in engineering.

2	E	9	TT	208 E.H.	Pickels
	F	10	TT	208 E.H.	Pickels

C.E. 60. Bridge and Building Construction.—*Prerequisite:* Sophomore standing in the University.

3	E	1	MTW	205 E.H.	Doland
	F	9	MTW	205 E.H.	Doland

C.E. 61. Structural Stresses.—*Prerequisite:* Registration or credit in T.A.M. 3.

4	E	9	MWF	405 E.H.	Shedd
		1–4	Tu	419 E.H.	
	F	10	MWF	405 E.H.	Shedd
		1–4	Tu	419 E.H.	
	G	9	MWF	400 E.H.	Vawter
		1–4	Th	419 E.H.	

C.E. 62. Elementary Structural Design.—*Prerequisite:* Registration or credit in C.E. 61.

3	E	8–10	MWF	419 E.H.	Stubbs

C.E. 63. Theory of Reinforced Concrete.—*Prerequisite:* T.A.M. 3; credit or registration in C.E. 61.

2	E	10	TT	101 E.H.	Vawter

C.E. 64a. Structural Design.—*Prerequisite:* C.E. 62 and 63.

5	E	8	MWF	405 E.H.	Shedd
		1–4	MF	211 E.H.	
	F	8	MWF	400 E.H.	Oliver
		1–4	MF	309 E.H.	

C.E. 65a. Structural Design.—*Prerequisite:* C.E. 64.

Credit	Section	Hours	Days	Room	Instructor
4	E	9	Tu	101 E.H.	VAWTER
		1–4	MWF	214 E.H.	

C.E. 66. Masonry Construction.—*Prerequisite:* C.E. 61 and 63.

3	E	9	MWF	102 E.H.	HUNTINGTON

C.E. 67. Statically Indeterminate Structures.—*Prerequisite:* Registration or credit in C.E. 64.

3	E	11	MWF	205 E.H.	CROSS

C.E. 86. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 61.

4	E	1	TT	408 E.H.	STUBBS
		2–5	TT	408 E.H.	

C.E. 89. Structural Engineering.—*Prerequisite:* Senior standing in engineering or architecture.

3	E	10	MWF	400 E.H.	OLIVER

C.E. 90. Contracts and Specifications.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	10	MW	105 E.H.	VAWTER
	F	11	TT	101 E.H.	CRANDELL

C.E. 91. Estimates and Costs.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	10	TT	400 E.H.	STUBBS

C.E. 97. Thesis.—*Prerequisite:* Senior standing. (No credit).

C.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. (No credit).

Courses for Graduates

C.E. 101. Water Supply Engineering.— 1 unit		8	TT	204 E.H.	BABBITT
C.E. 103. Highway Engineering.— 1 unit		11	MW	304 E.H.	CRANDELL
C.E. 106. Structural Theory and Design.— 1 or 2 units*		4	MF	205 E.H.	CROSS
C.E. 107. Steel Design.— 1 unit		4	TT	205 E.H.	CROSS and SHEDD
C.E. 109. Public Health Engineering.— 1 unit		8	MW	204 E.H.	BABBITT
C.E. 112. Masonry Construction.— ½ to 1½ units*		10	MW	205 E.H.	HUNTINGTON
C.E. 120. Highway Traffic and Safety.— 1 unit		9	TT	102 E.H.	WILEY
C.E. 130. Hydrology.— 1 unit		1	TT	208 E.H.	PICKELS
C.E. 140. Special Problems.— ½ to 2 units*		To be arranged			Members of department
C.E. 198. Thesis.— 1 to 2½ units*		To be arranged			Members of department

CLASSICS

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, and 17.

Minors: 20 hours chosen from not more than two of the following: foreign language (Latin being especially recommended), English literature, history, and philosophy. At least eight hours must be taken in each subject, if two are chosen.

Latin

Majors: 20 hours, excluding Latin 1a-1b, 6, 13, and 20, and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours chosen from not more than two of the following: foreign language (Greek being especially recommended), English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17 and Latin 1a-1b, 6, 9, 11a-11b, 13, 20. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours chosen from not more than two of the following: foreign language, English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

A. GREEK

Courses for Undergraduates

Greek 1a. Elementary Greek.—

Credit	Section	Hours	Days	Room	Instructor
4	A	11	TWTF	120 L.H.	Perry

Greek 3. Second Year Greek. Plato.—*Prerequisite:* Greek 1a-1b.

3	A	9	MWF	114 L.H.	Perry

Courses for Advanced Undergraduates and Graduates

Greek 5. Herodotus and the Lyric Poets.—*Prerequisite:* Greek 3 and 4 or an equivalent.

3	A	9	TTS	114 L.H.	Johnston

Greek Life and History

Note: For Greek 16, 18, and History 55 a knowledge of Greek is not presupposed.

Greek 16. Life of the Ancient Greeks.—*Prerequisite:* Sophomore standing.

1	A	3	Th	120 L.H.	Zickgraf

Greek 18. Greek Archaeology.—*Prerequisite:* Junior standing.

2	A	2	TT	120 L.H.	Zickgraf

Greek History. See History 55.

Courses for Graduates

Note: Students desiring to take graduate work in Greek should have had at least three years of college Greek or an equivalent.

Greek 105b. Plato.—(1 unit). Twice a week. 10 S. Professor Oldfather.

Greek 110a. See Latin 110a.

B. LATIN

Courses for Undergraduates

Latin 1a. Ovid.—*Prerequisite:* Three entrance units in Latin or Latin 6.

4	A	1	TWTF	114 L.H.	Oliver

Latin 3. Lucretius and Horace (Odes).—*Prerequisite:* Latin 12a-12b or an equivalent.

3	A	10	MWF	120 L.H.	Johnston

Latin 5a. Latin Composition.—*Prerequisite:* Three entrance units in Latin or registration in Latin 6. Those planning to make Latin a major subject should take this course in their first year. Required to secure the department's recommendation to teach.

1	A	4	Th	120 L.H.	Canter

Latin 6. Cicero.—*Prerequisite:* Two entrance units in Latin or Latin 11a-11b.

4	A	2	TWTF	114 L.H.	Bedrick

Latin 12a. Plautus, Terence, Catullus.—*Prerequisite:* Four entrance units in Latin or Latin 1a-1b.

4	A	9	TWTF	120 L.H.	Canter

Roman Life and History

Latin 20. Mythology of Greece and Rome.—*Prerequisite:* Sophomore standing. *Note:* This course presupposes no knowledge of Latin and is open to all students except freshmen.

2	A	2	TT	202 L.H.	Perry

Courses for Advanced Undergraduates and Graduates

Latin 23. Livy, Tibullus, and Propertius.—*Prerequisite:* 12 hours of Latin acceptable for a major.

3	A	2	MWF	120 L.H.	Canter

Latin 30a. Honors Course.—Thesis or a special course of study approved by the department. *Prerequisite:* Senior standing and 14 hours of Latin acceptable for a major. (2). Arrange. Professor Canter.

Courses for Graduates

Note: Students desiring to take graduate work in Latin should have had at least three years of college Latin in addition to the Latin presented to meet entrance requirements.

Latin 106. Terence.—(1 unit). 10 TT; 118 Lib. Professor Oldfather.

Latin 110a. Bibliography and Criticism.—(1 unit). 11 S; 118 Lib. Professors Oldfather, Canter; Associate Professor Perry.

Latin 116. Latin Satire.—(1 unit). 4-6 Tu; 120 L.H. Professor Canter.

Latin 118. The Latin Romance.—(1 unit). 10 TT; 114 Lib. Associate Professor Perry.

DAIRY HUSBANDRY

Note: Certain courses in this department require laboratory fees varying from $2.00 to $3.00.

Courses for Undergraduates

D.H. 1. Testing Dairy Products.—*Prerequisite:* D.H. 24b or sophomore standing.

Credit	Section	Hours	Days	Room	Instructor
3	A	1–4	TT	127 Agr.	OVERMAN

D.H. 6a. Dairy Products Plant Operations.—*Prerequisite:* D.H. 24b; consent of instructor. (3). 7-10 two days a week and one hour to be arranged; D.Mfrs. Associate Professor TRACY, Mr. TUCKEY.

D.H. 22. Cheese Making.—*Prerequisite:* D.H. 24b; sophomore standing.

3	A	8 7–12	TT S	D.Mfrs. D.Mfrs.	RUEHE and TUCKEY

D.H. 23. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. (5). Arrange. Work may be taken in the following subjects:

Dairy Bacteriology.—Professor PRUCHA, Assistant Professor BRANNON.
Dairy Chemistry.—Associate Professor OVERMAN.
Dairy Farming and Economic Milk Production.—Professor FRASER.
Dairy Manufactures.—Professor RUEHE, Associate Professor TRACY.
Dairy Production.—Professors GAINES, YAPP, NEVENS.

D.H. 24a. Elementary Dairy Production.—

3[1]	Lect.	8	M	127 New Agr.	NEVENS, KUHLMAN
[1]Juniors and seniors receive only 2 hours credit.	Lab.	8–10	W	S.P.	
	Quiz	8	F	118 New Agr. 127 New Agr.	

D.H. 24b. Elementary Testing and Manufacture of Dairy Products.—

3[1]	Lect.	1	Th	127 New Agr.	TUCKEY
[1]Juniors and seniors receive only 2 hours credit.	Quiz	2	Th	127 New Agr.	
	A Lab.	1–3	Tu	D.Mfrs.	

D.H. 27. Special Problems.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Members of the department.

Courses for Advanced Undergraduates and Graduates

D.H. 4. Ice Cream Making.—*Prerequisite:* D.H. 24b; junior standing. (Inspection trip requirement waived for 1936-37.)

5	A	1–4 4	TT MWF	D.Mfrs. D.Mfrs.	TRACY

D.H. 10. Advanced Dairy Bacteriology.—*Prerequisite:* Bact. 5a and 5b; junior standing.

4	A	1–4	MWF	456 Agr.	BRANNON and PRUCHA

D.H. 17. Advanced Study of Dairy Breeds.—*Prerequisite:* D.H. 2; junior standing.

3	A	Arrange		553 Agr.	YAPP

D.H. 20. Economic Problems in Dairy Farming.—*Prerequisite:* Junior standing.

3	A	9	MWF	553 Agr.	FRASER

Courses for Graduates

D.H. 101. Economic Milk Production.—(½ to 2 units).* Twice a week. Arrange. Professor FRASER.

D.H. 105. Dairy Manufactures.—(½ to 2 units).* Arrange. Professor RUEHE, Associate Professor TRACY.

D.H. 106. Dairy Bacteriology.—(½ to 2 units).* Arrange. Professor PRUCHA.

D.H. 107. Dairy Chemistry.—(½ to 2 units).* Arrange. Associate Professor OVERMAN.

D.H. 108. Physiology of Lactation.—(½ to 2 units).* Arrange. Professor GAINES.

D.H. 112. Research.—(1 to 4 units).* Arrange. *Note:* Graduate students writing a thesis should so indicate when registering in D.H. 112.

Dairy Bacteriology.—Professor PRUCHA.
Dairy Chemistry.—Associate Professor OVERMAN.
Dairy Cattle Breeding.—Professor YAPP.
Dairy Cattle Feeding.—Professor NEVENS.
Milk Production.—Professor GAINES.
Dairy Manufactures.—Professor RUEHE, Associate Professor TRACY.

D.H. 113. Seminar.—Current literature in dairy bacteriology, dairy chemistry, and dairy manufactures. (½ unit). Once a week. Members of the graduate staff.

D.H. 114. Seminar.—Current literature in biology of milk production. (½ unit). Once a week. Professor GAINES.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

ECONOMICS

(Including courses formerly in Public Utilities and Transportation)
(See also Agricultural Economics and Business Organization and Operation)

Major: For students in the College of Liberal Arts and Sciences, 20 hours made up of Economics 1 and other courses in economics for which it is a prerequisite.

Minors: 20 hours in any one or two of the following subjects: geography, history, philosophy, political science, and sociology.

Note: Economics 22 and 27 are open only to freshmen, without previous requirements.

Economics 1 is the fundamental course in economics. It is a prerequisite for most of the advanced courses, and students expecting to do advanced work in economics should take it in their sophomore year.

The courses in economics may be grouped in several rather distinct fields in which students may find it profitable to concentrate in their junior and senior years. The following fields are suggested: economic theory, history, and statistics; public and private finance, including insurance; labor; foreign trade; public utilities and transportation.

Courses for Undergraduates

Econ. 1. Principles of Economics.—*Prerequisite:* 30 hours of university work.

Credit	Section	Hours	Days	Room	Instructor
5	[1]Lect. I	9	TT	114 Com.	Hunter
	B1 Quiz	9	MWF	312 Com.	Hudson
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II, in Lect. II.	B2 Quiz	9	MWF	307 Com.	Osborn
	B3 Quiz	9	MWF	328 Com.	Waters
	B4 Quiz	9	MWF	326 Com.	Hood
	B5 Quiz	9	MWF	111 Com.	Hoover
	B6 Quiz	9	MWF	108 Com.	Elliott
	B7 Quiz	9	MWF	106 Com.	Losee
	C3 Quiz	10	MWF	307 Com.	Lockling
	C4 Quiz	10	MWF	108 Com.	Weston
	E Quiz	1	MWF	113 Com.	Lockling
	F1 Quiz	2	MWF	328 Com.	Osborn
	[1]Lect. II	11	TT	114 Com.	Hunter
	A Quiz	8	MWF	307 Com.	Hudson
	C1 Quiz	10	MWF	328 Com.	Elliott
	C2 Quiz	10	MWF	312 Com.	Hunter
	D1 Quiz	11	MWF	111 Com.	Hoover
	D2 Quiz	11	MWF	326 Com.	Weston
	D3 Quiz	11	MWF	307 Com.	Hood
	D4 Quiz	11	MWF	325 Com.	Behling
	D5 Quiz	11	MWF	108 Com.	Losee
	F2 Quiz	2	MWF	306 Com.	Lockling
	F3 Quiz	2	MWF	326 Com.	Waters

Econ. 2. Elements of Economics.—Exclusively for non-commerce students. Not open to those who have had Econ. 1. *Prerequisite:* 30 hours of university work.

3	A Quiz	8	MWF	325 Com.	Lounsbury
	B Quiz	9	MWF	219 Com.	Bruce
	C1 Quiz	10	MWF	325 Com.	Lounsbury
	C2 Quiz	10	MWF	219 Com.	Bruce
	C3 Quiz	10	MWF	326 Com.	Turney
	C4 Quiz	10	MWF	329 Com.	West
	C5 Quiz	10	MWF	126 Com.	Marsh
	D Quiz	11	MWF	222 Com.	Miller
	E1 Quiz	1	MWF	326 Com.	Miller
	E2 Quiz	1	MWF	111 Com.	Morris
	F1 Quiz	2	MWF	222 Com.	Miller
	F2 Quiz	2	MWF	111 Com.	Bonnell
	F3 Quiz	2	MWF	108 Com.	Marsh

Econ. 3. Money, Credit, and Banking.—*Prerequisite:* Econ. 1 or 2.

3	Lect.	9	W	114 Com.	Lee
	B1 Quiz	9	MF	325 Com.	Lee
	B2 Quiz	9	MF	322 Com.	Lounsbury
	B3 Quiz	9	MF	317 Com.	Weston
	K1 Quiz	9	TT	322 Com.	Lounsbury
	K2 Quiz	9	TT	108 Com.	Weston
	L Quiz	10	TT	325 Com.	Weston
	M Quiz	11	TT	325 Com.	Lee

Econ. 22. Economic History of the United States.—Open to freshmen only.

3	[1]Lect. I	1	M	114 Com.	Bogart and others
	E1 Quiz	1	WF	306 Com.	Turney
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II, in Lect. II; and those under Lect. III, in Lect. III.	E2 Quiz	1	WF	307 Com.	Losee
	E3 Quiz	1	WF	122 Com.	Elliott
	E4 Quiz	1	WF	310 Com.	Osborn
	E5 Quiz	1	WF	312 Com.	Zingler
	J Quiz	8	TT	111 Com.	Hoover
	K1 Quiz	9	TT	307 Com.	Marsh
	N1 Quiz	1	TT	307 Com.	Morris
	N2 Quiz	1	TT	306 Com.	Osborn

Econ. 22. Economic History of the United States (concluded)

Credit	Section	Hours	Days	Room	Instructor
3	[1]Lect. II	2	M	114 Com.	Bogart
	F1 Quiz	2	WF	325 Com.	Zingler
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II, in Lect. II; and those under Lect. III, in Lect. III.	F2 Quiz	2	WF	322 Com.	Steiner
	F3 Quiz	2	WF	307 Com.	Miller
	F4 Quiz	2	WF	219 Com.	West
	F5 Quiz	2	WF	106 Com.	Masiko
	O1 Quiz	2	TT	113 Com.	Morris
	O2 Quiz	2	TT	307 Com.	Hudson
	K2 Quiz	9	TT	111 Com.	Hoover
	K3 Quiz	9	TT	310 Com.	Morris
	[1]Lect. III	10	Tu	114 Com.	Bogart
	A Quiz	8	MW	111 Com.	Hoover
	B Quiz	9	MW	119 Com.	Miller
	C Quiz	10	MW	119 Com.	Flanders
	G Quiz	3	MW	310 Com.	Hudson
	K4 Quiz	9	ThS	126 Com.	West
	L1 Quiz	10	ThS	113 Com.	Waters
	L2 Quiz	10	ThS	310 Com.	Hood
	L3 Quiz	10	ThS	307 Com.	Turney

Courses for Advanced Undergraduates

Econ. 61. Economic Theory.—*Prerequisite:* Econ. 1 or 2; senior standing.

3	D	11	MWF	119 Com.	Lockling

Econ. 90a. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis or take a comprehensive examination, as part of the requirement. (2 or 4).* Arrange. Assistant Professor Brown and other members of the department.

Econ. 91a. Independent Study.—Seniors registered in the College of Commerce who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this department or sixteen semester hours if divided between this department and any other department. (3 to 5).* Arrange. Associate Professor Gray and other members of the department.

Econ. 92. Economics of Transportation.—*Prerequisite:* Econ. 1; junior standing.

3	A Quiz	8	MWF	305 Com.	Behling
	B Quiz	9	MWF	305 Com.	Behling
	C Quiz	10	MWF	101 Com.	Locklin
	D Quiz	11	MWF	101 Com.	Locklin
	F Quiz	2	MWF	305 Com.	Behling

Econ. 99. Current Economic Problems.—*Prerequisite:* Senior standing. Open to commerce seniors or seniors whose major subject is economics.

2	L	11	TT	212 Com.	Thompson

Courses for Advanced Undergraduates and Graduates

Econ. 4. History and Theory of Money, Credit, and Banking Institutions, with Particular Reference to Europe.—*Prerequisite:* Econ. 1 or 2; junior standing.

2	J	8	TT	312 Com.	Wright

Econ. 6. Principles and Practices of Investment Banking.—*Prerequisite:* Econ. 1 or 2, and 3; junior standing.

3	D	11	MWF	312 Com.	Lee

Econ. 9. Advanced Theory and Practice of Banking.—*Prerequisite:* Econ. 1 or 2; senior standing.

3	Lect.	8	W	215 Com.	Wright
	A Quiz	8	MF	326 Com.	Wright
	K Quiz	9	TT	326 Com.	Wright

Econ. 10. Corporation Finance and Management.—*Prerequisite:* Econ. 1 and 3; Accy. 1a and 1b.

3	A Quiz	8	MWF	123 Com.	Van Arsdell
	B Quiz	9	MWF	123 Com.	Van Arsdell
	L Quiz	10	TTS	119 Com.	Van Arsdell

Econ. 11. Industrial Consolidation.—*Prerequisite:* Econ. 10.

3	Lect.	9	M	114 Com.	Brown
	B Quiz	9	WF	122 Com.	Brown
	C Quiz	10	WF	122 Com.	Brown
	K Quiz	9	TT	122 Com.	Brown
	L Quiz	10	TT	122 Com.	Brown

Econ. 19. Economic Development of the United States (1820-60).—*Prerequisite:* Econ. 1 or 2; senior standing.

2	L	10	TT	212 Com.	Thompson

Econ. 25. Economic History of England.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	K Quiz	9	TTS	212 Com.	Bogart

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Econ. 31. Organization of Foreign Commerce.—*Prerequisite:* Econ. 1 or 2; junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	10	W	215 Com.	LITMAN
	C Quiz	10	MF	322 Com.	LITMAN
	L Quiz	10	TT	322 Com.	LITMAN

Econ. 35. Corporation Finance.—*Prerequisite:* Econ. 1 or 2. For engineering students only.

3	C Quiz	10	MWF	106 Com.	VAN ARSDELL

Econ. 41. Introduction to Labor Problems.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	2	F	215 Com.	HELBING
	F Quiz	2	MW	312 Com.	HELBING
	G Quiz	3	MW	312 Com.	HELBING
	M Quiz	11	TT	312 Com.	HELBING

Econ. 44. Socialism and Economic Reform.—*Prerequisite:* Econ. 1 or 2; senior standing.

3	E	1	MWF	219 Com.	HELBING

Econ. 51. Public Finance.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	11	M	114 Com.	HUNTER
	D1 Quiz	11	WF	328 Com.	HUNTER
	D2 Quiz	11	WF	322 Com.	STEINER
	J Quiz	8	TT	322 Com.	STEINER
	L Quiz	10	TT	328 Com.	STEINER
	M Quiz	11	TT	328 Com.	STEINER

Econ. 55. Economics of Insurance.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	9	M	215 Com.	DICKINSON
	J Quiz	8	TT	305 Com.	DICKINSON
	K Quiz	9	TT	305 Com.	DICKINSON

Econ. 65. Social Control of Business.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	C Quiz	10	MWF	212 Com.	GRAY

Econ. 71. Economic Statistics.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	C Quiz	10	Tu	307 Com.	DICKINSON
	Practice	1–3	TT	317 Com.	DICKINSON

Econ. 81. Principles of Public Utilities.—*Prerequisite:* Econ. 1 or 2, and 3.

3	B	9	MWF	100 Com.	GRAY

Econ. 94. Ocean Shipping.—*Prerequisite:* Econ. 92.

3	A	9	MWF	329 Com.	LITMAN

Econ. 95. Railroad Rates.—*Prerequisite:* Econ. 92.

3	K	9	TTS	101 Com.	LOCKLIN

Courses for Graduates

Econ. 102. Monetary Theory and History from the Restriction Period to the Present.—(1 unit). Arrange. Dr. LOUNSBURY.

Econ. 105. Public Finance.—(1 unit). 4-6 Tu; 420 Com. Professor HUNTER.

Econ. 109. Comparison of the Theory and Practice of the Leading Central and Reserve Banks, with Special Reference to England, Germany, France, and the United States.—(1 unit). 11 TT; 209 Com. Professor WRIGHT.

Econ. 110. Corporation Finance.—(1 unit). 2-4 Tu; 209 Com. Assistant Professor BROWN.

Econ. 118. Seminar.—Thesis course. (All graduate students writing theses in economics must register in Economics 118; registration for other students is optional.) 4-6 Th (alternate weeks); 420 Com.

(a) **Third Year: Seminar.**—Professor LITMAN

(b) **First Year: General Economics.**—Assistant Professor BROWN.

(c) **First Year: Public Utilities.**—Associate Professor GRAY.

Econ. 120. History of Economic Thought.—(1 unit). 3-5 Tu; 212 Com. Professor LITMAN.

Econ. 123. Industrial and Financial Organization of Society.—(1 unit). 4-6 F; 420 Com. Professor LEE.

Econ. 124. International Economics and Finance.—(1 unit). 10-12 S; 209 Com. Professor BOGART.

Econ. 143. Administration of Industrial Relations.—(1 unit). 9 TT; 209 Com. Dr. HELBING.

Econ. 144. Economic Statistics with Special Reference to Time Series and Business Cycles.—(1 unit). Arrange. Assistant Professor DICKINSON.

Econ. 180. Management of Public Utilities.—(1 unit). 4-6 W; 209 Com. Associate Professor GRAY.

Econ. 192. Economics of Transportation.—(1 unit). Arrange. Associate Professor LOCKLIN.

EDUCATION

A. GENERAL EDUCATION

Introductory Courses

Ed. 2. History of Education.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	B	9	MWF	303 Adm.(E)	SEYBOLT
	C	10	MWF	303 Adm.(E)	SEYBOLT

Ed. 5. Comparative Education.—*Prerequisite:* Junior standing.

3	E	1	MWF	204 Adm.(E)	JOHNSTON
	F	2	MWF	204 Adm.(E)	JOHNSTON

Ed. 6. Principles of Secondary Education.—*Prerequisite:* Ed. 25.

3	J	8	TTS	304 Adm.(E)	WILLIAMS
	B	9	MWF	308 Adm.(E)	CLEMENT
	K	9	TTS	304 Adm.(E)	WILLIAMS
	L	10	TTS	204 Adm.(E)	JOHNSTON
	M	11	TTS	204 Adm.(E)	JOHNSTON
	E	1	MWF	304 Adm.(E)	
	F1	2	MWF	304 Adm.(E)	ODELL
	F2	2	MWF	308 Adm.(E)	BROWNE
	G	3	MWF	303 Adm.(E)	ODELL

Ed. 10. Technic of Teaching.—*Prerequisite:* Ed. 25 and Ed. 6.

Students who are preparing to teach biology, chemistry, civics, economics, English, French, general science, geography, German, history, home economics, Latin, music, physics, physiography, or Spanish, or who expect to teach in elementary schools, and who plan to take Educational Practice, must register in the sections indicated immediately below, and must register at the same time for the Educational Practice indicated. Only students specializing in the fields indicated may enroll in these sections. Sections E and G1 are offered for 4 hours credit and meet four days a week; all others 3 hours credit.

(Biology—Ed. Prac. 6) (Chemistry—Ed. Practice. 7). (Gen. Sci.—Ed. Prac. 13) (Physics—Ed. Prac. 21 (Physiography—Ed. Prac. 30)	A1	8	MWF	303 U.H.S.	HARNISH
(Music—Ed. Prac. 20)	D1	11	MWF	207 U.H.S.	HOLMES
(Civics—Ed. Prac. 8) (History—Ed. Prac. 15) (Economics—Ed. Prac. 27) (Geography—Ed. Prac. 29)	E	1	MWTF	210 U.H.S.	HABBERTON
(Home Econ.—Ed. Prac. 14)	F1	2	MWF	208 W.B.	KING
(P.E. Men—Ed. Prac. 1, 2, 3, 4)	F2	2	MWF	209 New Gym.	JACKSON
(English—Ed. Prac. 11) (Speech—Ed. Prac. 11a)	G1	3	MTWF	205 U.H.S.	MCHARRY
(French—Ed. Prac. 12) (German—Ed. Prac. 28) (Latin—Ed. Prac. 17) (Spanish—Ed. Prac. 23)	G2	3	MWF	312 U.H.S.	ARNDT

Students preparing to teach in other fields than those listed above and those who do *not* plan to take Educational Practice must obtain consent of instructor before registering in section listed below:

	K	10	TTS	304 Adm.(E)	REAGAN

Ed. 25. Educational Psychology.—*Prerequisite:* Psych. 1 for all sections except Section G.

3	J	8	TTS	303 Adm.(E)	POTTHOFF
	K	9	TTS	307 Adm.(E)	REAGAN
[1]Section G1 is for students who have not taken Psych. 1. Consent of instructor must be obtained.	L	10	TTS	307 Adm.(E)	POTTHOFF
	M	11	TTS	307 Adm.(E)	REAGAN
	E	1	MWF	307 Adm.(E)	DOLCH
	F1	2	MWF	307 Adm.(E)	DOLCH
	F2	2	MWF	303 Adm.(E)	POTTHOFF
	[1]G1	3	MWF	204 Adm.(E)	POTTHOFF
	G2	3	MWF	308 Adm.(E)	
	H	4	MWF	308 Adm.(E)	DOLCH

Ed. 91. Special Problems of Education in Rural Communities.—*Prerequisite:* Senior standing and at least 6 hours in education.

2		11	MW	122 Agr.	NOLAN

Ed. 99a. Thesis.—*Prerequisite:* Senior standing. (2). Arrange. Dean BENNER and others.

Courses for Advanced Undergraduates and Graduates

Ed. 11. Ancient and Medieval Education. *Prerequisite:* Senior standing or Ed. 2.

2		9	TT	303 Adm.(E)	SEYBOLT

Ed. 18. Educational Measurements.—*Prerequisite:* Ed. 25.

Credit	Section	Hours	Days	Room	Instructor
3		10	MWF	307 Adm.(E)	ODELL

Ed. 45. Genetic Psychology for Teachers.—*Prerequisite:* Senior standing; Ed. 25.

3		11	MWF	204 Adm.(E)	GRIFFITH

Ed. 46. Recent Developments in the Teaching of Elementary School Subjects.—*Prerequisite:* Ed. 25.

2		10–12	S	202 Adm.(E)	DOLCH

Ed. 52. Part-Time and Evening Schools.—(Same as Ind. Ed. 52). *Prerequisite:* Junior standing.

3		9	MWF	304 Adm.(E)	MAYS

Ed. 53. Problems of Industrial Education.—(Same as Ind. Ed. 53). *Prerequisite:* Junior standing or consent of the instructor.

3		10	MWF	304 Adm.(E)	MAYS

Courses for Graduates

In addition to complying with the general rules of the Graduate School, candidates for the master's degree in education must meet the following requirements: (1) Education 125 is a required course for all students; (2) for students who have not taken a course in the history of education, Education 11 or Education 30 is required; (3) Education 6 and 25, or their equivalents, are prerequisites for all graduate courses.

No student is recommended to the Dean of tbe Graduate School for formal admission to candidacy for the master's degree until at least four units of the eight ordinarily required for the degree have been completed satisfactorily. In the case of a student who has been allowed to waive the thesis (see Graduate School Bulletin), two papers will be required. The first shall be written during the first half of the student's residence and shall be an important factor in determining his further status in the department. The second shall be written during the second half of the student's period of residence.

Ed. 102. Research in the History of Education.—(1 unit). Arrange; 311 Adm.(E). Professor SEYBOLT.

Ed. 104. Educational Administration.—(1 unit). 4-6 M; 303 Adm.(E). Associate Professor WEBER.

Ed. 106. Organization and Administration of Secondary Education.—(1 unit). 4-6 Tu; 308 Adm.(E). Professor CLEMENT.

Ed. 110. Recent Research in the Teaching of High School Subjects.—(1 unit). 4-6 W; 304 Adm.(E). Professor MONROE.

Ed. 123. Educational Statistics.—(1 unit). 10-12 S; 308 Adm.(E). Associate Professor ODELL.

Ed. 124. Readings in Educational Research.—(1 unit). 4-6 Th; 304 Adm.(E). Professor MONROE.

Ed. 125. Educational Psychology.—(1 unit). 4-6 F; 204 Adm.(E). Professor CAMERON.

Ed. 127. High School Curricula.—(1 unit). 4-6 Th; 308 Adm.(E). Professor CLEMENT.

Ed. 147. Psychology of the Elementary School Subjects.—(1 unit). 4-6 Th; 204 Adm.(E). Professor CAMERON.

Ed. 150. Thesis.—(1 to 2 units).* Dean BENNER and others.

Ed. 170. Public School Finance and Business Administration.—*Prerequisite:* Ed. 104 or 106. (1 unit). 4-6 W; 307 Adm.(E). Associate Professor WEBER.

Ed. 185. Seminar in Educational Psychology.—*Prerequisite:* Ed. 125 and consent of instructor. (1 unit). Arrange; 203 Adm.(E). Professors CAMERON and GRIFFITH.

Ed. 186. Seminar in Secondary Education.—(1 unit). 10-12 S; 303 Adm.(E). Professor CLEMENT and Assistant Professor SANFORD.

Ed. 187. Seminar in Industrial Education and Guidance.—(1 unit). 10-12 S; 312 Adm.(E). Professor MAYS.

Ed. 190. Research in Education.—*Prerequisite:* 3 units of graduate credit in education and consent of instructor. (1 unit). Arrange. Dean BENNER and others.

Extramural Courses for Graduate Students

Ed.E. 170. Public School Finance and Business Administration.—*Prerequisite:* Consent of instructor. 10-12 S; Southern Illinois State Normal University, Carbondale. Associate Professor WEBER.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

B. RELATED COURSES IN SPECIAL SUBJECTS

The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 20 hours in Education for graduation; for the 15 hours in Education for the State High School Certificate; or for the hours of Education necessary as a qualification for teachers in the North Central Association accredited schools.

Art 10a. Course for Teachers.—(3). (See Art).

B.O.O. 12a. Typewriting.—(No credit). Laboratory fee, $5. (See B.O.O.).

B.O.O. 13a. Shorthand.—(No credit). (See B.O.O.).

English 42. Teaching of English Composition.—(2). (See English).

French 25. Methods of Teaching French.—(3). (See French).

History 18. Teaching of History.—(2). (See History).

Home Economics 11. Teaching of Home Economics.—(3). (See Home Economics).

Mathematics 35. Teachers' Course.—(3). (See Mathematics).

Music 25a. Elementary School Methods.—(3). (See Music).

Music 26a. High School Methods.—(2). (See Music).

Physical Education for Women 95a. Methods.—(4). (See Physical Education for Women).

C. EDUCATIONAL PRACTICE

The courses listed below are open only to seniors.—*Prerequisite:* Ed. 25 and 6; also Ed. 10 for those students who take Ed. Pract. 5, 9, 10, 16, 19, 24, and 26. For Educational Practice in Agriculture, see Associate Professor NOLAN at 116 Old Agriculture. For Educational Practice in Physical Education, see Mr. JACKSON at 202 Old Gymnasium. For Educational Practice in Home Economics, see Miss ROBINSON and Miss KING at 119 Woman's Building. Arrange for all other courses in Educational Practice with Principal C. W. SANFORD, at 102 University High School.

Ed. Prac. 1. Physical Education for Men.—(2 to 4).* Students must be registered in Ed. 10, Section F2.

Ed. Prac. 2. Physical Education for Men.—(2 to 4).* Students must be registered in Ed. 10, Section F2.

Ed. Prac. 3. Physical Education for Men.—(2 to 4).* Students must be registered in Ed. 10, Section F2.

Ed. Prac. 4. Physical Education for Men.—(2 to 4).* Students must be registered in Ed. 10, Section F2.

Ed. Prac. 5. Agricultural Education.—(3 to 5).* (Same as Agr. Ed. 50).

Ed. Prac. 6. Biology.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 7. Chemistry.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 8. Civics.—(5). Students must be registered in Ed. 10, Section E.

Ed. Prac. 9. Drawing, Art.—(5).

Ed. Prac. 10. Drawing, Mechanical.—(5).

Ed. Prac. 11. English.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 11a. Speech.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 12. French.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 13. General Science.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 14. Home Economics Education.—(5). Students must be registered in Ed. 10, Section F1.

Ed. Prac. 15. History.—(5). Students must be registered in Ed. 10, Section E.

Ed. Prac. 16. Industrial Education.—(5).

Ed. Prac. 17. Latin.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 19. Mathematics.—(5).

Ed. Prac. 20. Music.—(3 to 5).* Students must be registered in Ed. 10, Section D1.

Ed. Prac. 21. Physics.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 23. Spanish.—(5). Students must be registered in Ed. 10, Section G2.

Ed Prac. 24. Stenography and Typewriting.—(5).

Ed. Prac. 25. Elementary Education.—(5). Students must be registered in Ed. 10, Section A2.

Ed. Prac. 26. Bookkeeping.—(5).

Ed. Prac. 27. Economics.—(5). Students must be registered in Ed. 10, Section E.

Ed. Prac. 28. German.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 29. Geography.—(5). Students must be registered in Ed. 10, Section E.

Ed. Prac. 30. Physiography.—(5). Students must be registered in Ed. 10, Section A1.

D. AGRICULTURAL EDUCATION

Courses for Undergraduates

Agr. Ed. 1. Introduction to Agricultural Education.—*Prerequisite:* Sophomore standing; 10 hours of technical agriculture.

Credit	Section	Hours	Days	Room	Instructor
2		11	TT	122 Agr.	NOLAN

Agr. Ed. 50. Teaching.—(Same as Ed. Prac. 5). *Prerequisite:* Ed. 25 and senior standing.

2 to 5*	A	Conference 4 Tu; Teaching to be arranged	Tolono H.S.	HENDERSON
	B	Conference 4 Tu; Teaching to be arranged	St. Joseph H.S.	RUCKER
	C	Apprentice teaching in state		NOLAN

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Agr. Ed. 51. Teachers' Course in Agriculture.—*Prerequisite:* Ed. 25, and senior standing.

Credit	Section	Hours	Days	Room	Instructor
3		4	MWF	122 Agr.	NOLAN

Agr. Ed. 91. Special Problems of Education in Rural Communities.—*Prerequisite:* Senior standing; at least 6 hours in education.

2		11	MW	122 Agr.	NOLAN

E. INDUSTRIAL EDUCATION

Courses for Undergraduates

Ind. Ed. 1. Industrial Arts.—First course.

4	Lect.	9	TT	Wood Shop	BRAUCHER and
	Shop	8–10	MWF	Pat. Lab.	assistant

Ind. Ed. 2. Advanced Industrial Arts.—

4	Lect.	10	TT	Wood Shop	BRAUCHER and
	Shop	10–12	MWF	Pat. Lab.	assistant

Ind. Ed. 62. History and Organization of Industrial Arts.—

3		11	MWF	310 Adm.(E)	MAYS

Note: The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 25 hours in Industrial Education.

G.E.D. 1. Elements of Drawing.—(4). (See General Engineering Drawing).

G.E.D. 2. Descriptive Geometry.—(4). (See General Engineering Drawing).

G.E.D. 4. Advanced Drawing.—(4). (See General Engineering Drawing).

Journ. 9a. History and Practice of Printing and Publishing.—(2). (See Journalism).

M.E. 85. Pattern and Foundry Laboratory.—(3). (See Mechanical Engineering).

M.E. 87. Machine Laboratory.—(3). (See Mechanical Engineering).

Courses for Advanced Undergraduates and Graduates

Ind. Ed. 52. Part-Time and Evening Schools.—(Same as Ed. 52). *Prerequisite:* Junior standing.

3		9	MWF	304 Adm.(E)	MAYS

Ind. Ed. 53. Problems of Industrial Education.—(Same as Ed. 53). *Prerequisite:* Junior standing or consent of the instructor.

3		10	MWF	304 Adm.(E)	MAYS

Extramural Courses

Extramural Courses in Industrial Education.—Arrange. Assistant Professor DODGE.

ELECTRICAL ENGINEERING

Note: Certain courses in this department require laboratory fees from $1.00 to $2.00.

Courses for Undergraduates

E.E. 4. Direct and Alternating Current Circuits and Machines.—*Prerequisite:* Physics 1a, 1b, 3a, 3b; Math 8b or 9; registration in E.E. 64.

Credit	Section	Hours	Days	Room	Instructor
2		8	TT	200 E.E. Annex	

E.E. 11. Direct and Alternating Current Circuits.—*Prerequisite:* Physics 1a, 1b, 3a, 3b; Math. 8b or 9; registration in E.E. 61.

3	X1	8	MWF	305 E.H.
	X2	8	MWF	111 E.H.
	Q1	10	MWF	305 E.H.
	Q2	10	MWF	111 E.H.
	J1	11	MWF	305 E.H.
	J2	11	MWF	101 E.H.
	P1	1	MWF	305 E.H.
	P2	1	MWF	109 E.H.

E.E. 14. Commercial and Industrial Wiring and Illumination.—*Prerequisite:* Sophomore standing or equivalent. Not open to students with credit in E.E. 90 or 92a.

3		9	TTS	200 E.E. Annex

E.E. 25. Direct Current Apparatus.—*Prerequisite:* Math. 9; registration in E.E. 75 and Physics 44a.

4	L	9	MTWTF	111 E.H.
	M	11	MTWTF	111 E.H.
	N	11	MTWTF	104 P.L.

E.E. 35. Alternating Current Apparatus.—*Prerequisite:* E.E. 26 and 76; registration in E.E. 85.

Credit	Section	Hours	Days	Room	Instructor
4	K	8	MTWTF	109 E.H.	
	L	10	MTWTF	109 E.H.	
	M	11	MTWTF	109 E.H.	
	N	11	MTWTF	105 E.H.	

E.E. 51. Radio Communication Apparatus.—*Prerequisite:* E.E. 26 or consent of instructor.

3	Quiz	8	TT	111 E.H.
	K Lab.	2–5	Tu	311 E.E.L.
	L Lab.	2–5	Th	311 E.E.L.

E.E. 54. Vacuum Tubes and Control Devices.—*Prerequisite:* E.E. 26.

3	K	8	TTS	305 E.H.
	L	1	MWF	111 E.H.

E.E 55. Electrical Design.—*Prerequisite:* E.E. 26; registration in E.E. 35.

2	Lect. KLMNY	9	Th	305 E.H.
	K	2–4	TT	312 E.H.
	L	10–12	WF	312 E.H.
	M	2–4 8–10	W S	312 E.H.

E.E. 61. Direct and Alternating Current Laboratory.—*Prerequisite:* Registration in E.E. 11.

1	Q1	9–12	Tu	200 E.E.L.
	Q2	9–12	Tu	214 E.E.L.
	R1	2–5	Tu	200 E.E.L.
	R2	2–5	Tu	214 E.E.L.
	P1	9–12	Th	214 E.E.L.
	P2	9–12	Th	200 E.E.L.
	S1	2–5	Th	200 E.E.L.
	S2	2–5	Th	214 E.E.L.
	C1	1–4	F	214 E.E.L.
	C2	1–4	F	200 E.E.L.
	C3	9–12	S	214 E.E.L.
	C4	9–12	S	200 E.E.L.

E.E. 64. Direct and Alternating Circuits and Machines Laboratory.—*Prerequisite:* Registration in E.E. 4.

1	A	1–4	M	214 E.E.L.
	B	1–4	W	214 E.E.L.

E.E. 71. Electrical Engineering Problems.—*Prerequisite:* Registration or credit in E.E. 25.

1 to 3*	L	To be arranged

E.E. 75. Electrical Engineering Laboratory.—*Prerequisite:* Registration in E.E. 25.

2	Lect. KLMNYZ	8	Tu	215 E.E.L.
	K	8–11	M	200 E.E.L.
	L	2–5	W	200 E.E.L.
	M	8–11	Th	200 E.E.L.
	N	8–11	F	200 E.E.L.
	Y	2–5	F	200 E.E.L.
	Z	9–12	S	200 E.E.L.

E.E. 84. Vacuum Tube Laboratory.—*Prerequisite:* Registration in E.E. 54; consent of instructor.

1	K	2–5	M	300 E.E.L.
	L	2–5	W	300 E.E.L.
	M	2–5	F	300 E.E.L.

E.E. 85. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 76; registration in E.E. 35.

2	Lect. KLMNYZ	9	Tu	215 E.E.L.
	K	9–12	M	200 E.E.L.
	L	2–5	M	200 E.E.L.
	M	1–4	Tu	200 E.E.L.
	N	8–11	W	200 E.E.L.
	Y	2–5	W	200 E.E.L.
	Z	1–4	Th	200 E.E.L.

E.E. 90. Building Lighting.—*Prerequisite:* Junior standing. Not open to students with credit in E.E. 14.

1	K	10	Tu	200 E.E.A.
	L	1	Tu	200 E.E.A.

E.E. 92. Building Wiring.—*Prerequisite:* Junior standing. Not open to students with credit in E.E. 14.

1		1	Th	200 E.E.A.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

E.E. 95. Seminar.—*Prerequisite:* Senior standing in electrical engineering.

Credit	Section	Hours	Days	Room	Instructor
1	K	9	M	305 E.H.	
	L	1	Tu	305 E.H.	
	M	9	W	305 E.H.	
	N	11	W	400 E.H.	
	Y	1	Th	305 E.H.	

E.E. 97. Thesis.—Arrange. (No credit).

E.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. (No credit).

Courses for Graduates

Note: Entrance on graduate work in electrical engineering presupposes the equivalent of the full undergraduate course in that subject. The undergraduate courses in electrical engineering (except E.E. 14, 90, 92) are open for minor credit to students in other departments who have the proper prerequisite.

E.E. 101. Advanced Courses in Alternating Currents.—(½ to 2 units).*

(a) **Graduate Seminar.**—(No credit). 4 F; 305 E.H. (Required of all graduate students.) Professor PAINE.

(b) **Circuit Transients.**—Arrange. Professor KNIGHT.

(d) **Symmetrical Components.**—Arrange. Assistant Professor KRAEHENBUEHL.

E.E. 102. Electric Waves, Oscillations, and Transients.—(½ to 2 units).*

(c) **Theory of Energy Radiation.**—Arrange. Assistant Professor BROWN.

E.E. 103. Electrical Design.—(1 unit).

(a) **Power Plant Design.**—Arrange. Professor PAINE.

(b) **Machine Design.**—Arrange. Professor PAINE.

E.E. 104. Vacuum Tubes and Electronic Control.—(1 unit).

(a) **Theoretical Electronics.**—Arrange; 300 E.E.L. Associate Professor REICH.

(b) **Vacuum Tubes and Amplifiers.**—Arrange. Associate Professor REICH.

E.E. 105. Electrical Engineering Research.—(1 to 3 units).* Arrange. Professors PAINE, TYKOCINER, KNIGHT; Associate Professor REICH; Assistant Professors BROWN, KEENER, KRAEHENBUEHL.

ENGINEERING

Courses for Undergraduates

Note: Each of the following courses may be used as an approved or non-technical elective in all engineering curricula.

Eng. 10. Engineering Economics.—Evolution and growth of industry; basic industrial principles; ownership and securities; standardization; valuation and depreciation; comparisons and selections of engineering projects. *Prerequisite:* Junior standing in engineering.

Credit	Section	Hours	Days	Room	Instructor
3	A	9	MWF	105 T.B.	KING
	B	10	MWF	105 T.B.	KING

Eng. 39. Industrial Relations.—History of the development of industry; the factory system; manufacturers' organizations; labor organizations; works management; trade unions; wage systems; personnel problems; labor legislation. *Prerequisite:* Junior or senior standing.

3	PQ	11	MWF	1 Wood Shop	CASBERG

Eng. 92. Engineering Law.—Contracts, evidence, torts, equity, real property, corporations, agency, sales, negotiable instruments, water rights, patent rights, special assessments, contract letting, general conditions. *Prerequisite:* Senior standing in engineering or architecture.

3	A	9	MWF	105 E.H.	PICKELS

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

ENGLISH

(Including Rhetoric, Speech, and Scandinavian Languages)

Major in English

Major: 20 hours in English *excluding* Rhetoric 1, 2, 10, 12, 21, 22, English 10a, 10b, 20a, 20b, 41, 42, and courses in Scandinavian and Speech, and *including* at least ten hours in English literature, at least three hours in composition, and two courses chosen from the advanced groups in English literature.

Minors: 20 hours in (a) Latin or Greek or French or German or Spanish or Italian; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history; or (e) in history and philosophy. No language courses may be regarded as satisfying the minor requirement if they are excluded from the majors of the language departments (excepting elementary courses in Greek, Latin, French 2a, Italian 2a, and Spanish 2a). At least eight hours must be offered in each subject, if two are chosen.

Major in Speech

Major: 10 hours in Speech, inclusive of Speech 7 and 8 and either 4 or 6; and 10 hours of English, exclusive of English 10a, 10b, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, 22, and inclusive of one course in English literature chosen from the advanced groups.

Minors: 20 hours in any one or two of the following subjects: psychology, philosophy, Greek, Latin, French, German, history, political science, economics, law, or sociology. At least eight hours must be offered in each subject, if two are chosen.

A. ENGLISH LANGUAGE AND LITERATURE

Courses for Undergraduates

Engl. 10a. An Introduction to Literature.—Forms of poetry, mainly narrative. *Prerequisite:* The minimum entrance requirement in English. (Credit is not given for Engl. 10a in addition to 20a and 20b.)

Credit	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	204a L.H.	Kelley
	A2	8	MWF	211 U.H.	Goldman
[1]Seniors will receive	B1	9	MWF	109 L.H.	Parry
only 2 hours credit.	B2	9	MWF	204a L.H.	Rinaker
	B3	9	MWF	219 L.H.	Secord
	C1	10	MWF	128 L.H.	Tupper
	C2	10	MWF	123 L.H.	Rinaker
	C3	10	MWF	204a L.H.	Rapp
	D1	11	MWF	235 L.H.	Landis
	D2	11	MWF	219 L.H.	Finney
	E1	1	MWF	120 L.H.	Weirick
	E2	1	MWF	148 L.H.	Busey
	F1	2	MWF	105 L.H.	Parry
	F2	2	MWF	139 L.H.	Haskell
	G1	3	MWF	211 L.H.	Busey

Engl. 10b. An Introduction to Literature.—Forms of poetry, mainly lyrical. (Credit is not given for Engl. 10b in addition to 20a and 20b.) *Prerequisite:* Engl. 10a.

3[1]	A	8	MWF	123 L.H.	Secord
[1]Seniors will receive	B	9	MWF	204 U.H.	Templeman
only 2 hours credit.	C	10	MWF	206 L.H.	Zeitlin
	E	1	MWF	404 U.H.	Bloom

Engl. 12. American Literature.—*Prerequisite:* Sophomore standing, or exemption from Rhet. 2.

2	A	9	TT	103 New Agr.	Paul
	B	3	TT	103 New Agr.	Paul

Engl. 20a. Chief English Writers of the Nineteenth Century.—Intended for students in professional and technical courses such as law, medicine, commerce, engineering, etc. *Prerequisite:* One year of college work. (Credit is not given for Engl. 20a in addition to Engl. 10a and 10b).

4	A1	8	MTWT	410 U.H.	Templeman
	A2	8	MTWT	302 U.H.	Glenn
	B1	9	MTWT	203 U.H.	Blair
	B2	9	MTWT	148 L.H.	Tupper
	C1	10	MTWT	311 U.H.	Trelease
	C2	10	MTWT	227 L.H.	Harris
	C3	10	MTWT	148 L.H.	Martin
	D1	11	MTWT	233 L.H.	Weirick
	D2	11	MTWT	148 L.H.	Graham
	D3	11	MTWT	312 U.H.	Peterson
	E1	1	MTWT	207 U.H.	French
	E2	1	MTWT	311 U.H.	Sandin

Engl. 23. Introduction to Shakespeare.—*Prerequisite:* Sophomore standing, or exemption from Rhet. 2.

3	B	9	MWF	103 New Agr.	Landis
	F	2	MWF	109 L.H.	Hillebrand

Courses for Advanced Undergraduates

Prerequisite: Junior standing, except as otherwise specified.

Engl. 5. Shakespeare.—

3	A	8	MWF	109 L.H.	T. W. Baldwin

Engl. 33. English Literature from 1789 to 1837.—

Credit	Section	Hours	Days	Room	Instructor
3	A	11	MWF	128 L.H.	ZEITLIN

Engl. 39. Introduction to the Literature of the Middle Ages.—

3	A	1	MWF	104 L.H.	PARRY

Engl. 42. The Teaching of English Composition.—*Prerequisite:* Nine hours of composition.

2	A	2	TT	204 L.H.	PAUL

Engl. 45. The Development of the Modern Drama.—

3	A	3	MWF	109 L.H.	HILLEBRAND

Engl. 52. Great Novelists of the Nineteenth Century.—Scott, Jane Austen, Dickens, Thackeray, Eliot, Meredith, etc.

3	A	10	TT	105 L.H.	BERNBAUM

Engl. 56. Tennyson and His Contemporaries.—

3	A	10	MWF	L.H. Theatre	GRAHAM

Engl. 60a. Thesis and Honors.—(Credit to be arranged). Professor JONES, Dr. TUPPER, and others

Courses for Advanced Undergraduates and Graduates

Prerequisite: Junior standing, except as otherwise specified.

Engl. 8. Old English (Anglo-Saxon).—*Prerequisite:* Ten hours of English literature, or consent of instructor.

3	A	11	MWF	206 L.H.	FLOM

Engl. 25. Chaucer.—

3	A	9	MWF	123 L.H.	JONES

Engl. 34. Dr. Johnson and His Circle.—

3	A	2	MWF	123 L.H.	RINAKER

Engl. 35. The English Drama (Previous to Shakespeare).—

3	A	11	MWF	204a L.H.	T. W. BALDWIN

Engl. 54a. Introduction to Comparative Literature.—Introductory and comparative survey of the greatest Greek, Latin, Italian, Spanish, French, German, and English authors.

3	Lect.	10	WF	103 New Agr.	OLDFATHER, VAN HORNE, and HAMILTON
	A Disc.	10	M	211 L.H.	LANDIS
	B Disc.	10	M	308 L.H.	VAN HORNE
	C Disc.	10	M	321 L.H.	PARRY
	D Disc.	10	M	335 L.H.	BUSEY

Engl. 55a. Survey of English Literature.—*Prerequisite:* Senior standing.

3	B	9	MWF	110 L.H.	FINNEY

Courses for Graduates

Engl. 101. Research in Special Topics.—(1 to 2 units).* Professors BERNBAUM, FLOM, PAUL, ZEITLIN, T. W. BALDWIN, GRAHAM, JONES, HILLEBRAND, JEFFERSON; Associate Professors PARRY, FLETCHER, SECORD; Assistant Professors RINAKER, FINNEY.

Engl. 111. Caedmon and Cynewulf.—(1 unit). Arrange; 419 L.H. Professor JONES.

Engl. 114a. The Development of the Essay.—(1 unit). 11 TT; 309 Lib. Professor ZEITLIN.

Engl. 129a. English Literature from the Norman Conquest to 1400.—(1 unit). 10 TT; 104 L.H. Professor JONES.

Engl. 130a. Tragedy.—(1 unit). 1 TT; 204a L.H. Professor HILLEBRAND.

Engl. 135a. Problems in American Literature.—American Essay. (1 unit). 8 TT; 113 L.H. Professor PAUL.

Engl. 138a. The Romantic Movement.—(1 unit). 2 TT; 303a L.H. Professor BERNBAUM.

Engl. 140. Investigations in Modern English Literature.—(1 to 3 units).* Three hours once a week. Arrange; 220 L.H. Professor BERNBAUM.

Engl. 143a. Seminar in History and Theory of Prose Fiction.—(1 unit). Two hours once a week. Arrange; 220 L.H. Professor BERNBAUM.

Engl. 145a. English Literature in the Eighteenth Century.—(1 unit). Two hours once a week. 1-3 M; 113 L.H. Professor GRAHAM.

Engl. 146. The Text of Milton.—(1 unit). Arrange. Associate Professor FLETCHER.

Engl. 147a. Shakespeare and Elizabethan Drama.—(1 unit). 10 MW; 305 L.H. Professor T. W. BALDWIN.

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*In registering for a course with variable credit. as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

B. RHETORIC

Courses for Undergraduates

Rhet. 1. Rhetoric and Composition.—*Prerequisite:* The minimum entrance requirements in English.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	403 U.H.	Butler
	A2	8	MWF	411 U.H.	Gettmann
[1]Seniors will receive only 2 hours credit.	A3	8	MWF	312 U.H.	
	A4	8	MWF	413 U.H.	Henneberger
	A5	8	MWF	105 L.H.	Stutzman
	A6	8	MWF	203 U.H.	Johnson
	A7	8	MWF	407 U.H.	Martin
[2]Special sections.	[2]A8	8	MWF	335 L.H.	Harris
	[2]A9	8	MWF	213 U.H.	Ekstrom
	[2]A10	8	MWF	107 U.H.	
	[2]A11	8	MWF	204 U.H.	
	B1	9	MWF	302 U.H.	Glenn
	B2	9	MWF	106 L.H.	Stutzman
	B3	9	MWF	413 U.H.	Martin
	B4	9	MWF	212 U.H.	French
	B5	9	MWF	211 U.H.	Trelease
	B6	9	MWF	412 U.H.	Johnson
	[2]B7	9	MWF	407 U.H.	Peterson
	[2]B8	9	MWF	406 U.H.	Washburn
	[2]B9	9	MWF	207 U.H.	
	C1	10	MWF	203 U.H.	Gettmann
	C2	10	MWF	212 U.H.	Allen
	C3	10	MWF	211 U.H.	French
	C4	10	MWF	207 U.H.	Roberts
	C5	10	MWF	411 U.H.	Jefferson
	C6	10	MWF	413 U.H.	
	[2]C7	10	MWF	109 L.H.	McDowell
	[2]C8	10	MWF	133 L.H.	
	[2]C9	10	MWF	302 U.H.	Butler
	[2]C10	10	MWF	219 L.H.	Fogle
	D1	11	MWF	311 U.H.	
	D2	11	MWF	106 L.H.	Secord
	D3	11	MWF	413 U.H.	
	D4	11	MWF	207 U.H.	Blair
	D5	11	MWF	211 L.H.	Rapp
	D6	11	MWF	411 U.H.	Quinn
	D7	11	MWF	318 L.H.	Fogle
	[2]D8	11	MWF	304 L.H.	Stutzman
	[2]D9	11	MWF	212 U.H.	Templeman
	[2]D10	11	MWF	204 U.H.	Hughes
	E1	1	MWF	213 U.H.	Haskell
	E2	1	MWF	106 U.H.	Hamilton
	E3	1	MWF	208 U.H.	
	E4	1	MWF	302 U.H.	Kelley
	E5	1	MWF	407 U.H.	Osenburg
	E6	1	MWF	310 U.H.	
	E7	1	MWF	318 U.H.	Mosher
	[2]E8	1	MWF	406 U.H.	Trimble
	[2]E9	1	MWF	203 U.H.	Dolk
	[2]E10	1	MWF	211 U.H.	Ballard
	[2]E11	1	MWF	403 U.H.	
	F1	2	MWF	204 U.H.	Sandin
	F2	2	MWF	213 U.H.	Ballard
	F3	2	MWF	203 U.H.	Hamilton
	F4	2	MWF	207 U.H.	Lowry
	F5	2	MWF	107 U.H.	
	[2]F6	2	MWF	404 U.H.	Camp
	[2]F7	2	MWF	318 U.H.	Bloom
	[2]F8	2	MWF	302 U.H.	Shattuck
	[2]F9	2	MWF	211 U.H.	Carter
	G1	3	MWF	406 U.H.	Sweney
	G2	3	MWF	311 U.H.	Wheeler
	G3	3	MWF	208 U.H.	Trimble
	G4	3	MWF	212 U.H.	
	G5	3	MWF	106 U.H.	Schmidt
	G6	3	MWF	107 U.H.	Mosher
	[2]G7	3	MWF	411 U.H.	Sandin
	[2]G8	3	MWF	211 U.H.	Osenburg
	[2]G9	3	MWF	204 U.H.	Edwards
	H1	4	MWF	202 U.H.	Bloom
	H2	4	MWF	404 U.H.	Wheeler
	H3	4	MWF	311 U.H.	Dolk
	H4	4	MWF	106 U.H.	Carter
	[2]H5	4	MWF	204 U.H.	Lowry
	K1	8	TTS	204 U.H.	
	K2	8	TTS	106 U.H.	
	[2]K3	8	TTS	315 U.H.	Owen
	L1	9	TTS	311 U.H.	Owen
	L2	9	TTS	106 U.H.	

Rhet. 1. Rhetoric and Composition (concluded)

Credit	Section	Hours	Days	Room	Instructor
3[1]	[2]L3	9	TTS	302 U.H.	Hook
	M1	10	TTS	413 U.H.	Owen
[1]Seniors will receive	M2	10	TTS	212 U.H.	Orlovich
only 2 hours credit.	N1	11	TTS	207 U.H.	Hook
[2]Special sections.	N2	11	TTS	212 U.H.	

Rhet. 2. Rhetoric and Composition.—Frequent individual conferences to be arranged. *Prerequisite:* Rhet. 1.

3[1]	A1	8	MWF	207 U.H.	
	A2	8	MWF	315 U.H.	Washburn
[1]Seniors will receive	A3	8	MWF	310 U.H.	Peterson
only 2 hours credit.	B1	9	MWF	411 U.H.	Kelley
	B2	9	MWF	106 U.H.	Hughes
	B3	9	MWF	107 U.H.	
	C1	10	MWF	412 U.H.	Blair
	C2	10	MWF	403 U.H.	Ekstrom
	D1	11	MWF	106 U.H.	Allen
	D2	11	MWF	203 U.H.	Harris
	E1	1	MWF	312 U.H.	Wheeler
	E2	1	MWF	204 U.H.	Camp
	F	2	MWF	202 U.H.	Dolk
	G	3	MWF	203 U.H.	Hamilton
	K	8	TTS	207 U.H.	Orlovich

Rhet. 3. Exposition.—Individual conferences to be arranged. *Prerequisite:* Rhet. 1 and 2; sophomore standing.

3	B	9	MWF	104 L.H.	
	D	11	MWF	104 L.H.	Roberts
	G	3	MWF	120 L.H.	Landis

Rhet. 4. Narration and Description.—Elements of narrative writing. Individual conferences, to be arranged. (Not a course in short-story writing). *Prerequisite:* Rhet. 1 and 2; sophomore standing.

3	B	9	MWF	308 L.H.	Rapp
	C	10	MWF	232 L.H.	Finney
	D	11	MWF	302 U.H.	Trelease
	F	2	MWF	232 L.H.	Busey

Rhet. 10. Business Letter Writing.—*Prerequisite:* Rhet. 1 and 2; sophomore standing.

2	B1 (Com.)	9	MW	306 L.H.	Coleman
	B2 (Com.)	9	MW	306 Com.	Anderson
	B3 (Com.)	9	TT	128 L.H.	Coleman
	C1 (Com.)	10	MW	123 Com.	Anderson
	C2 (Com.)	10	TT	305 Com.	Saunders
	C3 (Com.)	10	TT	222 Com.	Lang
	C4 (Com.)	10	TT	123 Com.	Coleman
	D1 (Eng.)	11	MW	101 E.H.	Lang
	D2 (Com.)	11	TT	128 L.H.	Anderson
	D3 (Com.)	11	TT	123 Com.	Lang
	E1 (Com.)	1	MW	305 Com.	Saunders
	E2 (Com.)	1	TT	322 Com.	Coleman
	F1 (Com.)	2	MW	310 Com.	Saunders
	F2 (Com.)	2	TT	312 Com.	Lang

Courses for Advanced Undergraduates

Prerequisite: Junior standing, except as otherwise specified.

Rhet. 6. Advanced Narrative Composition.—*Prerequisite:* Two years of college work; consent of the instructor.

3	A	3	MWF	204a L.H.	Weirick

Rhet. 8. (formerly 17). Advanced Composition.—Criticism, theory, and practice. *Prerequisite:* Junior standing.

3	A	2	MWF	128 L.H.	Tupper

Rhet. 21. Advanced Business Writing.—Sales letter campaigns and advertising copy. *Prerequisite:* Grade of "A" or "B" in Rhet. 10.

2	A	11	TT	305 Com.	Saunders

Rhet. 22. Special Types of Business Writing.—Business magazine articles and business reports. *Prerequisite:* Rhet. 10.

2	A	10	TT	123 Com.	Anderson

C. SPEECH

Courses for Undergraduates

Speech 1. Principles of Effective Speaking.—*Prerequisite:* Rhet. 2.

3	A1	8	MWF	136 L.H.	Siedenburg
	A2	8	MWF	202 Entom.	
	B1	9	MWF	136 L.H.	
	B2	9	MWF	202 Entom.	Nelson
	C1	10	MWF	136 L.H.	Parrish
	C2	10	MWF	202 Entom.	Nelson

Speech 1. Principles of Effective Speaking (concluded)

Credit	Section	Hours	Days	Room	Instructor
3	D1	11	MWF	136 L.H.	SWANSON
	D2	11	MWF	202 Entom.	
	E1	1	MWF	136 L.H.	
	E2	1	MWF	202 Entom.	SIEDENBURG
	F1	2	MWF	136 L.H.	HENDERSON
	F2	2	MWF	202 Entom.	
	G	3	MWF	136 L.H.	HENDERSON

Speech 2. Business and Professional Speaking.—*Prerequisite:* Speech 1.

2	B	9	TT	142 L.H.	HUSTON
	C	10	TT	142 L.H.	PARRISH
	E	1	TT	142 L.H.	SIEDENBURG

Speech 3. Elements of Debating.—*Prerequisite:* Speech 1.

3	D	11	MWF	407 U.H.	SIEDENBURG
	F	2	MWF	142 L.H.	HUSTON

Speech 10. Oral Interpretation of Literature.—*Prerequisite:* Speech 1.

2	C	10	TT	136 L.H.	
	E	1	TT	136 L.H.	HENDERSON
	F	2	TT	136 L.H.	NELSON

Courses for Advanced Undergraduates

Speech 4. Advanced Debating.—*Prerequisite:* Speech 3; junior standing.

3	A	10	MWF	142 L.H.	HUSTON

Speech 6. Persuasion and the Forms of Public Address.—*Prerequisite:* Speech 2 or 3; junior standing.

3	A	11	MWF	142 L.H.	PARRISH

Speech 8. Dramatization.—*Prerequisite:* Speech 10; junior standing.

3	A	1	MWF	L.H. Theatre	SWANSON

Speech 9. The Acting of Shakespearean Plays.—*Prerequisite:* Speech 10; junior standing.

2	A	1	TT	L.H. Theatre	NELSON

Speech 11. Play Production.—*Prerequisite:* Speech 8; junior standing. (Laboratory fee, $5).

3	A	2	MWF	L.H. Theatre	SWANSON

Speech 18. Voice and Phonetics.—*Prerequisite:* Junior standing.

3	B	9	MWF	142 L.H.	PARRISH

D. SCANDINAVIAN LANGUAGES AND LITERATURE

Courses for Undergraduates

Scand. 12. Norse Mythology.—Religious belief in the North and in Western Europe in pre-Christian times; interpretation of the principal myths; beginnings of literature. *Prerequisite:* Junior standing.

2	A	9	TT	211 L.H.	FLOM

Scand. 22a. Elementary Swedish.—Grammar; conversation; reading.

3	A	11	MWF	107 U.H.	JOHNSON

Scand. 4. Intermediate Swedish.—Conversation; reading of present-day writers; compositions.

2	A	Arrange		201 U.H.	JOHNSON

Courses for Graduates

Scand. 101. Old Norse.—Introduction to the language; grammar; reading of the Prose Edda in part, and selections from the sagas. Twice a week; both semesters. (1 unit). Professor FLOM.

Scand. 102. Old Danish.—Introduction to the language; study of texts. Twice a week; first semester. (1 unit). Professor FLOM.

Scand. 150. Research.—Thesis; special problems in Scandinavian philology and modern Scandinavian literature. Once a week; both semesters. (½ to 2 units).* Professor FLOM.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

ENTOMOLOGY

Note: Certain courses in this department require laboratory fees varying from $1.50 to $4.00.

Major: 20 hours exclusive of Entomology 1, 2, 31. At least five hours must be offered from the advanced group.

Minors: 20 hours in not more than two of the following, with not less than eight hours in either department, if two subjects are chosen: zoology, botany, chemistry, physiology, horticulture, and agronomy.

Entomology 1 is open to freshmen, and 2 and 31 to sophomores, without prerequisites. Either 1, or both 2 and 9, are prerequisite to all other courses in the department. Recommended sequences of courses are 1, 8, 20, and 31, for those desiring strictly practical or economic work; 2, 9, and 21 for those interested in the cultural or biological values of insect study. Students whose major is entomology should include some advanced work in classification, morphology, and control and should plan all of their work with the advice of the department. Seniors receive reduced credit in Entomology 1.

Courses for Undergraduates

Entom. 1. Destructive and Useful Insects.—Two discussion periods and four hours laboratory a week.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8–10	MWF	309 Entom.	Hayes and Milum
	B	10–12	MWF	309 Entom.	Metcalf, Milum, and Fay
[1]Seniors will receive only 2 hours credit.	C	1–3	MWF	309 Entom.	Metcalf, Milum, and Smith

Entom. 2. Insects: Their Ways and Their Relation to Man.—A non-technical, cultural course of illustrated lectures. *Prerequisite:* Sophomore standing. (Not open to students who have taken Entom. 1.)

2	A	11	TT	202 Entom.	Balduf
	B	2	TT	202 Entom.	

Entom. 7a. External Insect Morphology.—*Prerequisite:* Entom. 1 or 9; sophomore standing.

3	A	10–12	MWF	312 Entom.	Hayes

Entom. 9. Collection and Classification of Insects.—*Prerequisite:* Entom. 1 or 2, or concurrent registration in 1 or 2.

3	Disc.	2	W	310 Entom.	Balduf
	Lab. and Field	1–3	MF	310 Entom.	Balduf

Entom. 31. Essentials of Beekeeping.—*Prerequisite:* Sophomore standing.

1 or 2[1]	Lect.	4	Tu	104 Exp.Zool.Lab.	Milum
	Lab.	3–5	Th	104 Exp.Zool.Lab.	

[1]For two hours credit include laboratory.

Courses for Advanced Undergraduates and Graduates

Entom. 6. Special Problems.—*Prerequisite:* Any of the following: Entom. 3, 4, 7, 8, 10, 20, 21, or 31; and senior standing. (2 to 5).* Saturday morning; additional hours to be arranged. Members of the department.

Entom. 20. Insect Control.—*Prerequisite:* Entom. 1 or 9; senior standing.

4		2–5	TT	109 Entom.	Metcalf

Course for Graduates

Note: The prerequisite for graduate work in entomology is two years of undergraduate biology, including zoology and entomology.

Entom. 100. Research.—(½ to 4 units).* Arrange.

(a) **Morphology and Embryology of Insects.**—Associate Professor Hayes.

(b) **Economic Entomology.**—Professor Metcalf.

(c) **Systematic Entomology.**—Professor Metcalf, Asistant Professor Balduf.

(d) **Biology and Ecology of Insects.**—Professor Metcalf.

Entom. 107a. Insect Anatomy.—(1 unit). 10-12 MWF; 312 Entom. Associate Professor Hayes.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

GENERAL ENGINEERING DRAWING

Note: All courses in this department require laboratory fees of $1.00.

Courses for Undergraduates

G.E.D. 1. Elements of Drawing.—*Prerequisite:* Plane geometry.

Credit	Section	Hours	Days	Room	Instructor
4	A	8–11 8–10	MF W	To be assigned at registration	
	B	1–4 1–3	MF W		
	C	8–11 8–10	TT S		
	D	1–4 10–12	TT S		

G.E.D. 2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry.

4	B	1–4 1–3	MF W	201 T.B.	
	C	8–11 8–10	TT S	215 T.B.	
	D	1–4 10–12	TT S	105 T.B.	

G.E.D. 4. Advanced Drawing.—*Prerequisite:* At least three years of drawing in high school, or the equivalent in commercial practice, to be determined by the department at registration time.

4	A	8–11 8–10	MF W	303 T.B. 303 T.B.	
	B	1–4 1–3	MF W	201 T.B. 201 T.B.	

G.E.D. 6. Elements of Drawing.—*Prerequisite:* Plane geometry. (For students in chemical engineering.)

3	C	8–11	TT	316 T.B.	
	D	1–4	TT	316 T.B.	

G.E.D. 7. Architectural Projections.—*Prerequisite:* Plane and solid geometry.

2	A	8–11	MF	103 T.B.	
	B	2–5	MF	103 T.B.	
	C	8–11	TT	103 T.B.	

G.E.D. 10. Pictorial Drawing.—*Prerequisite:* G.E.D. 2. (Required of students in the City Planning Option in Civil Engineering; and "approved elective" in all other curricula of the College of Engineering.)

4 or 3[1]	C	8–11 8–10	TT S	316 T.B.	LENDRUM

[1]For "approved elective" group who will omit 8–10 S hours in registering.

GEOLOGY AND GEOGRAPHY

Note: Certain courses in this department require laboratory fees varying from $0.50 to $2.00.

A. GEOLOGY

Major: 20 hours in geology, exclusive of Geol. 1, 1a, 43, and 44, and inclusive of at least five hours of courses not open to freshmen or sophomores.

Minors: 20 hours chosen from one or two of the following subjects: astronomy, botany, chemistry, economics, geography, mathematics, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology. At least eight hours must be offered in each subject, if two are chosen.

Note: Certain geology courses are offered only in alternate years: 4, 15, 24, 38, 95, 96, 122, 125, 151, 160, 163.

Students desiring training which leads to executive positions with companies engaged in the development of various mineral industries should select appropriate courses in geology after consulting the head of the department, and also: Accountancy 1a, 1b; Economics 2, 3, and 35; B.O.O. 11; and Business Law 1a, 1b. A minimum of one year's work after graduation should be included in the student's program if possible. Students of petroleum production engineering should select appropriate courses in geology.

Courses for Undergraduates

Geol. 1. General Geology.—Cultural course. Lectures; one half-day field trip.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8	MWF	228 N.H.	SHEPARD
[1]Seniors receive only 2 hours credit; students who have credit for Geog. 1 receive only 1 hour credit for Geol. 1.	B	10	MWF	247 N.H.	QUIRKE
	C	1	MWF	228 N.H.	DEWOLF

Geol. 1a. General Geology Laboratory.—*Prerequisite:* Geol. 1 or concurrent registration in it.

Credit	Section	Hours	Days	Room	Instructor
2	Lab. 1	8–10	TT	251 N.H.	WANLESS
	Lab. 2	10–12	TT	251 N.H.	DEWOLF
	Lab. 3	1–3	TT	251 N.H.	SHEPARD
	Lab. 4	3–5	TT	251 N.H.	HOOVER
	Lab. 5	3–5	MF	251 N.H.	FISCHER

Geol. 2a. Historical Geology.—*Prerequisite:* Geol. 1.

4[1]	Lect. & Quiz	10	TWTF	241 N.H.	SUTTON

[1]Seniors receive only 3 hours credit.

Geol. 20. General Mineralogy.—*Prerequisite:* One semester of chemistry.

3	A	10–12	TTS	147 N.H.	QUIRKE

Geol. 43. Engineering Geology.—*Prerequisite:* Sophomore standing in the College of Engineering.

3	Lect. & Quiz	9	MWF	241 N. H.	HOWARD

Geol. 44. Agricultural Geology.—*Prerequisite:* Sophomore standing in the College of Agriculture.

3	Lect.	1	MW	247 N.H.	WANLESS
	A Quiz	10	Tu	247 N.H.	
	B Quiz	1	F	247 N.H.	
	Lab. 1	1–3	Th	147 N.H.	
	Lab. 2	10–12	F	147 N.H.	

Courses for Advanced Undergraduates and Graduates

Geol. 9. Invertebrate Paleontology.—*Prerequisite:* Geol. 2a; junior standing.

3	Lect. & Quiz	8	MWF	236 N.H.	SUTTON
	Lab.	To be arranged			

Geol. 60a. Introduction to Research.—Limited to seniors whose major is in geology, and mechanical engineering students who take Geol. 61a. (2). Arrange. Members of the department.

Geol. 61a. Applied Petroleum Geology.—*Prerequisite:* Geol. 43 and 2a, or consent of the head of the department. Primarily for students in the College of Engineering.

3	A	11	MWF	151 N.H.	HOWARD

Courses for Graduates

Geol. 102. Igneous Petrography.—(1 unit). Twice a week. Arrange; 253 N.H. Professor QUIRKE.

Geol. 125. Sedimentation.—(1 unit). Three times a week. Arrange. Assistant Professor WANLESS.

Geol. 134. Advanced Studies in Geology.—(½ to 2 units).* Arrange. Members of the department.

Geol. 135. Research.—(½ to 4 units).* Once a week. Arrange. Members of the department.

Geol. 142. Stratigraphic Paleontology: Paleozoic.—(1 unit). Arrange; 241 N.H. Assistant Professor SUTTON.

Geol. 151. Advanced Dynamic Geology.—(1 unit). Three times a week. Arrange. Associate Professor SHEPARD.

Geol. 160. Principles of Petroleum Geology.—(1 unit). Three times a week. Arrange. Professor DEWOLF.

B. GEOGRAPHY

Major: 20 hours of courses in geography, exclusive of Geography 1, and including at least five hours of courses not open to freshmen.

Minors: 20 hours chosen from one or two of the following subjects: botany, economics, education, geology, history, and zoology. At least eight hours must be offered in each subject, if two are chosen.

For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, or 10 or 11, or 12 or 8 or 53.

Note: Certain geography courses are offered only in alternate years: 6, 9, 10, 14a.

Courses for Undergraduates

Geog. 1. Elements of Geography.—Lectures and discussions.

5[1]	A1	8	MTWTF	247 N.H.	PAGE
	A2	8	MTWTF	422 N.H.	BURGY
	B1	9	MTWTF	247 N.H.	PAGE
	B2	9	MTWTF	422 N.H.	CRIST
	C1	10	MTWTF	422 N.H.	BURGY
	C2	10	MTWTF	435 N.H.	CRIST
	D	11	MTWTF	422 N.H.	COZZENS
	E1	1	MTWTF	422 N.H.	CRIST
	E2	1	MTWTF	435 N.H.	COZZENS
	F	2	MTWTF	422 N.H.	COZZENS

[1]Seniors receive only 4 hours credit; students who have credit for Geol. 1, 43, or 44 receive only 3 credits for Geog. 1.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Geog. 2. Economic Geography.—*Prerequisite:* Geog. 1. Lectures and discussion.

Credit	Section	Hours	Days	Room	Instructor
5[1]	A	8	MTWTF	434 N.H.	Blanchard
[1]Seniors will receive only 4 hours credit.	B	9	MTWTF	434 N.H.	Poggi
	C	11	MTWTF	434 N.H.	Poggi

Geog. 4b. Geography of Western North America.—*Prerequisite:* Geog. 2.

3	A	2	MWF	435 N.H.	Burgy

Geog. 14. Weather and Climate.—*Prerequisite:* Geog. 1.

3	A	11	MWF	435 N.H.	Page

Geog. 16. Geography of Illinois.—*Prerequisite:* Geog. 1.

2	A	2	TT	435 N.H.	Poggi

Courses for Advanced Undergraduates and Graduates

Geog. 8. Geography of Europe.—*Prerequisite:* Geog. 2; senior standing.

3	A	1	MWF	434 N.H.	Blanchard

Geog. 53a. Production of the Great World Staples.—*Prerequisite:* Geog. 2; one regional course; senior standing.

3	A	10	MWF	434 N.H.	Blanchard

Geog. 60a. Introduction to Research.—*Prerequisite:* Senior standing. (2). Arrange. Members of the department.

Courses for Graduates

Geog. 134. Advanced Studies in Geography.—(½ to 2 units).* Arrange. Members of the department.

Geog. 135. Research.—(½ to 4 units).* Arrange. Members of the department.

GERMAN

Major: 20 hours in German, excluding courses 1 and 2, and including six hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list, with not less than eight hours in each subject: Education, English (excluding Rhetoric 1 and 2), French (excluding French 1a), Greek, History, Italian, Latin, Philosophy, Spanish (excluding 1a).

Elementary and Intermediate Courses

German 1. Elementary Course.—

Credit	Section	Hours	Days	Room	Instructor
4[1]	A1	8	MTWT	224 L.H.	Farwell
	A2	8	MTWT	238 L.H.	Hammer
[1]Seniors will receive only 3 hours credit.	A3	8	MTWT	206 L.H.	Stubing
	A4	8	MTWT	308 L.H.	Planitz
	B1	9	MTWT	105 L.H.	Brooks
	B2	9	MTWT	302 L.H.	Robertson
	C1	10	MTWT	302 L.H.	Schmalz
	C2	10	MTWT	233 L.H.	Goodman
	D1	11	MTWT	302 L.H.	Hammer
	D2	11	MTWT	310 U.H.	Schmalz
	E1	1	MTWT	224 L.H.	Robertson
	E2	1	MTWT	233 L.H.	Palmer
	F1	2	MTWT	219 L.H.	Jehle
	F2	2	MTWT	106 L.H.	Fehlau
	G	3	MTWT	206 L.H.	Palmer
	H1	4	MTWT	206 L.H.	Skidmore
	H2	4	MTWT	224 L.H.	Goodman

German 2. Elementary Course (continued).—*Prerequisite:* German 1 or one year of high school German.

4[1]	A	8	MTWT	233 L.H.	von Westen
	B	9	MTWT	303a L.H.	Farwell
[1]Seniors will receive only 3 hours credit.	C	11	MTWT	105 L.H.	Koller
	D	1	MTWT	206 L.H.	Ittner
	E	3	MTWT	224 L.H.	Ittner

German 4. Intermediate Course.—*Prerequisite:* German 2, or two years of high school German, or equivalent.

4	A1	8	MTWT	232 L.H.	Fehlau
	A2	8	MTWT	219 L.H.	Geissendoerfer
	A3	8	MTWT	142 L.H.	Williams
	B1	9	MTWT	227 L.H.	Jehle

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

German 4. Intermediate Course (concluded)

Credit	Section	Hours	Days	Room	Instructor
4	B2	9	MTWT	326 L.H.	Planitz
	C	10	MTWT	106 L.H.	Dunnington
	D1	11	MTWT	114 L.H.	Jehle
	D2	11	MTWT	300 L.H.	Stubing
	E	1	MTWT	105 L.H.	Fehlau
	F	2	MTWT	204a L.H.	von Westen
	G	4	MTWT	204a L.H.	Koller

German 5. Intermediate Course (continued).—Literary reading. *Prerequisite:* German 4, or three years of high school German, or equivalent.

4	A	8	MTWT	114 L.H.	Ittner
	B	9	MTWT	311 L.H.	Geissendoerfer
	C	1	MTWT	123 L.H.	Dunnington
	D	3	MTWT	105 L.H.	Koller

Courses for Advanced Undergraduates

German 14. Introductory Schiller Course.—*Prerequisite:* German 5 or equivalent.

3	A	11	MWF	123 L.H.	Aron

German 16a. Conversation and Writing.—*Prerequisite:* German 5 or equivalent.

2	A	2	TT	148 L.H.	Koller

German 24a. Nineteenth Century Drama.—*Prerequisite:* German 5 or equivalent.

2	A	3	TT	204a L.H.	Geissendoerfer

German 28a. Lyrics and Ballads.—*Prerequisite:* German 5 or equivalent; sophomore standing.

2	A	9	TT	204a L.H.	Williams

German 29a. Advanced Conversation and Writing.—*Prerequisite:* German 16b or equivalent.

2	A	2	TT	211 L.H.	Geissendoerfer

German 30a. Senior Thesis and Honors Course.—*Prerequisite:* Senior standing; three years of college German or equivalent. (2). Arrange. Professor Aron and others.

Courses for Advanced Undergraduates and Graduates

German 19a. Goethe's Faust I.—*Prerequisite:* Three years of college German or equivalent.

2	A	11	TT	425 Lib.	Brooks

German 26a. German Literature to 1800.—*Prerequisite:* Three years of college German or equivalent.

3	A	9	MWF	233 L.H.	Aron

German 31. Middle High German.—*Prerequisite:* Senior or graduate standing; three years of college German or equivalent. (2). Arrange. Professor Williams.

German 54. Introduction to Comparative Literature.—See English 54.

Courses for Graduates

German 101. Seminar in Modern German Drama.—(1 unit). Twice a week. Arrange. Professor Aron.

German 102. Thesis.—(½ to 2 units).* Arrange. Professor Aron, Brooks, Williams; Assistant Professor Geissendoerfer.

German 104. Gothic.—(1 unit). Twice a week. Arrange. Professor Williams.

German 113. German Literature of the Fifteenth and Sixteenth Centuries.—(1 unit). Twice a week. Arrange. Professor Brooks.

German 117. German Literature of the Seventeenth and Eighteenth Centuries.—(1 unit). Twice a week. Arrange. Professor Aron.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

HISTORY

Major: 20 hours, including (a) ten hours in courses having junior standing as a prerequisite, and (b) any other courses offered by the department (except courses taken in the freshman year).

Minors: 20 hours selected from one or two of the following subjects: economics, political science, geography, philosophy, law, sociology, and English and American literature (except such courses as are taken in the freshman year). Courses in one modern language (except such as are primarily designed for freshmen) will be accepted as one of two minor subjects.

Note: Seniors receive reduced credit in History 1 and 2.

Courses for Undergraduates

Hist. 1a. Continental European History.—

Credit	Section	Hours	Days	Room	Instructor
4[1]	[2]Lect. 1	10	TT	218 U.H.	Jones
	A Disc.	11	TT	335 L.H.	Shay
[1]Seniors will receive only 3 hours credit.	B Disc.	8	WF	326 L.H.	Bone
	C Disc.	9	WF	321 L.H.	Bone
	D Disc.	10	WF	105 L.H.	Jones
[2]Students in Lecture 1 must elect a discussion in the A-I group. Students in Lecture 2 must elect a discussion in the J-P group.	E Disc.	10	WF	308 L.H.	King
	F Disc.	10	WF	335 L.H.	Shay
	G Disc.	10	WF	321 L.H.	Bone
	H Disc.	1	TT	303a L.H.	King
	I Disc.	1	WF	305 L.H.	Shay
	[2]Lect. 2	2	MW	228 N.H.	Ronalds
	J Disc.	10	TT	329 L.H.	Ronalds
	K Disc.	11	TT	326 L.H.	Ronalds
	L Disc.	1	TT	305 L.H.	Ronalds
	M Disc.	2	TT	335 L.H.	
	N Disc.	2	TT	321 L.H.	Krenkel
	O Disc.	2	TT	306 L.H.	Braderman
	P Disc.	2	TT	302 L.H.	

Hist. 2a. English History.—

3[1]	Lect. 1	11	M	L.H. Theatre	Dietz
	Lect. 2	2	M	Morrow Hall	Dietz
[1]Seniors will receive only 2 hours credit.	A Disc.	10	TT	321 L.H.	Dietz
	B Disc.	11	TT	311 L.H.	Erickson
	C Disc.	11	WF	329 L.H.	
	D Disc.	11	WF	224 L.H.	
	E Disc.	11	WF	335 L.H.	Mayhill
	F Disc.	11	WF	238 L.H.	Shay
	G Disc.	1	WF	303a L.H.	Erickson
	H Disc.	2	WF	335 L.H.	
	I Disc.	2	WF	311 L.H.	
	J Disc.	2	WF	329 L.H.	Shay
	K Disc.	2	TT	224 L.H.	Mayhill
	L Disc.	2	TT	308 L.H.	
	M Disc.	3	TT	305 L.H.	Mayhill

Hist. 3a. History of the United States to 1828.—*Prerequisite:* One year of college work.

3	[1]Lect. 1	8	MF	218 U.H.	Werner
	A Disc.	8	Tu	305 L.H.	Werner
[1]Students in Lecture 1 must elect a discussion in the A-E group. Students in Lecture 2 must elect a discussion in the F-I group. Students in Lecture 3 must elect a discussion in the J-N group.	B Disc.	8	W	305 L.H.	Werner
	C Disc.	8	W	311 L.H.	Krenkel
	D Disc.	8	W	303a L.H.	Braderman
	E Disc.	8	Th	305 L.H.	Werner
	[1]Lect. 2	11	MF	Morrow Hall	Dunbar
	F Disc.	11	Tu	305 L.H.	Dunbar
	G Disc.	11	W	311 L.H.	Dunbar
	H Disc.	11	W	303 L.H.	
	I Disc.	11	Th	238 L.H.	Dunbar
	[1]Lect. 3	2	MF	218 U.H.	Hansen
	J Disc.	2	Tu	235 L.H.	King
	K Disc.	2	W	321 L.H.	Hansen
	L Disc.	2	W	304 L.H.	King
	M Disc.	2	W	308 L.H.	
	N Disc.	2	Th	311 L.H.	Hansen

Hist. 5a. The Ancient World.—*Prerequisite:* Sophomore standing.

3	Lect.	2	MF	303 L.H.	Swain
	A Disc.	2	Tu	240 L.H.	Bone
	B Disc.	2	W	240 L.H.	Bone
	C Disc.	2	W	303a L.H.	Swain
	D Disc.	2	Th	240 L.H.	Bone

Hist. 14. The American Colonies in the Seventeenth Century.—*Prerequisite:* Junior standing.

3		11	MWF	305 L.H.	Werner

Hist. 18. The Teaching of History.—*Prerequisite:* One year of college history; senior standing.

2		3	TT	303 L.H.	Werner

Hist. 23a. The Puritan Revolution in England and America, 1603-1642.—*Prerequisite:* Junior standing; one year of college history or political science.

Credit	Section	Hours	Days	Room	Instructor
2		11	TT	410 U.H.	PEASE

Hist. 34a. Development of Modern Europe: Absolutism and Colonial Expansion, 1648-1789.—*Prerequisite:* Junior standing; one year of college history.

3		11	MWF	109 L.H.	ERICKSON

Hist. 35. History of Civilization among the Western Slavs.—*Prerequisite:* Sophomore standing; one year of college history.

2		9	TT	305 L.H.	RODKEY

Hist. 40. History of the British Empire.—*Prerequisite:* One year of college history.

2		1	TT	204 L.H.	ERICKSON

Hist. 41. The Middle Ages: Formation and Development of the European States.—*Prerequisite:* Sophomore standing.

3		2	MWF	302 L.H.	LARSON

Hist. 45a. History of England in the Later Seventeenth and the Eighteenth Century (1688-1760).—*Prerequisite:* Junior standing; one year of college history.

2		2	TT	303 L.H.	RONALDS

Hist. 51a. Hebrew History: Origins to 586 B.C.—*Prerequisite:* Junior standing.

2		2	TT	305 L.H.	SWAIN

Hist. 90a. Thesis: Special Training in Historical Investigation.—*Prerequisite:* Senior standing. (2 to 4).* Arrange. Professor HANSEN.

Hist. 91a. Honors Course: Readings in Selected Fields in Consultation with the Instructor.—*Prerequisite:* Senior standing. (2 to 4).* Arrange. Associate Professor RODKEY.

Courses for Advanced Undergraduates and Graduates

(Open to seniors and juniors)

Hist. 16a. The Foundations of American Society: The Colonies in the Eighteenth Century (to 1763).—*Prerequisite:* One year of college history.

3		10	MWF	311 L.H.	DUNBAR

Hist. 17a. Social and Economic Forces in the Nineteenth Century (to 1860).—*Prerequisite:* History 3b.

3		9	MWF	303 L.H.	HANSEN

Hist. 19a. The History of American Immigration to the Civil War.—*Prerequisite:* History 3a-3b.

2		9	TT	204 L.H.	HANSEN

Hist. 20a. The Old South.—*Prerequisite:* One year of college history.

2		8	TT	335 L.H.	RANDALL

Hist. 21. The Recent History of the United States (1877-1936).—*Prerequisite:* History 3b.

3		9	TT	303 L.H.	ROBERTSON

Hist. 22a. History of the West, 1634-1774.—*Prerequisite:* One year of college history.

2		10	TT	410 U.H.	PEASE

Hist. 25. The Civil War and Reconstruction.—*Prerequisite:* History 3b.

3		11	MWF	204 L.H.	RANDALL

Hist. 26. History of the Latin American Colonies.—*Prerequisite:* One year of college history.

3		2	MWF	305 L.H.	ROBERTSON

Hist. 32a. Recent European History (1878-1914).—*Prerequisite:* One year of college history, economics, or political science.

3		10	MWF	218 U.H.	RODKEY

Hist. 38a. Development of the French Monarchy in Early Modern Times, 1285-1648.—*Prerequisite:* History 1a.

3		9	MWF	329 L.H.	JONES

Hist. 44a. The Constitutional History of England.—*Prerequisite:* One year of college history or political science.

3		3	MWF	303 L.H.	LARSON

Hist. 46a. The Industrial Revolution and English Social Politics (1750-1832).—*Prerequisite:* One year of college history.

3		9	MWF	335 L.H.	DIETZ

Hist. 55. History of the Ancient Greek States.—*Prerequisite:* One year of college history.

3		1	MWF	202 L.H.	OLDFATHER

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hist. 57a. Ancient Imperialism: Alexander the Great and His Successors.—*Prerequisite:* One year of college history.

Credit	Section	Hours	Days	Room	Instructor
3		11	MWF	303a L.H.	SWAIN

Hist. 62a. Political and Constitutional Development of the United States (to 1809).—*Prerequisite:* One year of college history or political science.

3		10	MWF	329 L.H.	RANDALL

Courses for Graduates

Hist. 101a. Seminar in American History: Introduction to Research.—(1 unit). 4-6 Tu. Professor ROBERTSON.

Hist. 102a. Seminar in English History.—(1 unit). 4-6 Th. Professor DIETZ.

Hist. 103. Studies in Historical Method.—(1 unit). 3 TT. Professor RANDALL.

Hist. 105. Research in Special Topics (Thesis Course).—(1 to 2 units).* Professors LARSON, ROBERTSON, PEASE, JONES, RANDALL, HANSEN, DIETZ; Associate Professors RODKEY, SWAIN; Assistant Professors DUNBAR, RONALDS, WERNER.

Hist. 106a. Seminar in the History of the Later Middle Ages.—(1 unit). Arrange. Professor LARSON.

Hist. 122b. The Westward Movement, 1755-1761.—(1 unit). 4 MTh. Professor PEASE.

Hist. 126. Spain in Europe and America, 1750-1870.—(1 unit). Arrange. Professor ROBERTSON.

Hist. 133a. Studies in the History of Europe in the Nineteenth Century, 1815-1848.—(1 unit). 9-11 S. Associate Professor RODKEY.

Hist. 138a. History of France in the First Half of the Sixteenth Century, 1515-1547.—(1 unit). Arrange. Professor JONES.

Hist. 150a. Seminar in Ancient History.—(1 unit). 3-5 M. Associate Professor SWAIN.

HOME ECONOMICS

Note: Certain courses in this department require laboratory fees varying from $0.50 to $16.00.

College of Agriculture

For Curriculum in General Home Economics, see "Directions for Registration," page 49.
For Curriculum in Nutrition and Dietetics, see "Directions for Registration," page 51.

College of Education

For Curriculum in Home Economics Education, see "Directions for Registration," page 54.
For Curriculum in Home Economics Education—Smith-Hughes, see "Directions for Registration," page 54.

College of Liberal Arts and Sciences

Major A.—General Home Economics: 20 hours from courses offered by the department, excluding Home Economics 7 and 58, and including Home Economics 2, 5, 10, 29, 59, and two or more of the following: Home Economics 14, 20, 28, 31, 33, 35, 41, 43a, 43b, 48, 55, 57a, 57b.

Major B.—Nutrition: 20 hours excluding Home Economics 58, and including Home Economics 5, 39a, 39b, 41, 59, and two or more of the following: Home Economics 20, 33, 35, 45, 47.

Minor A.—20 hours chosen from one or two of the following subjects: chemistry, bacteriology. At least eight hours must be offered in each subject, if two are chosen.

Minor B.—20 hours chosen from one or two of the following subjects: economics, sociology. At least eight hours must be offered in each subject, if two are chosen.

For All Colleges

Transfer Students.—To satisfy the requirements for graduation, students transferring home economics credits from other institutions must take five hours in residence from the following: Home Economics 20, 28, 31, 33, 35, 39a, 39b, 41, 43a, 43b, 47, 48, 50, 51, 57a, 57b, 62.

Electives.—In addition to the required subjects in each college, it is expected that students will choose electives in accord with their special interests, as follows:

1. Textiles, clothing, and costume design: Home Economics 19, 30, 31, 42, 43a, 43b, 50, 51.
2. Institution management and hospital dietetics: Home Economics 20, 33, 35, 46, 47, 48, 55.
3. Household management: Home Economics 14, 28, 57a, 57b, and additional courses in economics.
4. House planning and furnishing: Art 11, 12; Architecture 11, 12; Home Economics 3, 43a, 43b, and additional courses in art and history.
5. Nutrition: Chemistry 22, 50a; Zoology 1; Home Economics 20, 33, 35, 39a, 39b, 41, 45.
6. Teaching of home economics: Home Economics 11, 13, 45; Eucation 6, 10, 25.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Undergraduates NOT Majoring in Home Economics

Home Econ. 7. Textiles.—See sections listed under Home Econ. 7 below.

Home Econ. 38. Elementary Nutrition.—*Prerequisite:* Sophomore standing.

Credit	Section	Hours	Days	Room	Instructor
2	F Lect. (for women)	2	MW	121 W.B.	Barto
	K Lect. (for men)	9	TT	231 W.B.	

Home Econ. 42. History of Costume.—See lecture listed under Home Econ. 42 on next page.

Home Econ. 60. Food Problems of Student Groups.—(A course for commissaries). Selection, buying, and managerial problems in the preparation and serving of food for student groups. *Prerequisite:* Sophomore standing; consent of the instructor.

1	Lect.	2	Tu	117 W.B.	Smith, Barto

Home Econ. 80. Home Management.—Problems of home management, emphasizing personal and family finance, apportionment of time and energy, and problems of the consumer. *Prerequisite:* Junior standing; consent of the instructor.

2	Lect.	11	TT	121 W.B.

Courses for Undergraduates Majoring in Home Economics

Home Econ. 2. Home Architecture.—*Prerequisite:* Art 1a. *Prerequisite or concurrent:* Art 1b.

3	Lect.	1	MW	210 W.B.	Foster, Weaver
	Quiz	1	F	210 W.B.	Weaver
	C Conf.	10	F	309 W.B.	
	D Conf.	11	F	309 W.B.	
	F1 Conf.	2	F	309 W.B.	
	F2 Conf.	2	M	325 W.B.	
	G Conf.	3	M	325 W.B.	
	M Conf.	11	S	309 W.B.	

Home Econ. 3. Home Decoration.—*Prerequisite:* Art 1a and 1b.

3	Lect.	10	S	210 W.B.	Weaver
	L Lab.	10–12	TT	309 W.B.	
	N Lab.	1–3	TT	309 W.B.	
	P Lab.	3–5	TT	309 W.B.	

Home Econ. 5. Dietetics.—*Prerequisite:* Chem. 33; Home Econ. 58; Physiol. 1, 1a. *Prerequisite or concurrent:* Home Econ. 59.

4	Lect.	9	M	121 W.B.	Barto
	B1 Quiz	9	W	121 W.B.	Barto
	B2 Quiz	9	F	121 W.B.	Barto
	C Lab.	10–12	MW	229 W.B.	Barto
	L Lab.	10–12	TT	229 W.B.	Barto
	N Lab.	1–3	TT	229 W.B.	Janssen

Home Econ. 7. Textiles.—Students may register in either lecture section but are required to take the quiz and laboratory in some one section.

3[1]	A Lect.	10	M	210 W.B.	Jacobsen
	B Lect.	3	M	210 W.B.	Jacobsen
[1]Seniors will receive only 2 hours credit.	1 Quiz	10	W	117 W.B.	Jacobsen
	Lab.	10–12	F	304 W.B.	
	2 Quiz	10	Th	117 W.B.	Jacobsen
	Lab.	10–12	Tu	304 W.B.	
	3 Quiz	10	F	117 W.B.	Beam
	Lab.	10–12	W	304 W.B.	
	4 Quiz	1	F	304 W.B.	Jacobsen
	Lab.	1–3	W	304 W.B.	
	5 Quiz	1	Th	117 W.B.	Jacobsen
	Lab.	1–3	Tu	304 W.B.	
	6 Quiz	11	F	117 W.B.	Beam
	Lab.	10–12	M	304 W.B.	
	7 Quiz	9	F	117 W.B.	Jacobsen
	Lab.	3–5	Th	304 W.B.	
	8 Quiz	10	Tu	117 W.B.	Beam
	Lab.	10–12	Th	304 W.B.	

Home Econ. 10. Organization and Management of the Home.—*Prerequisite:* Econ. 1 or 2; Home Econ. 7. *Prerequisite or concurrent:* Home Econ. 59.

3	A Quiz	8	MWF	121 W.B.
	E Quiz	1	MWF	121 W.B.

Home Econ. 11. The Teaching of Home Economics.—*Prerequisite:* Home Econ. 59 and 29. *Prerequisite or concurrent:* Home Econ. 5, 10, 19. *Concurrent:* Education 10; Ed. Pr. 14. One inspection trip (approximate cost, $3). Required of all who wish to be recommended to teach home economics.

3	Lect. and Disc.	2	TT	121 W.B.	Robinson

Home Econ. 14. Home Management House.—Conferences and laboratory work in the home management apartment and laundry. The students reside in the home management apartment four weeks during the semester. This course is required of all students expecting to meet the Smith-Hughes requirements. *Prerequisite:* Home Econ. 5 and 10; consent of the instructor.

Credit	Section	Hours	Days	Room	Instructor
3	Conf.	4	Th	117 W.B.	
	Lab.	To be arranged			

Home Econ. 19. Costume Design.—*Prerequisite:* Art 1a and 1b.

3	Lect.	1	F	117 W.B.	EADES
	C Lab.	10–12	MW	309 W.B.	
	E Lab.	1–3	MW	309 W.B.	

Home Econ. 29. Clothing.—*Prerequisite:* Art 1a or 1b; Home Econ. 7.

4	Lect.	10	F	210 W.B.	WHITLOCK
	C1 Quiz	10	M	121 W.B.	WHITLOCK
	C2 Quiz	10	W	121 W.B.	WHITLOCK
	E Lab.	1–3	MW	327 W.B.	BEAM
	L Lab.	10–12	TT	203 W.B.	WHITLOCK
	N Lab.	1–3	TT	327 W.B.	BEAM

Home Econ. 30. Clothing.—*Prerequisite:* Art 1a, 1b; Home Econ. 29. *Prerequisite or concurrent:* Home Econ. 19.

3	Lect.	2	F	121 W.B.	WHITLOCK
	E Lab.	1–3	MW	203 W.B.	
	N Lab.	1–3	TT	203 W.B.	

Home Econ. 42. History of Costume.—

2	Lect.	3	TT	210 W.B.	EADES

Home Econ. 46. Quantity Cookery.—*Prerequisite:* Home Econ. 59.

3	Quiz	4	W	117 W.B.	SMITH, UNDERWOOD, DOSTER
	Lab.	8–11	Two mornings a week to be arranged. Students are advised not to have eleven o'clock classes, as they are required to serve from 11:30 to 12:30 at least two days a week.		

Home Econ. 47. Institution Management.—*Prerequisite:* Econ. 1 or 2; senior standing. *Prerequisite or concurrent:* Home Econ. 46.

3	Lect. and Disc.	2	MWF	117 W.B.	SMITH

Home Econ. 58. Foods.—*Prerequisite:* Chemistry 1 and 5.

5	Lect.	9	MW	210 W.B.	WOODRUFF
	B Quiz	9	F	208, 210 W.B.	WOODRUFF, PICKENS
	D Quiz	11	F	121 W.B.	JANSSEN
	C Lab.	10–12	MWF	235 W.B.	PICKENS
	E Lab.	1–3	MWF	235 W.B.	JANSSEN
	I Lab.	8–10	TTS	235 W.B.	JANSSEN
	N Lab.	1–3 10–12	TT S	235 W.B.	PICKENS

Home Econ. 59. Food Economics.—*Prerequisite:* Home Econ. 58.

2	Lect.	11	Th	210 W.B.	WOODRUFF
	G Lab.	3–5	W	229 W.B.	JANSSEN
	P1 Lab.	3–5	Tu	229 W.B.	PICKENS
	P2 Lab.	3–5	Th	229 W.B.	PICKENS

Home Econ. 90a. Thesis and Honors.—Intended primarily for candidates for honors but open to other seniors. *Prerequisite:* Senior standing; approval of the head of the department. (3 to 5).* Arrange. Members of the department.

Courses for Advanced Undergraduates and Graduates

Home Econ. 20. Physical Growth and Nutrition.—*Prerequisite:* Home Econ. 5; senior standing.

2	Lect. and Disc.	1	MW	117 W.B.	OUTHOUSE

Home Econ. 35. Problems in Foods.—*Prerequisite:* Home Econ. 5; consent of the instructor; Chemistry 22 is advised.

3	Conf.	1	F	231 W.B.	WOODRUFF
	Lab.	2–5	MW	113 W.B.	

Home Econ. 39a. Readings in Foods and Nutrition.—*Prerequisite:* Home Econ. 5; senior standing. *Prerequisite or concurrent:* One of the following: Chem. 50a; Home Econ. 20, 33, 35, 41, 55.

1	Seminar	4-5:30	Th	203-5 W.B.	WOODRUFF, OUTHOUSE, BARTO, and HATHAWAY

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Home Econ. 43a. Problems in Textiles and Clothing.—*Prerequisite:* Econ. 1 or 2; Home Econ. 30 or 51. Individual problems in some cases involve prerequisites of chemistry and physics.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	3	Tu	304 W.B.	JACOBSEN, WHITLOCK, and EADES
	Lab.	To be arranged			

Home Econ. 57a. Problems in Home Management.—*Prerequisite:* Home Econ. 10; consent of the instructor. (3). Arrange. 313 W.B.

Home Econ. 62. Food and Nutrition.—*Prerequisite:* Home Econ. 5; senior standing.

3	Lect.	1	TT	121 W.B.	OUTHOUSE and HATHAWAY
	Lab.	2–5	Tu	215 W.B.	

Courses for Graduates

Home Econ. 101. Home Economics.—(1 unit). Professor BANE.

Home Econ. 102. Research in Nutrition.—(½ to 3 units).* Associate Professor OUTHOUSE.

Home Econ. 103. Seminar in Nutrition.—(½ unit). Once a week. Associate Professor OUTHOUSE.

Home Econ. 104. Research in Foods.—(½ to 3 units).* Professor WOODRUFF.

Home Econ. 105. Seminar in Foods.—(½ unit). Professor WOODRUFF.

HORTICULTURE

Note: Certain courses in this department require laboratory fees varying from $1.00 to $2.50.

Courses for Undergraduates

Hort. 1. Introductory Horticulture.—(No credit allowed to juniors and seniors.)

Credit	Section	Hours	Days	Room	Instructor
3	A Disc.	8	TT	127 New Agr.	COLBY, WEAVER, and MARSH
	Lab.	8–10	S	H.F.L.	
	B Disc.	10	MW	127 New Agr.	
	Lab.	10–12	F	H.F.L.	
	C Disc.	11	MW	127 New Agr.	
	Lab.	10–12	F	H.F.L.	
	D Disc.	1	WF	127 New Agr.	
	Lab.	1–3	M	H.F.L.	

Hort. 5. Plant Propagation.—

3	A	1–3	MWF	F.G.	DORNER

Hort. 8a. Orcharding.—*Prerequisite:* Hort. 1. (Inspection trip requirement waived for 1936-37.)

3	Lect.	10	Th	118 New Agr.	MCMUNN
	Lab.	10–12	TuS	106 H.F.L.	MCMUNN

Hort. 15b. Commercial Floricultural Crops.—*Prerequisite:* Hort. 15a.

3	A	10–12	MWF	F.G.	HALL

Hort. 22a. Investigation with Thesis.—Continuous through the year; credit not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; approval of head of department. (5). Arrange. Work may be taken in the following subjects:

Pomology.—Professors DORSEY, RUTH, COLBY, ANDERSON; Associate Professor MARSH.
Olericulture.—Professor LLOYD.
Floriculture.—Professor DORNER, Associate Professor WEINARD.
Plant Breeding.—Professor DORSEY.

Hort. 32a. Floral Decoration.—(For floricultural students).

3	A	8–10	TTS	F.G.	DORNER

Hort. 33. Systematic Pomology.—*Prerequisite:* Sophomore standing.

2	A	3–5	TT	H.F.L.	MCMUNN

Hort. 49. Systematic Vegetable Crops.—*Prerequisite:* Junior standing.

2	A	3–5	TT	203 V.G.	LLOYD and WEAVER

Hort 53. Viticulture.—*Prerequisite:* Hort. 1.

2	A	1–3	TT	118 New Agr.	COLBY

Courses for Advanced Undergraduates and Graduates

Hort. 12. Evolution of Horticultural Plants.—*Prerequisite:* Zool. 15 or Bot. 20.

3		Arrange		118 New Agr.	DORSEY

Hort. 43. Greenhouse Fertilizers.—*Prerequisite:* Bot. 3; Agron. 28; Hort. 3 or 15a; senior standing.

3	A	3	MWF	F.G.	WEINARD

Hort. 44. Current Pomological Literature.—*Prerequisite:* Junior standing.

1	A	11	Th	118 New Agr.	RUTH

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hort. 46. Marketing Horticultural Products.—See Agricultural Economics 36.

Hort. 47. Pomological Physiology.—*Prerequisite:* Bot. 3, or concurrent registration in Bot. 3.

Credit	Section	Hours	Days	Room	Instructor
3	A	1–3	MWF	102 H.F.L.	RUTH

Hort. 51. Fruit Diseases.—*Prerequisite:* Bot. 70.

3	Lect.	3	Tu	Seminar, H.F.L.	ANDERSON
	Lab.	10–12	TT	114 H.F.L.	

Courses for Graduates

Hort. 103. Olericulture.—(1 to 2 units).* Arrange. Professor LLOYD.

Hort. 105. Marketing Fruits and Vegetables.—See Agricultural Economics 135.

Hort. 106. Olericulture Seminar.—(¼ unit). Arrange. Professor LLOYD.

Hort. 108. Pomology.—(1 to 4 units).* Arrange.

(a) **Pomological Problems.**—Professor BLAIR.
(b) **Pomology and Fruit Breeding.**—Professor DORSEY.
(c) **Pomological Physiology.**—Professor RUTH.
(d) **Small Fruits.**—Professor COLBY.
(e) **Pomological Pathology.**—Professor ANDERSON

Hort. 115. Floriculture.—(1 to 2 units).* Arrange.

(a) **Floricultural Problems.**—Professor DORNER.
(b) **Floricultural Physiology and Pathology.**—Associate Professor WEINARD.

Hort. 120. Pomology Seminar.—(¼ unit). Arrange. Professors DORSEY, RUTH, ANDERSON.

Hort. 125. Fruit Development.—(1 unit). Arrange. Professor DORSEY.

Hort. 130. Physiology of Fruit Production.—(1 unit). Arrange. Professor RUTH.

Hort. 135. Fruit Disease Research.—(1 unit). Arrange. Professor ANDERSON.

HYGIENE

Courses for Undergraduates

Hygiene 2. Essentials of Hygiene and Sanitation.—Required of all undergraduate women during their first year of residence. Those whose names begin with the letters from A through L should register the first semester.

Credit	Section	Hours	Days	Room	Instructor
2[1]	A1	8	TT	330 New Agr.	MILLBROOK
	A2	8	WF	330 New Agr.	MILLBROOK
[1]Seniors will receive only 1 hour credit.	B1	9	TT	330 New Agr.	ETHEREDGE
	B2	9	WF	330 New Agr.	ETHEREDGE
	C1	10	TT	330 New Agr.	LYNCH
	F1	2	TT	330 New Agr.	COON
	F2	2	MW	330 New Agr.	COON
	G1	3	MW	330 New Agr.	LYNCH

Hygiene 5. Elementary Hygiene and Sanitation.—Required of all undergraduate men during their first year of residence. Students in the colleges of Agriculture and Liberal Arts and Sciences, except those taking the premedical course, should register in the first semester. All other students should register in the second semester. Those whose schedules will not permit registration in this order will, with proper approval, be accepted in either semester.

2[1]	A1	8	MW	128 New Agr.	BEARD
	A2	8	TT	128 New Agr.	JUDAH
[1]Seniors will receive only 1 hour credit.	A3	8	WF	214 New Agr.	JUDAH
	B1 (Agr.)	9	TT	128 New Agr.	BEARD
	B2	9	WF	128 New Agr.	BEARD
	B3	9	MW	319 E.H.	THACKER
	B4	9	TT	127 New Agr.	LEWIS
	B5	9	WF	127 New Agr.	LEWIS
	B6	9	TT	214 New Agr.	THACKER
	C1 (Agr.)	10	TT	128 New Agr.	CAIN
	C2	10	WF	128 New Agr.	CAIN
	C3 (Eng.)	10	MF	319 E.H.	BLACKSTONE
	C4 (Eng.)	10	TT	319 E.H.	BLACKSTONE
	C5	10	TT	127 New Agr.	FREEMAN
	D1	11	MW	128 New Agr.	GEBHART
	D2	11	TT	128 New Agr.	GEBHART
	F1 (Eng.)	2	TT	319 E.H.	JUDAH
	F2 (Agr.)	2	WF	127 New Agr.	THACKER
	F3	2	MW	128 New Agr.	LEWIS
	F4	2	TT	316 New Agr.	FREEMAN
	F5	2	WF	319 E.H.	FREEMAN
	G1	3	TT	128 New Agr.	BLACKSTONE
	G2	3	MW	128 New Agr.	CAIN

Hygiene 10. Advanced Hygiene.—Especially suited to the needs of teachers, coaches, and social workers. *Prerequisite:* Hygiene 2 or 5.

2	F	3	MW	127 New Agr.	GEBHART

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

JOURNALISM

Note: Certain courses in this department require laboratory fees varying from $1.00 to $2.00.

Credit in journalism will be given for Rhetoric 6; English 45; Political Science 22, 27, 28; Law 2, 5; History 21.

Courses for Undergraduates

Journ. 1a. Supervised Publication Work.—Four hours of regular staff duty and one 15-minute faculty conference each week. *Prerequisite:* Sophomore standing in the University and 3.5 average. (1).

Section A. For members of the reporting staff of the *Daily Illini* and students trying out for that staff. Arrange; 122 U.H. Mr. HERRON.

Section B. For members of the staff of the *Technograph* and students trying out for that staff. Arrange; 118 U.H. Mr. SHERE.

Journ. 3. The Press and Public Opinion.—The press and influences at work through the press in relation to public opinion. Open to students in all parts of the University. *Prerequisite:* Sophomore standing in the University.

Credit	Section	Hours	Days	Room	Instructor
2	L	10	TT	303 Adm.(E)	BARLOW and others

Journ. 4. Newspaper Reference Studies.—Use of morgue, bibliographical, and reference materials. *Prerequisite:* Freshman standing and pre-journalism or School of Journalism registration.

2[1]	E	1	MW	107 U.H.	DICKINSON
[1]Seniors will receive only 1 hour credit.	F	2	MW	106 U.H.	

Journ. 5. Reporting.—News story form; gathering and writing news. *Prerequisite:* Sophomore standing. Students register for lecture and one laboratory section.

3	Lect. K	9	Tu	410 U.H.	LEITER and HERRON
	Lab. A	8–10	MW	113 U.H.	
	Lab. C	10–12	MW	113 U.H.	
	Lab. L	3–5	TT	113 U.H.	
	Lab. N	1–3	TT	113 U.H.	
	Lab. T	10–12	FS	113 U.H.	

Journ. 6. Reporting.—Continuation of Journ. 5; news of public life and public affairs; general press, radio, and news reel reporting. *Prerequisite:* Journ. 5 or equivalent.

3	Lect. K	9	Th	202 U.H.	LEITER
	Lab. L	10–12	TT	113 U.H.	

Journ. 7. Sports Writing.—A service course for students in Physical Education. *Prerequisite:* Sophomore standing in the School of Physical Education.

3	E	1	MWF	315 U.H.	SCHOOLEY

Journ. 9a. Printing and Publishing.—Types, publishing, engraving, offset process, news pictures, etc. *Prerequisite:* Sophomore standing. Students register for lecture and one laboratory section.

2	Lect. B	9	M	315 U.H.	BARLOW and SHERE
	Lab. A	8–10	W	126 U.H.	
	Lab. C	10–12	W	126 U.H,	
	Lab. J	8–10	Tu	126 U.H.	
	Lab. K	8–10	Th	126 U.H.	

Courses for Advanced Undergraduates

Journ. 10. Newspaper Advertising.—(Same as B.O.O. 10). (Offered first semester only). *Prerequisite:* Junior standing and Journ. 5 and 6.

3	A	8	MWF	310 Com.	RUSSELL
	B	9	MWF	310 Com.	

Journ. 12. Publicity Methods.—*Prerequisite:* Junior standing and credit or registration in another course in journalism.

2	K	9	TT	208 U.H.	WRIGHT

Journ. 13. Copyreading.—*Prerequisite:* Journ. 5 and 9a or equivalent, and junior standing.

3	Lect. G	3	M	315 U.H.	SIEBERT
[1]Lab. H is for students with desk experience. Consult adviser before registering.	Lab. N	1–3	TT	118 U.H.	
	Lab. E	1–3	WF	118 U.H.	
	Lab. P	3–5	TT	118 U.H.	
	[1]Lab. H	3–4	WF	118 U.H.	

Journ. 15. Special and Feature Articles.—*Prerequisite:* Junior standing and credit or registration in another course in journalism.

2	L	10–12	TT	118 U.H.	SHERE

Journ. 17. History of Journalism.—*Prerequisite:* Junior standing and 6 hours credit in journalism.

3	D	11	MWF	218 U.H.	MURPHY

Journ. 19. News Values and News Analysis.—*Prerequisite:* Senior standing and 15 hours credit in journalism.

2	C	10	MW	310 U.H.	MURPHY

Jonrn. 24. Agricultural Journalism.—(Same as Agr. Adm. 1). Farm and home news, features, and radio. Open to students in agriculture, home economics, and journalism. *Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	D	11	MWF	302 Old Agr.	KEILHOLZ

Journ. 25. Newspaper Advertising Copy.—*Prerequisite:* Junior standing. Students register for lecture and one laboratory section.

3	Lect. C	10	M	106 U.H.	DICKINSON
	Lab. D	10–12	WF	118 U.H.	
	Lab. J	8–10	TT	118 U.H.	

Journ. 29. Advanced Reporting.—General news, correspondence, and news photography. *Prerequisite:* Journ. 5 and 6 or equivalent, and junior standing.

3	Lect. F	2	M	208 U.H.	BARLOW
	Lab. E	1–3	WF	113 U.H.	
	Lab. G	3–5	WF	113 U.H.	

Journ. 33. Newspaper Advertising Layout.—*Prerequisite:* Junior standing and credit or registration in Journ. 9a.

3	Lect.-Disc. N	1–3	Tu	126 U.H.	DICKINSON
	Lab. O	1–3	Th	126 U.H.	

Journ. 35. Contemporary Affairs.—*Prerequisite:* Junior standing and six hours of journalism.

2	M	11	TT	213 U.H.	SIEBERT

Journ. 39. Special Problems.—Open to seniors not writing theses in journalism. *Prerequisite:* Senior standing.

2		Arrange			SIEBERT and others

Journ. 58. Comparative Journalism.—The press of Germany, France, England, Russia, etc. *Prerequisite:* Junior standing.

2	O	2	TT	208 U.H.	BARLOW

Journ. 59a. Journalism Lectures.—Required of juniors and seniors in the School of Journalism. Not open to other students. Credit toward graduation.

	H	4	M	218 U.H.	SIEBERT

Journ. 60a. Thesis Course.—Open to seniors with average above 4.2, with the consent of the Director.

2		Arrange			MURPHY and others

LANDSCAPE ARCHITECTURE

Note: Certain courses in this department require laboratory fees varying from $0.50 to $2.00.

Courses for Undergraduates

L.A. 11. History of Landscape Architecture.—

Credit	Section	Hours	Days	Room	Instructor
3	A	11	MWF	214 New Agr.	PETERSON

L.A. 31. Elementary Landscape Design.—*Prerequisite:* Arch. 32.

3	A	8–11	MWF	200 New Agr.	WHITE

L.A. 33. Intermediate Landscape Design.—*Prerequisite:* L.A. 32.

3	A	9–12	TTS	200 New Agr.	WHITE

L.A. 35. Advanced Landscape Design.—*Prerequisite:* L.A. 34.

5	A	8–12	MWFS	203 New Agr.	LOHMANN

L.A. 37. Civic Design.—*Prerequisite:* Senior standing in the City Planning Option.

4	A	9–12	MWFS	203 New Agr.	LOHMANN

L.A. 43. Landscape Construction.—*Prerequisite:* C.E. 18.

3	Lect.	9	MF	211 New Agr.	SCHAFFER
	Lab.	10–12	MF	200 New Agr.	SCHAFFER
		9–12	W	200 New Agr.	

L.A. 51. Trees and Shrubs.—*Prerequisite:* Bot. 5. (Open only to students in Landscape Architecture and Floriculture).

3	Lect.	3	W	214 New Agr.	ROBINSON
	Lab.	3–5	MF	211 New Agr.	ROBINSON

L.A. 53. Planting Design.—*Prerequisite:* L.A. 34 and 52; Hort. 31.

3	Lect.	1	Tu	211 New Agr.	ROBINSON
	Lab.	2–5	Tu	203 New Agr.	ROBINSON
		1–5	Th	203 New Agr.	

L.A. 55. Care of Plant Materials.—*Prerequisite:* L.A. 52.

2	A	9	TT	211 New Agr.	SCHAFFER

L.A. 71. City Planning.—*Prerequisite:* Junior standing.

2	A	10	TT	214 New Agr.	BARTHOLOMEW and LOHMANN

LAW

Note: Students other than those registered in the College of Law are required to pay fees at the rate of $1.00 per semester hour for courses in law.

First-Year Courses

Note: In addition to the program for which a first-year student registers, he is asked to hold open the one o'clock hour on Tuesday during the first semester for quizzes to be scheduled during the course of the semester in room 300 Law Building.

Introductory Lectures on Procedure.—Required of all first-year students. (No credit). 1 and 4 MTWTF; 300 Law. Professor McCaskill.

Law 1a. Contracts.—Costigan: *Cases on Contracts* (2d ed.).

Credit	Section	Hours	Days	Room	Instructor
3	A	2	MTW	103 Law	Goble
	B	3	MTW	103 Law	

Law 2a. Torts.—Bohlen: *Cases on Torts* (3d ed.).

4	A	8	TWTF	103 Law	Weisiger
	B	9	TWTF	103 Law	

Law 3. Introduction to Law, and Personal Property.—Bigelow, *Cases on Personal Property* (2d ed.).

3	A	9	MTT	106 Law	Ferrall
	B	10	MTT	106 Law	

Law 4. Actions.—McCaskill: *Cases on Actions and Suits*, Part I.

2	A	3	ThF	103 Law	McCaskill

Law 5. Criminal Law.—Harno: *Cases on Criminal Law and Procedure.*

3	A	11	MWF	103 Law	Harno

Second-Year and Third-Year Courses

Law 6a. International Law.—Law of Peace.

3	A	10	MWF	202 L.H.	Garner

Law 7. Persons.—McCurdy: *Cases on Domestic Relations* (2d ed.).

2	A	8	MTu	306 Law	Holt

Law 9. Sales.—Bogert and Britton: *Cases on Sales.*

3	A	9	MTW	306 Law	Britton
	B	10	MTW	306 Law	

Law 16a. Trusts.—Scott: *Cases on Trusts* (2d ed.).

2	A	8	MTu	303 Law	Schnebly
	B	9	MTu	303 Law	

Law 17. Business Organizations I.—Crane and Magruder: *Cases on Partnership* (shorter selection).

2	A	2	ThF	306 Law	Holt

Law 19. Business Organizations II.—Richards: *Cases on Corporations* (3d ed.).

3	A	11	MTW	106 Law	Johnson

Law 20. Procedure II.—Selected cases on common law, equity, and code pleading.

3	A	2	MTW	106 Law	McCaskill

Law 21a. Credit Transactions I.—Accommodation contracts. Sturges: *Cases on Credit Transactions.*

2	A	1	ThF	106 Law	Ferrall

Law 24. Municipal Corporations.—Stason: *Cases on Municipal Corporations.*

2	A	4	MTu	303 Law	Casner

Law 28a. Insurance.—Personal insurance. Goble: *Cases on Insurance.*

2	A	10	ThF	303 Law	Goble

Law 29. Real Property II.—Rights in land. Bigelow: *Cases on Rights in Land* (2d ed.).

3	A	8	WTF	303 Law	Summers
	B	9	WTF	303 Law	

Law 30. Equity II.—Cook: *Cases on Equity* (2d ed.; one-volume).

2	A	2	ThF	303 Law	Schnebly
	B	3	ThF	303 Law	

Law 31a. Conflict of Laws.—Lorenzen: *Cases on Conflict of Laws* (3d ed.).

2	A	8	ThF	106 Law	Holt

Law 33. Administrative Law.—Stason: *Cases on the Law of Administrative Tribunals*, Parts I and II, (2d ed.).

Credit	Section	Hours	Days	Room	Instructor
2	A	9	ThF	306 Law	Casner

Law 35. Procedure III.—Trial practice. Selected cases.

3	A	10	MTW	103 Law	McCaskill

Law 39a. Thesis Course.—Open to students who are candidates for the J.D. degree during the academic year next preceding their graduation. Credit deferred until completion of Law 39b.

1		To be arranged			Members of the staff

Law 49. Industrial Relations I.—Trade regulation.

2	A	3–5	W	306 Law	Weisiger

Law 52. Law of Oil and Gas.—Selected cases and readings.

2	A	11	ThF	303 Law	Summers

Law 54. Legal Problems I.—Comments on recent decisions. *Prerequisite:* Election to the Student Editorial Board, or one year of law work with an average grade of at least B (4.) in law courses and consent of the instructor. (1). Arrange.

Law 56. Legal Problems III.—Comments on recent decisions. *Prerequisite:* Legal Problems I or II, and an average grade of at least B (4.) in law courses, or consent of the instructor. (1). Arrange.

Law 59. Banks and Banking.—A study of selected legal problems in the organization, operation, and liquidation of banks.

2	A	2	MTu	306 Law	Britton

Law 60. Public Utilities.—Smith, Dowling, and Hale: *Cases on Public Utilities* (2d ed.).

2	A	3	MTu	303 Law	Casner

LIBRARY SCIENCE

Course for Freshmen and Sophomores

Lib. Sci. 12. General Reference.—

Credit	Section	Hours	Days	Room	Instructor
2	A	9	TT	118 Lib.	Singleton
	B	10	TT	118 Lib.	Hardin
	C	11	TT	118 Lib.	Signor
	D	1	TT	118 Lib.	Wilson
	E	2	TT	118 Lib.	Higgins

Courses for First-Year Library School Students

Lib. Sci. 2a. Reference.—

3	A	11	MWF	314 Lib.	Singleton
	B	9	MWF	227 Lib.	Singleton

Lib. Sci. 3a. Selection of Books.—

2	A	9	TT	227 Lib.	Boyd
	B	10	TT	227 Lib.	Boyd

Lib. Sci. 31a. Cataloging.—

2	A Lect.	1	MTh	314 Lib.	Bond
	Lab.	2–4	MTh	306 Lib.	Bond
	B Lect.	2	TT	314 Lib.	Krieg
	Lab.	3–5	TT	306 Lib.	Krieg

Lib. Sci. 34. Library Administration and Extension.—

3	A	8	MWF	314 Lib.	Henkle
	B	10	MWF	314 Lib.	Henkle

Lib. Sci. 35. Order and Accessions.—

3	A	9	MWF	314 Lib.	Hostetter
	B	11	MWF	227 Lib.	Hostetter

Lib. Sci. 36. Classification.—

2	A	10	TT	314 Lib.	Bond
	B	9	TT	314 Lib.	Bond

Courses for Advanced Library School Students and Graduates

Lib. Sci. 13a. U. S. Government Publications.—*Prerequisite:* Lib. Sci. 2a-2b. (2 hours or ½ unit). 10 MW; 328 Lib. Miss Higgins.

Lib. Sci. 24a. Book Selection for Special Groups.—*Prerequisite:* Lib. Sci. 3a and 38. (2 hours or ½ unit). 10 TT; 328 Lib. Assistant Professor Hostetter.

Lib. Sci. 44. Bookbuying for the Large Library.—(2 hours or ½ unit). 11 MW; 328 Lib. Miss GARVER.

Lib. Sci. 45. Library Buildings.—(2 hours or ½ unit). 9 TT; 328 Lib. Mr. HENKLE.

Courses for Graduates

Lib. Sci. 101. Thesis.—(1 to 2 units). Professor WINDSOR and others.

Lib. Sci. 102. (a) Seminar. Publishers.—(1 unit). 3-5 W; 328 Lib. Associate Professor BOYD.
(e) Individual Problems.—(½ to 1 unit). To be arranged. Professor WINDSOR and others.

Lib. Sci. 103a. Advanced Reference.—*Prerequisite:* Lib. Sci. 2a-2b. (½ unit). 11 TT; 328 Lib. Miss HIGGINS.

Lib. Sci. 104a. Advanced Classification.—*Prerequisite:* Lib. Sci. 31a, 36, and 37. (½ unit). 10-12 F; 328 Lib. Associate Professor BOND.

MATHEMATICS

Major: 20 hours exclusive of Math. 2, 3, 4, 5, 6, 6a, 8a, 8b, and all courses taken during the freshman year, and inclusive of Mathematics 7 and 9, and two semesters of Math. 70, 71, 72.

Note: For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: first semester, Math. 2 (or 3) and 4 (or 5); second semester, Math. 6. Sophomore year: first semester, Math. 7; second semester, Math. 9. In certain courses Math. 6 may be replaced by Math. 6a, and Math. 7 and 9 by Math. 8a and 8b.

Minors: 20 hours exclusive of courses taken during the freshman year selected from one or two of the following subjects: astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), economics, accountancy, philosophy, theoretical and applied mechanics, surveying. If two subjects are chosen, at least eight hours must be offered in each.

Note: Seniors receive reduced credit in Mathematics 2, 3, 4, 5, 6, and 6a.
Mathematics 32, 35, 36, and 40 are suggested as desirable courses for students preparing to teach high school mathematics.

Courses for Undergraduates

Math. 2. College Algebra.—*Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit.

Credit	Section	Hours	Days	Room	Instructor
3[1]	[2]A1	8	MWF	110 L.H.	CASSITY
	[2]A2	8	MWF	206 U.H.	DENNIS
[1]Seniors will receive only 2 hours credit.	R1	8	MWF	105 Entom.	
	R2	8	MWF	106 U.H.	HANSMAN
	[2]B1	9	MWF	102 Entom.	MOORE
[2]Sections A1, A2, B1, B2, D1, D2, E, F1, F2, G1, G2, and H are for freshman engineers.	[2]B2	9	MWF	202 U.H.	DOBBIE
	S1	9	MWF	318 U.H.	NORVAL
	S2	9	MWF	208 U.H.	CAMPBELL
	S3	9	MWF	105 Entom.	KENT
	T1	10	MWF	202 U.H.	DOBBIE
	T2	10	MWF	105 Entom.	KENT
[3]Sections U1 and W1 are for architects and architectural engineers.	T3	10	TTS	154 Math.	DOOB
	[2]D1	11	MWF	102 Entom.	CAMPBELL
	[2]D2	11	MWF	208 U.H.	GENTRY
	[3]U1	11	MWF	105 Entom.	THRALL
	U2	11	TTS	159 Math.	FRYER
	[2]E	1	MWF	105 Entom.	AMBROSE
	[3]W1	1	MWF	156 Math.	EACHUS
	W2	1	MWF	159 Math.	TORDELLA
	W3	1	MWF	102 Entom.	PATE
	[2]F1	2	MWF	110 L.H.	STEIMLEY
	[2]F2	2	MWF	155 Math.	BROWN
	X1	2	MWF	158 Math.	SHREVE
	X2	2	MWF	103 Entom.	WELKER
	[2]G1	3	MWF	102 Entom.	WELCH
	[2]G2	3	MWF	110 L.H.	KIBBEY
	Y1	3	MWF	159 Math.	TORDELLA
	Y2	3	MWF	155 Math.	EACHUS
	[2]H	4	MWF	154 Math.	PATE
	Z	4	MWF	159 Math.	HANSMAN

Math. 3. Algebra.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit.

5[1]	R1	8	MTWTF	102 Entom.	MOORE
	R2	8	MTWTF	154 Math.	FRYER
[1]Students having 1½ entrance units in algebra will receive only 3 hours credit for this course. Seniors will receive only 4 hours credit.	S1	9	MTWTF	206 U.H.	PEPPER
	S2	9	MTWTF	103 Entom.	BOWER
	T1	10	MTWTF	103 Entom.	BRISTOW
	T2	10	MTWTF	208 U.H.	GENTRY
	[2]D	11	MTWTF	110 L.H.	PETERS
	U	11	MTWTF	158 Math.	MODESITT
	W1	1	MTWTF	155 Math.	BROWN
	W2	1	MTWTF	202 U.H.	WELKER
[2]Section D is for freshman engineers.	X1	2	MTWTF	154 Math.	HOERSCH
	X2	2	MTWTF	159 Math.	LINDSTRUM
	Y1	3	MTWTF	103 Entom.	WILSON
	Y2	3	MTWTF	158 Math.	REMPFER

Math. 4. Plane Trigonometry.—*Prerequisite:* Entrance algebra, 1½ units, or registration in Math. 3; plane geometry, 1 unit.

[1]Seniors will receive only 1 hour credit.

[2]Sections A1, A2, B, C, D1, D2, E, F1, F2, G1, and G2 are for freshman engineers.

[3]Sections U1 and W2 are for architects and architectural engineers.

[4]Sections R2, S3, T3, U2, X2, and Y2 are for pre-medical students.

Credit	Section	Hours	Days	Room	Instructor
2[1]	[2]A1	8	TT	158 Math.	Trjitzinsky
	[2]A2	8	TT	206 U.H.	Dennis
	R1	8	TT	159 Math.	Norval
	[4]R2	8	TT	155 Math.	Cassity
	[2]B	9	TT	110 L.H.	Miles
	S1	9	TT	159 Math.	Hazlett
	S2	9	TT	155 Math.	
	[4]S3	9	TT	102 Entom.	Netzorg
	[2]C	10	TT	110 L.H.	Peters
	T1	10	TT	202 U.H.	Emch
	T2	10	TT	158 Math.	Levy
	[4]T3	10	TT	206 U.H.	Chanler
	[2]D1	11	TT	154 Math.	
	[2]D2	11	TT	103 Entom.	Bristow
	[3]U1	11	TT	155 Math.	Brahana
	[4]U2	11	TT	102 Entom.	Bergmann
	[2]E	1	TT	159 Math.	Bergmann
	W1	1	TT	156 Math.	Netzorg
	[3]W2	1	TT	206 U.H.	
	[2]F1	2	TT	156 Math.	Bourgin
	[2]F2	2	TT	155 Math.	Brown
	X1	2	TT	158 Math.	Rempfer
	[4]X2	2	TT	103 Entom.	Wilson
	[2]G1	3	TT	154 Math.	Hoersch
	[2]G2	3	TT	110 L.H.	Kibbey
	Y1	3	TT	159 Math.	Bergmann
	[4]Y2	3	TT	155 Math.	Netzorg

Math. 5. Advanced Trigonometry.—Intended for students having entrance credit in trigonometry. The course will include such topics as trigonometric equations, De Moivre's theorem, complex numbers with applications to more complicated problems in plane trigonometry, and a brief introduction to spherical trigonometry. *Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit; solid geometry, ½ unit; entrance trigonometry, ½ unit (or Math. 4).

[1]Seniors will receive only 1 hour credit.

2[1]	A	8	TT	110 L.H.	Miles
	D	11	TT	202 U.H.	Bower
	E	1	TT	110 L.H.	Steimley

Math. 6. Analytic Geometry.—*Prerequisite:* Math. 2 (or 3) and Math. 4.

[1]Seniors will receive only 4 hours credit.

[2]Sections A, D, and E are for freshman engineers.

5[1]	[2]A	8	MTWTF	208 U.H.	Peters
	R	8	MTWTF	103 Entom.	Bower
	S	9	MTWTF	156 Math.	Martin
	T	10	MTWTF	159 Math.	Armstrong
	[2]D	11	MTWTF	206 U.H.	Pepper
	[2]E	1	MTWTF	158 Math.	Shreve
	X	2	MTWTF	102 Entom.	Bristow
	Y	3	MTWTF	206 U.H.	Chanler

Math. 7. Calculus.—First course for students of mathematics and engineering. *Prerequisite:* Math. 6 (or 6a).

5	A1	8	MTWTF	202 U.H.	Emch
	A2	8	MTWTF	156 Math.	Martin
	B	9	MTWTF	158 Math.	Trjitzinsky
	C1	10	MTWTF	156 Math.	Hazlett
	C2	10	MTWTF	155 Math.	Brahana
	D	11	MTWTF	156 Math.	Levy
	E1	1	MTWTF	154 Math.	Hoersch
	E2	1	MTWTF	103 Entom.	Wilson
	F	2	MTWTF	206 U.H.	Chanler
	G	3	MTWTF	156 Math.	Bourgin

Math. 9. Calculus.—Second course for students of mathematics and engineering. *Prerequisite:* Math. 7.

3	B1	9	MWF	154 Math.	Crathorne
	B2	9	TTS	154 Math.	Doob
	D	11	MWF	159 Math.	Armstrong
	F	2	MWF	156 Math.	Bourgin
	G	3	MWF	154 Math.	Hoersch
	H	4	MWF	103 Entom.	Wilson

Math. 8a. Calculus.—For students of chemistry and chemical engineering, and insurance. *Prerequisite:* Math. 6a or 6.

3	A1	8	MWF	159 Math.	Armstrong
	A2	8	MWF	158 Math.	Miles
	C1	10	MWF	110 L.H.	Peters
	C2	10	MWF	102 Entom.	Moore
	D1	11	MWF	103 Entom.	Bristow
	D2	11	MWF	202 U.H.	Bower
	E	1	MWF	206 U.H.	Chanler

Courses for Advanced Undergraduates and Graduates

Math. 16. Differential Equations and Advanced Calculus.—*Prerequisite:* Math. 7 and 9 (or 8a-8b).

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	155 Math.	Bailey
	E	1	MWF	110 L.H.	Steimley

Math. 22. Statistics.—*Prerequisite:* Math. 2 or 3 and 6; junior standing.

3		11	MWF	155 Math.	Crathorne

Math. 35. Teachers' Course.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9.

3		9	MWF	155 Math.	Bailey

Math. 40a. Fundamental Concepts of Mathematics.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9.

3		10	MWF	206 U.H.	Pepper

Math. 53a. Integral and Operational Equations in Mathematical Physics.—*Prerequisite:* Math. 9a.

3		1	MWF	254 Math.	Bourgin

Math. 70a. Introduction to Higher Algebra.—*Prerequisite:* Math. 7 and 9.

3		9	MWF	159 Math.	Miles

Math. 71a. Introduction to Higher Analysis.—*Prerequisite:* Math. 7 and 9.

3		11	MWF	154 Math.	Coble

Math. 72a. Introduction to Higher Geometry.—*Prerequisite:* Math. 7 and 9.

3		10	MWF	158 Math.	Levy

Math. 90a. Undergraduate Thesis.—*Prerequisite:* 24 hours of college mathematics. (2). Arrange.

Courses for Graduates

Math. 100. Seminar and Thesis.—(1 to 2 units).* Arrange.

Math. 104. Topology.—(1 unit). 11 TTS; 254 Math. Dr. Doob.

Math. 113. Linear Differential Equations.—(1 unit). 11 MWF; 366 Math. Professor Carmichael.

Math. 115. Advanced Topics in the Theory of Functions.—(1 unit). 8 MWF; 254 Math. Associate Professor Trjitzinsky.

Math. 124. Theory of Numbers.—(1 unit). 9 MWF; 366 Math. Associate Professor Hazlett.

Math. 129. Theory of Statistics.—(1 unit). 10 MWF· 154 Math. Professor Crathorne.

Math. 131. Algebraic Geometry.—(1 unit). 10 MWF; 366 Math. Professor Emch.

Math. 170. Algebra.—(1 unit). 9 MWF; 254 Math. Associate Professor Brahana.

Math. 171. Analysis.—(1 unit). 11 MWF; 254 Math. Dr. Martin.

Math. 172. Geometry.—(1 unit). 10 MWF; 254 Math. Professor Coble.

MECHANICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2.50 to $7.00.

Courses for Undergraduates

M.E. 1. Steam and Air Machinery.—*Prerequisite:* Math. 9; Physics 1 and 3.

Credit	Section	Hours	Days	Room	Instructor
3	G	1	MWF	217 M.E.L.	
	F	8	MWF	211 M.E.L.	
	E	11	MWF	217 M.E.L.	

M.E. 3. Steam Engineering.—*Prerequisite:* M.E. 10; registration in M.E. 61.

3	MN	10	TTS	211 M.E.L.	
	JKLV	11	TTS	211 M.E.L.	

M.E. 7. Internal Combustion Engines.—*Prerequisite:* M.E. 6.

3	PQ	11	MWF	211 M.E.L.	

M.E. 10. Thermodynamics.—*Prerequisite:* Math. 9; Physics 1 and 3.

3	LM	8	MWF	217 M.E.L.	
	KN	2	MWF	202 T.B.	

M.E. 13. Thermodynamics.—*Prerequisite:* Math. 9; Physics 1 and 3.

3	PQ	2	TT	202 T.B.	
		3–5	W	215 E.E.L.	
	RS	11	TT	202 T.B.	
		3–5	W	215 E.E.L.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

M.E. 17. Refrigeration Engineering.—*Prerequisite:* M.E. 16.

Credit	Section	Hours	Days	Room	Instructor
3	PQ	11	MW	202 T.B.	
		8–10	S	112 T.B.	

M.E. 21. Mechanical Equipment of Buildings (Laboratory).—*Prerequisite:* Registration in M.E. 23.

1	C	8–11	W	204 M.E.L.

M.E. 23. Mechanical Equipment of Buildings.—*Prerequisite:* Senior standing.

4	C	8	MTTF	107 M.E.L.

M.E. 25. Heating and Ventilation for Architects.—*Prerequisite:* Senior standing.

2	A	11	TT	107 M.E.L.

M.E. 31. Mechanics of Machinery.—*Prerequisite:* Registration in T.A.M. 2.

5	PQT	8	MWF	216 T.B.
		8–11	TT	201, 216 T.B.
	RS	1	MWF	216 T.B.
		1–4	TT	201, 216 T.B.

M.E. 33. Aeronautical Engineering.—*Prerequisite:* Senior standing.

3	PQ	11	MWF	216 M.E.L.

M.E. 35. Petroleum Production Engineering.—*Prerequisite:* Senior standing in mechanical engineering or approval of the instructor. (3). Arrange.

M.E. 41. Mechanical Engineering Design.—*Prerequisite:* M.E. 40.

4	PT	8–11	MWF	112, 114 T.B.
	Q	1–4	MWF	112, 114 T.B.

M.E. 61. Mechanical Engineering Laboratory.—*Prerequisite:* M.E. 1 or 2 or 3.

2	KNCh1	2–5	MF	204 M.E.L.
	LVCh2	2–5	W	204 M.E.L.
		8–11	S	204 M.E.L.
	M	8–11	MF	204 M.E.L.

M.E. 65. Mechanical Engineering Laboratory.—*Prerequisite:* M.E. 64.

3	P	1–5	TT	204 M.E.L.
	Q	8–12	TT	204 M.E.L.

M.E. 85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing.

3	J2KP	8–11	TT	Pat. Lab.
	LQ	8–11	MF	Pat. Lab.
	MRT	1–4	TT	Pat. Lab.
	J1NS	1–4	MF	Pat. Lab.

M.E. 87. Machine Laboratory.—*Prerequisite:* Sophomore standing.

3	JKP	8–11	TT	Mach. Lab.
	LQ	8–11	MF	Mach. Lab.
	MRT	1–4	TT	Mach. Lab.
	NSV	1–4	MF	Mach. Lab.

M.E. 89. Heat Treatment of Metals.—*Prerequisite:* Senior standing in mechanical or railway mechanical engineering.

3	P	2–4	MWF	Mach. Lab.
	QW	8–10	MWF	Mach. Lab.

M.E. 97. Thesis.—*Prerequisite:* Senior standing. (3). Arrange.

M.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. (No credit).

Courses for Graduates

Note: Entrance on graduate work in Mechanical Engineering presupposes the full undergraduate course in that subject.

M.E. 107. Thermodynamics.—Application of thermodynamics to the solution of physical and engineering problems. (1 unit). Twice a week. Arrange. Professor Goff.

M.E. 108. The Flow of Fluids and Heat Transfer.—The application of dimensional analysis and other rational formulas. Special problems. (1 unit). Twice a week. Arrange. Professor Macintire.

M.E. 109. Mechanical Engineering Design.—(a) Machine design; (b) power plant design; (c) dynamics of machinery. (1 unit). Twice a week. Arrange. Professors Leutwiler, Ham.

M.E. 110. Advanced Heating, Ventilating, and Air Conditioning.—Applications of various systems, notable developments, and results of research. Individual problems. (1 unit). Twice a week. Arrange. Professor Severns.

M.E. 112. Laboratory Investigations.—Special problems in: (a) combustion; (b) steam; (c) gas and oil engineering; (d) heating, ventilation, and air conditioning; (e) refrigeration; (f) flow of fluids; (g) heat transfer; (h) mechanical transmission of power. (1½ units). Three times a week. Arrange. Professors Polson, Kratz, Ham, Macintire, Goff.

M.E. 117. Advanced Refrigerating Engineering.—Advanced theory and special cycles. Design of comfort cooling and other special installations. (1 unit). Twice a week. Arrange. Professor Macintire.

MILITARY BANDS

Note: The following courses are open only to those who have passed the examination for admittance to one of the bands. All new students who play band instruments and who desire to try for places in the bands should make application at the Band Office, in the Band Building, at the earliest possible time. Those who are accepted for membership will be given a slip indicating the band to which they have been assigned, together with their rehearsal days and hours (twice a week). Former members of the bands whose work has been satisfactory will be permitted to register in these courses without further examination. Assignments are made according to proficiency. Service in the bands takes the place of the required military courses. Director HARDING, Assistant Director HINDSLEY, Mr. OVERGARD.

Bands 1. Freshman Band.—(1).

Bands 3. Sophomore Band.—(1).

Bands 5. Junior Band.—(No credit).

Bands 7. Senior Band.—(No credit).

MILITARY SCIENCE

Note: All military courses consist of two parts designated by the same number; a practical course lettered with "a" and a theoretical course lettered with "b". Students who have had training in a senior R.O.T.C. unit are permitted to register for work one year advanced for each year they have had in the senior unit. All students who register for junior and senior courses are required to sign a contract with the Government to take five hours of military per week during two years in the University and to attend one summer camp of six weeks.

Uniform is required for all practical instruction and is optional for classroom instruction.

INFANTRY

Mil. Sci. 1a. Freshman Infantry.—Practice.

Credit	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	W	Arm.	TABACHNIK
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 1b. Freshman Infantry.—Theory.

½	1	10	M	150 Arm.	STEVENS
	2	11	M	150 Arm.	
	3	1	Tu	150 Arm.	
	4	2	Tu	150 Arm.	
	5	10	Th	150 Arm.	
	6	9	F	150 Arm.	
	7	10	F	150 Arm.	

Mil. Sci. 3a. Sophomore Infantry.—Practice.

½	1st Bn.	3–5	W	Arm.	LUMMIS
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 3b. Sophomore Infantry.—Theory.

½	51	10	M	148 Arm.	LUMMIS
	52	11	M	148 Arm.	
	53	10	Tu	148 Arm.	
	54	11	Tu	148 Arm.	
	55	3	Th	148 Arm.	
	56	9	S	148 Arm.	

Mil. Sci. 5a. Junior Infantry.—Practice. *Prerequisite:* Mil. Sci. 4a.

½	Group I	10–12	W	Arm.
		4	F	Arm.
	Group II	3–5	Th	Arm.
		4	F	Arm.

Mil. Sci. 5b. Junior Infantry.—Theory. *Prerequisite:* Mil. Sci. 4b.

1	81	3–5	Tu	148 Arm.
	82	10–12	F	148 Arm.

Mil. Sci. 7a. Senior Infantry.—Practice. (Cadet Officers only.)

½	Co.'s A-M	(See 1a and 3a for hours.)			STEVENS
		4	F	Arm.	

Mil. Sci. 7b. Senior Infantry.—Theory. (Cadet Officers only.)

1	91	9	TT	150 Arm.	TABACHNIK
	92	2	WF	150 Arm.	

FIELD ARTILLERY

Mil. Sci. 11a. Freshman Field Artillery.—Practice.

Credit	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	M	Arm.	Routheau, Millice, Marr
	2nd Bn.	10–12	Tu	Arm.	
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	6th Bn.	10–12	F	Arm.	
	7th Bn.	1–3	F	Arm.	

Mil. Sci. 11b. Freshman Field Artillery.—Theory.

½	100	9	M	155 Arm.	Routheau, Millice, Marr
	101	10	M	155 Arm.	
	102	11	M	155 Arm.	
	103	2	M	155 Arm.	
	104	8	Tu	155 Arm.	
	105	9	Tu	155 Arm.	
	106	3	Tu	155 Arm.	
	107	8	W	155 Arm.	
	108	9	W	155 Arm.	
	109	10	W	155 Arm.	
	110	11	W	155 Arm.	
	111	3	W	155 Arm.	
	112	8	Th	155 Arm.	
	113	9	Th	155 Arm.	
	114	10	Th	155 Arm.	
	115	11	Th	155 Arm.	
	116	9	F	155 Arm.	

Mil. Sci. 13a. Sophomore Field Artillery.—Practice.

½	1st Bn.	3–5	M	Arm.	Cole, Marr, Kirkpatrick
	2nd Bn.	10–12	Tu	Arm.	
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	3–5	Th	Arm.	
	7th Bn.	1–3	F	Arm.	

Mil. Sci. 13b. Sophomore Field Artillery.—Theory.

½	130	9	M	154 Arm.	Cole, Marr, Kirkpatrick
	131	10	M	154 Arm.	
	132	11	M	154 Arm.	
	133	8	Tu	154 Arm.	
	134	9	Tu	154 Arm.	
	135	9	W	154 Arm.	
	136	10	W	154 Arm.	
	137	11	W	154 Arm.	
	138	9	Th	154 Arm.	
	139	10	Th	154 Arm.	
	140	11	Th	154 Arm.	
	141	9	F	154 Arm.	
	142	10	F	154 Arm.	
	143	11	F	154 Arm.	

Mil. Sci. 15a. Junior Field Artillery.—Practice. *Prerequisite:* Mil. Sci. 14a.

½	1st Bn.	3–5	M	Arm.	Quigley
	2nd Bn.	10–12	Tu	Arm.	
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	6th Bn.	10–12	F	Arm.	
	7th Bn.	1–3	F	Arm.	

Mil. Sci. 15b. Junior Field Artillery.—Theory. *Prerequisite:* Mil. Sci. 14b.

1	160	9	M	152 Arm.	Quigley
		9	W	152 Arm.	
		4	F	154 Arm.	
	161	10	M	152 Arm.	
		10	W	152 Arm.	
		4	F	154 Arm.	
	162	9	Tu	152 Arm.	
		9	Th	152 Arm.	
		4	F	154 Arm.	
	163	10	Tu	152 Arm.	
		10	Th	152 Arm.	
		4	F	154 Arm.	

Mil. Sci. 17a. Senior Field Artillery.—Practice. *Prerequisite:* Mil. Sci. 16a.

½	1st Bn.	3–5	M	Arm.	Burnel
	2nd Bn.	10–12	Tu	Arm.	
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	[1]5th Bn.	3–5	Th	Arm.	
	6th Bn.	10–12	F	Arm.	
	7th Bn.	1–3	F	Arm.	

[1]Mounted only.

Mil. Sci. 17b. Senior Field Artillery.—Theory. *Prerequisite:* Mil. Sci. 16b.

Credit	Section	Hours	Days	Room	Instructor
1	190	10	M	153 Arm.	BURNELL
		10	W	153 Arm.	
		4	F	153 Arm.	
	191	11	M	153 Arm.	
		11	W	153 Arm.	
		4	F	153 Arm.	
	192	10	Tu	153 Arm.	
		10	Th	153 Arm.	
		4	F	153 Arm.	
	193	11	Tu	153 Arm.	
		11	Th	153 Arm.	
		4	F	153 Arm.	

CAVALRY

Mil. Sci. 21a. Freshman Cavalry.—Practice.

½	1A	10–12	M	Arm.	STOVALL, GRENER
	1B	8–10	Tu	Arm.	
	1C	8–10	W	Arm.	
	1D	1–3	Th	Arm.	
	1E	10–12	F	Arm.	

Mil. Sci. 21b. Freshman Cavalry.—Theory.

½	201	8	M	146 Arm.	STOVALL, GRENER
	202	9	M	146 Arm.	
	203	10	Tu	146 Arm.	
	204	11	Tu	146 Arm.	
	205	3	Tu	146 Arm.	
	206	8	Th	146 Arm.	
	207	9	Th	146 Arm.	
	208	1	F	146 Arm.	
	209	2	F	146 Arm.	

Mil. Sci. 23a. Sophomore Cavalry.—Practice.

½	2A	1–3	M	Arm.	GRENER
	2B	10–12	Th	Arm.	
	2C	8–10	F	Arm.	

Mil. Sci. 23b. Sophomore Cavlary.—Theory.

½	221	1	M	147 Arm.	DE LORIMIER
	222	2	M	147 Arm.	
	223	8	Tu	147 Arm.	
	224	9	Tu	147 Arm.	
	225	10	W	147 Arm.	
	226	11	W	147 Arm.	
	227	3	Th	147 Arm.	
	228	10	F	147 Arm.	

Mil. Sci. 25a. Junior Cavalry.—Practice. *Prerequisite:* Mil. Sci. 24a.

½	3A	1–3	M	Arm.	BATCHELOR
	3B	1–3	Th	Arm.	

Mil. Sci. 25b. Junior Cavalry.—Theory. *Prerequisite:* Mil. Sci. 24b.

1	241	10–12	M	146 Arm.	BATCHELOR
		4	F	146 Arm.	
	242	1–3	Tu	146 Arm.	
		4	F	146 Arm.	
	243	10–12	Th	146 Arm.	
		4	F	146 Arm.	

Mil. Sci. 27a. Senior Cavalry.—Practice. *Prerequisite:* Mil. Sci. 26a.

½	1A-1E incl. 2A-2C incl.	(See 21a and 23a for hours.)	FLINT

Mil. Sci. 27b. Senior Cavalry.—Theory. *Prerequisite:* Mil. Sci. 26b.

1	251	10–12	M	147 Arm.	FLINT
		4	F	147 Arm.	
	252	1–3	T	147 Arm.	
		4	F	147 Arm.	
	253	1–3	Th	147 Arm.	
		4	F	147 Arm.	

ENGINEERS

Prerequisite for all courses: Registration in College of Engineering or in Architecture.

Mil. Sci. 31a. Freshman Engineers.—Practice.

½	1st Bn.	3–5	W	Arm.	MATTHEWS
	2nd Bn.	3–5	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 31b. Freshman Engineers.—Theory.

Credit	Section	Hours	Days	Room	Instructor
½	301	10	W	144 Arm.	MATTHEWS
	302	11	W	144 Arm.	
	303	1	W	144 Arm.	
	304	2	W	144 Arm.	
	305	10	Th	144 Arm.	
	306	11	Th	144 Arm.	
	307	1	Th	144 Arm.	
	308	9	F	144 Arm.	
	309	10	F	144 Arm.	
	310	11	F	144 Arm.	
	311	1	F	144 Arm.	
	312	2	F	144 Arm.	
	313	3	F	144 Arm.	

Mil. Sci. 33a. Sophomore Engineers.—Practice.

½	1st Bn.	3–5	W	Arm.	LOTHROP
	2nd Bn.	3–5	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 33b. Sophomore Engineers.—Theory.

½	321	9	Tu	145 Arm.	LOTHROP
	322	10	Tu	145 Arm.	
	323	11	Tu	145 Arm.	
	324	1	Tu	145 Arm.	
	325	2	Tu	145 Arm.	
	326	1	W	145 Arm.	
	327	2	W	145 Arm.	
	328	8	Th	145 Arm.	
	329	9	Th	145 Arm.	
	330	10	Th	145 Arm.	

Mil. Sci. 35a. Junior Engineers.—Practice. *Prerequisite:* Mil. Sci. 34a.

½	1st-3rd Bn. incl.	(See 31a for hours.)		Arm.	TAYLOR

Mil. Sci. 35b. Junior Engineers.—Theory. *Prerequisite:* Mil. Sci. 34b.

1	341	1–3	Th	145 Arm.	TAYLOR
		4	F	145 Arm.	
	342	4	F	145 Arm.	
		10–12	S	145 Arm.	

Mil. Sci. 37a. Senior Engineers.—Practice. *Prerequisite:* Mil. Sci. 36a.

½	1st-3rd Bn. incl.	(See 31a for hours.)		Arm.	TAYLOR

Mil. Sci. 37b. Senior Engineers.—Theory. *Prerequisite:* Mil. Sci. 36b.

1	351	8–10	Tu	143 Arm.	TAYLOR, LOTHROP
		4	F	143 Arm.	
	352	4	F	144 Arm.	
		10–12	S	144 Arm.	

SIGNAL CORPS

Mil. Sci. 41a. Freshman Signal Corps.—Practice.

½	A	3–5	Tu	Arm.	STICE
	B	3–5	W	Arm.	
	C	2–4	F	Arm.	

Mil. Sci. 41b. Freshman Signal Corps.—Theory.

½	400	10	M	222 Arm.	STICE
	401	11	M	222 Arm.	
	402	10	Tu	222 Arm.	
	403	1	W	222 Arm.	
	404	1	Th	222 Arm.	
	405	10	F	222 Arm.	

Mil. Sci. 43a. Sophomore Signal Corps.—Practice.

½	A-C	(See 41a for hours.)		Arm.	STICE

Mil. Sci. 43b. Sophomore Signal Corps.—Theory.

½	410	9	Tu	222 Arm.	STICE
	411	11	Tu	222 Arm.	
	412	9	W	222 Arm.	
	413	9	F	222 Arm.	
	414	11	F	222 Arm.	

Mil. Sci. 45a. Junior Signal Corps.—Practice. *Prerequisite:* Mil. Sci. 44a.

½	A-C	(See 41a for hours.)		Arm.	STICE

Mil. Sci. 45b. Junior Signal Corps.—Theory. *Prerequisite:* Mil. Sci. 44b.

1	420	3–5	M	222 Arm.	STICE
		4	F	222 Arm.	

Mil. Sci. 47a. Senior Signal Corps.—Practice. *Prerequisite:* Mil. Sci. 46a.

Credit	Section	Hours	Days	Room	Instructor
½	A-C	(See 41a for hours.)		Arm.	STICE

Mil. Sci. 47b. Senior Signal Corps.—Theory. *Prerequisite:* Mil. Sci. 46b.

1	430	Radio Engineering registration in E.E. 51.			BROWN, STICE
		4	F	143 Arm.	

COAST ARTILLERY (ANTI-AIRCRAFT)

Mil. Sci. 51a. Freshman Coast Artillery (AA).—Practice.

½	A	3–5	Tu	Arm.	BROWN, MUIR
	B	1–3	Th	Arm.	
	C	8–10	S	Arm.	

Mil. Sci. 51b. Freshman Coast Artillery (AA).—Theory.

½	501	9	M	151 Arm.	MUIR
	502	10	M	151 Arm.	
	503	1	M	151 Arm.	
	504	10	Tu	151 Arm.	
	505	2	Tu	151 Arm.	
	506	9	Th	151 Arm.	
	507	11	Th	151 Arm.	
	508	4	Th	151 Arm.	
	509	11	F	151 Arm.	
	510	1	F	151 Arm.	

Mil. Sci. 53a. Sophomore Coast Artillery (AA).—Practice.

½	D	3–5	Tu	Arm.	WORTMAN, CARY
	E	1–3	Th	Arm.	
	F	8–10	S	Arm.	

Mil. Sci. 53b. Sophomore Coast Artillery (AA).—Theory.

½	521	2	M	151 Arm.	WORTMAN
	522	9	Tu	151 Arm.	
	523	10	W	151 Arm.	
	524	10	Th	151 Arm.	
	525	3	Th	151 Arm.	
	526	10	F	151 Arm.	
	527	2	F	151 Arm.	
	528	10	S	151 Arm.	

Mil. Sci. 55a. Junior Coast Artillery (AA).—Practice. *Prerequisite:* Mil. Sci. 54a.

½	Group I	10–12	M	152 Arm.	BROWN, CARY
		4	F	152 Arm.	
	Group II	1–3	Tu	152 Arm.	
		4	F	152 Arm.	
	Group III	2–4	F	152 Arm.	
		4	F	152 Arm.	

Mil. Sci. 55b. Junior Coast Artillery (AA).—Theory. *Prerequisite:* Mil. Sci. 54b.

1	531	1–3	M	152 Arm.	BROWN, CARY
	532	4	TT	152 Arm.	
	533	10–12	S	152 Arm.	

Mil. Sci. 57a. Senior Coast Artillery (AA).—Practice. *Prerequisite:* Mil. Sci. 56a.

½	Batteries A-F	(See 51a and 53a for hours.)			DUBOIS
		4	F	151 Arm.	

Mil. Sci. 57b. Senior Coast Artillery (AA).—Theory. *Prerequisite:* Mil. Sci. 56b.

1	541	3–5	M	152 Arm.	DUBOIS
	542	11	TT	152 Arm.	
	543	10	MW	152 Arm.	

MINING AND METALLURGICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.00 to $7.50.

A. MINING

Courses for Undergraduates

Mining 1a. Elements of Mining.—(For students in mining engineering only). *Prerequisite:* Physics 1b-3b.

Credit	Section	Hours	Days	Room	Instructor
4		8	MWF	206 T.B.	NICHOLSON
		8–10	S		

Mining 2. Mining Principles.—(For students in courses other than mining). *Prerequisite:* Math. 2; one year of college chemistry.

3		9	MWF	206 T.B.	NICHOLSON

Mining 8. Mine Administration.—*Prerequisite:* Mining 4; Accy. 12.

Credit	Section	Hours	Days	Room	Instructor
3		10	TTS	206 T.B.	NICHOLSON

Mining 9. Preparation of Coal and Ores.—*Prerequisite:* Chem. 22; Physics 1b-3b; Geol. 20 or equivalent.

3	AB	11	TT	206 T.B.	MITCHELL
	A Lab.	1–4	W	Min. Lab.	
	B Lab.	1–4	F	Min. Lab.	

Mining 12. Mining Geology.—*Prerequisite:* Geol. 49; Mining 4.

3	9	TT	207 T.B.	NICHOLSON
	10–12	W		

Mining 41. Mining Design.—*Prerequisite:* Senior standing in mining engineering.

3	1–5	TT	207 T.B.	MITCHELL

Mining 97. Thesis.—*Prerequisite:* High standing and approval of the head of the department. (1 to 3).* Arrange.

Mining 99. Inspection Trip.—*Prerequisite:* Senior standing. (No credit).

Courses for Graduates

Mining 101. Advanced Mining Practice.—(1 unit). Arrange. Professor CALLEN.

Mining 102. Advanced Preparation of Coal and Ores.—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 104.[1] **Mining Reports.**—(1 unit). Arrange. Professor CALLEN.

Mining 105.[1] **Welfare Work and Education among Mine Employees.**—(1 unit). Arrange. Professor CALLEN.

Mining 106.[1] **Advanced Coal, Ore, and Metallurgical Plant Design.**—(1 unit). Arrange. Assistant Professor MITCHELL.

Mining 107.[1] **Advanced Non-Ferrous Metallurgical Projects.**—(1 unit). Arrange. Assistant Professor MITCHELL.

B. METALLURGY

Courses for Undergraduates

Met. 1. Elements of Metallurgy.—Process metallurgy; principles of physical metallurgy. *Prerequisite:* Chem. 4; Physics 1b-3b; junior standing in College of Engineering.

3	8	MWF	203 Met.Lab.	WILDER

Met. 2a. Principles of Metallurgy.—*Prerequisite:* Chem. 4 or 6; Physics 1b-3b.

3	2	Tu	203 Met.Lab.	WILDER
	9	W	203 Met.Lab.	
	2–4	Th	203 Met.Lab.	

Met. 3. Fire Assaying.—*Prerequisite:* Chem. 22; Geol. 20.

2	11	M	206 T.B.	MITCHELL
	1–5	M	Min. Lab.	

Met. 4. Physical Metallurgy.—*Prerequisite:* Registration in Chem. 40 and Met. 2a.

3	9	TTS	203 Met.Lab.	WILDER

Met. 7. Ferrous Metallography.—*Prerequisite:* Met. 4; T.A.M. 3 and 63.

3	10	TTS	203 Met.Lab.	WILDER

Met. 8. Ferrous Metallography Laboratory.—*Prerequisite:* Registration in Met. 7.

2	9–12	MF	209 Met.Lab.	WILDER

Met. 9. Non-Ferrous Metallurgy.—*Prerequisite:* Met. 6.

3	8	MWF	207 T.B.	MITCHELL

Met. 13. Utilization of Fuels.—*Prerequisite:* Chem. 22; junior standing in College of Engineering.

3	AB	11	WF	206 T.B.	CALLEN
	A Lab.	1–4	W	Min.Lab.	
	B Lab.	1–4	F	Min.Lab.	

Met. 41. Metallurgical Design.—*Prerequisite:* Senior standing in metallurgical engineering.

3	1–5	TT	207 T.B.	MITCHELL

Met. 97. Thesis.—*Prerequisite:* High standing and approval of the head of the department. (1 to 3).* Arrange.

Met. 99. Inspection Trip.—*Prerequisite:* Senior standing. (No credit).

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

[1]Of courses 104 and 105, only one will be given, according to election of students; the same applies to courses 106 and 107.

MUSIC

Courses for Undergraduates

Music 1. History of Music.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
2		11	MWF	Lecture Room, 3rd floor, S.M.H.	SCHWARTZ

Music 3. Theory of Music (Harmony).—*Prerequisite:* Music 8 or consent of the instructor.

3	A	8	MWF	106 S.M.H.	KESSLER
	B	1	MWF	103 S.M.H.	MILES

Music 5a. Theory of Music (Advanced Harmony).—*Prerequisite:* Music 4.

2		3	TT	106 S.M.H.	KESSLER

Music 6a. Free Counterpoint.—*Prerequisite:* Music 5b.

2		11	WF	106 S.M.H.	MILES

Music 7. Strict Counterpoint.—*Prerequisite:* Consent of the instructor.

3	A	10	MWF	103 S.M.H.	KESSLER
	B	2	MWF	106 S.M.H.	METCALF
	C	11	MWF	103 S.M.H.	KESSLER
	D	3 1	M TT	103 S.M.H.	METCALF

Music 9. Analysis, Musical Form.—*Prerequisite:* Music 5b.

2	A	9	MTh	103 S.M.H.	SCHWARTZ
	B	9	TT	103 S.M.H.	

Music 11a. Composition.—*Prerequisite:* Senior standing. (2). Arrange. Associate Professor MILES.

Music 12a. Advanced Composition.—*Prerequisite:* Senior standing. (4). Arrange. Associate Professor MILES.

Music 13. Music Appreciation.—

2	A	10	TT	Lecture Room, 3rd floor, S.M.H.	STIVEN
	B (P.S.M.)	3	TT	103 S.M.H.	KITCHELL

Music 15. Instrumentation.—*Prerequisite:* Junior standing in the School of Music.

1 or 2*		2	TT	Band Building	HARDING

Music 17. Advanced Orchestration.—*Prerequisite:* Music 15 and 16.

4		Arrange			HARDING

Music 19a. Double Counterpoint, Canon, and Fugue.—*Prerequisite:* Music 5b.

3		3	MWF	106 S.M.H.	KESSLER

Music 21. Ear Training and Sight Singing.—

1	A	9	MW	106 S.M.H.	PERCIVAL
	B	11	MTh	106 S.M.H.	
	C	8	TT	106 S.M.H.	

Music 23. Ear Training and Sight Singing.—*Prerequisite:* Music 22.

1	A	9	TT	106 S.M.H.	PERCIVAL
	B	10	MW	106 S.M.H.	
	C	10	TT	106 S.M.H.	

Music 25a. Elementary School Methods.—*Prerequisite:* Junior standing or consent of the instructor.

3		1	MWTF	106 S.M.H.	HOLMES

Music 26a. High School Methods.—*Prerequisite:* Music 25a and 25b or consent of the instructor.

2		2	MWF	103 S.M.H.	KITCHELL

Music 27. Thesis.—(1). Arrange.

Music 30a. Ensemble.—*Prerequisite:* Junior standing or consent of the instructor.

½	A (Piano)	3	MTh	209 S.M.H.	WATT
	B (Vocal group)	4	MW	210 S.M.H.	HAMP
	C (Chorus)	7	Th Arrange other hour	Recital Hall	MILES and DEMMING
	D (Opera)	3	TT	207 S.M.H.	SUTHERLIN
	E (Woman's Glee Club)	10	TT	Orchestra Room	DEMMING
	F (Orchestra)	4	TW	Orchestra Room	STIVEN
	G (Men's Glee Club)	11 *or* 1	TT TT	Orchestra Room Lecture Room, 3rd floor, S.M.H.	HAMP

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Music 31a. Ensemble.—*Prerequisite:* Music 30b. Sections same as in Music 30a. Arrange.

Music 32. Advanced History of Music.—*Prerequisite:* Music 1 and 2.

Credit	Section	Hours	Days	Room	Instructor
2	A	9	WF	103 S.M.H.	SCHWARTZ
	B	10	TT	103 S.M.H.	

Music. 35. Recital Course in Applied Music.—(Required of seniors in Instrumental major). (4). Arrange.

Music 36. Recital Course in Applied Music.—(Required of seniors in Voice major). (3). Arrange.

Music 37. Recital Course in Composition.—(Required of seniors in Theory major). (4). Arrange.

Music 38a. Conducting and Organization.—*Prerequisite:* Music 16.

2	1–3	MWF	Band Building	HARDING

Music 68a. String Instruments.—

2	9	MTWTF	Orchestra Room	COHEN

Music 98a. Wind Instruments.—

2	8	MTWTF	Band Building	HINDSLEY

APPLIED MUSIC COURSES

Note: Students enrolled in the curricula in Music pay a flat fee of $25 per semester for one or more of the courses in Applied Music. Students enrolled in other curricula pay fees of $25 for each two hours of credit for which they register in courses in Applied Music.

Students in music curricula will receive 4 to 5 hours credit for their major subject in Applied Music. They will ordinarily receive 2½ hours credit for their minor subject. Students from other colleges will ordinarily receive 2 hours credit if in accordance with the regulations of their college.

Courses in Applied Music which require one 30-minute lesson per week of recitation and *one* hour daily of preparation receive 2 hours credit.

Courses in Applied Music which require two 20-minute lessons per week of recitation and *one* hour daily of preparation receive 2½ hours credit.

Course in Applied Music which require two 30-minute lessons per week of recitation and *two* hours daily of preparation receive 4 hours credit.

Courses in Applied Music which require two 30-minute lessons per week of recitation and *three* hours daily of preparation receive 5 hours credit.

Music 42a, b to 47a, b. Piano.—(2 to 5).* Arrange. Professor VAN DEN BERG, Assistant Professors WATT, SCHOONMAKER, HILL; Mrs. SULLIVAN, Miss USRY, Mr. METCALF.

Music 52a-d to 57a-d. Voice.—(1 to 4).* Arrange. Mr. HAMP, Miss SUTHERLIN, Mr. FOOTE, Miss BOWEN, Mr. DEMMING. (Parts *a* and *b* in each course indicate individual instruction in Voice (2-3), and parts *c* and *d* indicate classes in Singing Diction (1), required of voice major students.)

Music 62a, b to 67a, b. Violin.—(2 to 5).* Arrange. Assistant Professor ROOSA, Mr. COHEN.

Music 72a, b to 77a, b. Violoncello.—(2 to 5).* Arrange. Mrs. SULLIVAN.

Music 82a, b to 87a, b. Organ.—(2 to 5).* Arrange. Associate Professor MILES, Mr. DEMMING.

Music 92a-d to 97a-d. Band and Orchestral Instruments.—(2 to 4).* All these courses are required for major work in this group. Parts *a* and *b* in each course are concerned with professional instruments, and parts *c* and *d* with supplementary instruments. Professor HARDING, Mr. HINDSLEY.

PHILOSOPHY

Major: 20 hours from any courses offered by the department, including Phil. 2, 3, 4, 7. Six hours in psychology may be counted towards a major in philosophy.

Minors: 20 hours in (a) psychology (at least six additional hours if psychology is counted towards a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) astronomy, botany, chemistry, mathematics, physics, zoology, geology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Phil. 1. Introduction to Philosophy.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	117 L.H.	DELARGY
	B	9	MWF	117 L.H.	DELARGY
	C	9	MWF	113 L.H.	MORROW
	D	10	MWF	117 L.H.	KUBITZ
	E	11	MWF	117 L.H.	KUBITZ
	F	1	MWF	117 L.H.	DELARGY
	G	2	MWF	117 L.H.	KUBITZ

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Phil. 7. Moral Ideas in Practice.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	9	TT	202 L.H.	Morrow
	A Disc.	11	Tu	123 L.H.	Morrow
	B Disc.	11	Th	123 L.H.	Morrow
	C Disc.	2	Th	123 L.H.	Morrow

Courses for Advanced Undergraduates and Graduates

Phil. 3. History of Ancient and Medieval Philosophy.—*Prerequisite:* Junior standing.

4	Lect.	10	TT	300 Math.	Nicholson
	A	11	Th	117 L.H.	Gotshalk
	B	11	Th	113 L.H.	Nicholson
	C	11	F	105 L.H.	Nicholson
	D	1	Th	117 L.H.	Kubitz
	E	2	Th	117 L.H.	Gotshalk
	F	3	Th	117 L.H.	Nicholson
	G	(Arrange—for graduate students)			Morrow

Phil. 8. Philosophy of the Recent Past.—*Prerequisite:* Philosophy 4.

3	A	10	MWF	114 L.H.	Nicholson

Phil. 11a. Philosophy of Religion (Systematic).—*Prerequisite:* Three hours of philosophy.

3	A	11	MWF	113 L.H.	Tawney

Phil. 12. Philosophy of Art.—*Prerequisite:* Three hours of philosophy.

3	A	9	MWF	133 L.H.	Gotshalk

Phil. 21. Theory of Knowledge.—*Prerequisite:* Three hours of philosophy.

3	A	2	MWF	104 L.H.	DeLargy

Courses for Graduates

Phil. 105. Seventeenth Century Continental Thought.—(1 unit). Arrange. Associate Professor Gotshalk.

Phil. 106. Locke, Berkeley, Hume.—(1 unit). Arrange. Professor Morrow.

Phil. 108. Plato.—(1 unit). Arrange. Professor Tawney.

Phil. 119. Seminar in Ancient Philosophy.—(1 unit). Arrange. Dean McClure.

PHYSICAL EDUCATION FOR MEN

Note: Each student registering for a course or courses in physical education is assessed a locker fee of $1 for the semester.

Freshmen and Sophomores: Men entering the University as freshmen are required to obtain credit for four semesters of work in physical education; those entering as sophomores, two semesters. They may obtain this credit by courses listed below or by proficiency examinations which are offered at times specified by the department.

Major: For Curriculum in Physical Education for Men, see "Directions for Registration."

For information, late registration, changing sections, call at Room 201, Men's Old Gymnasium.

Courses for Undergraduates

P.E. 20a, 20b, 20c, 20d. Adapted Sports.—Open only to students who fail to pass the health examinations. Students enrolling for the first time should register for P.E. 20a. Students enrolling for the second, third, or fourth time should register for P.E. 20b, 20c, and 20d, respectively.

Credit	Section	Hours	Days	Room	Instructor
1	B	9	MWF	New Gym.	McCristal
	C	10	MWF	New Gym.	Stafford
	D	11	MWF	New Gym.	Stafford
	F	2	MWF	New Gym.	McCristal
	G	3	MWF	New Gym.	McCristal
	H	4	MWF	New Gym.	Kasch
	K	9	MWF	Old Gym.	Watt
	L	10	MWF	Old Gym.	Watt
	M	11	MWF	Old Gym.	Watt
	O	2	MWF	Old Gym.	Florio
	P	3	MWF	Old Gym.	Florio
	Q	4	MWF	Old Gym.	Florio

P.E. 21a, 21b, 21c, 21d. Special Sports.—Open only to students assigned by the Department of Health Service. Students assigned to this course meet twice a week in connection with P.E. 20a, 20b, 20c, and 20d, Adapted Sports. Students enrolling for the first time should register for P.E. 21a. Students enrolling for the second, third, or fourth time should register for P.E. 21b, 21c, and 21d, respectively.

½	To be arranged	Stafford

Credit	Section	Hours	Days	Room	Instructor
P.E. 22. Badminton.—					
½	L	10	TT	New Gym.	Stafford
	M	11	TT	New Gym.	Stafford
P.E. 23. Volley Ball.—					
½	J	8	TT	Old Gym.	Kasch
	K	9	TT	Old Gym.	Kasch
P.E. 24. Beginning Swimming.—					
½	C	10	MW	Old Pool	McCristal
	D	11	MW	Old Pool	McCristal
	F	2	MW	Old Pool	Treece
	G	3	MW	Old Pool	Treece
	L	10	TT	Old Pool	Treece
	M	11	TT	Old Pool	Treece
	O	2	TT	Old Pool	Kasch
	P	3	TT	Old Pool	Kasch
P.E. 25. Individual Tumbling Stunts.—					
½	A	8	MW	Old Gym.	Rawlinson
	B	9	MW	Old Gym.	Rawlinson
	C	10	MW	Old Gym.	Kasch
	D	11	MW	Old Gym.	Kasch
	G	3	MW	Old Gym.	Jennings
P.E. 26. Double Tumbling Stunts.—					
½	O	2	TT	Old Gym.	McCristal
	P	3	TT	Old Gym.	McCristal
P.E. 27. Apparatus Stunts.—					
½	L	10	TT	Old Gym.	McCristal
	M	11	TT	Old Gym.	McCristal
	P	3	TT	Old Gym.	Jennings
P.E. 28. Boxing.—					
½	C	10	MW	Old Gym.	Kenney
	E	1	MW	Old Gym.	Law
	K	9	TT	Old Gym.	Law
	L	10	TT	Old Gym.	Law
P.E. 29. Wrestling.—					
½	C	10	MW	Old Gym.	Monsson
	D	11	MW	Old Gym.	Monsson
	F	2	MW	Old Gym.	Kenney
	G	3	MW	Old Gym.	Kenney
	L	10	TT	Old Gym.	Kenney
	M	11	TT	Old Gym.	Kenney
	O	2	TT	Old Gym.	Watt
	P	3	TT	Old Gym.	Law
P.E. 30. Foil Fencing.—					
½	G	3	MW	Old Gym.	Craig
	H	4	MW	Old Gym.	Craig
	P	3	TT	Old Gym.	Craig
	Q	4	TT	Old Gym.	Craig
P.E. 31. Soccer.—					
½	H	4	MW	New Gym.	Rawlinson
	K	9	TT	New Gym.	Monsson
	L	10	TT	New Gym.	Monsson
	M	11	TT	New Gym.	Monsson
	O	2	TT	New Gym.	Florio
	P	3	TT	New Gym.	Rawlinson
	Q	4	TT	New Gym.	Rawlinson
P.E. 32. Golf.—					
½	E	1	MW	New Gym.	Brown
	F	2	MW	New Gym.	Brown
	K	9	TT	New Gym.	Brown
	L	10	TT	New Gym.	Brown
	M	11	TT	New Gym.	Brown
P.E. 33. Tennis.—					
½	E	1	MW	New Gym.	Dixon
	F	2	MW	New Gym.	Dixon
	G	3	MW	New Gym.	Dixon
	J	8	TT	New Gym.	Dixon
	K	9	TT	New Gym.	Dixon
	L	10	TT	New Gym.	Dixon
	M	11	TT	New Gym.	Dixon

P.E. 34. Softball and Skating.—Special fee, $2.50.

Credit	Section	Hours	Days	Room	Instructor
½	B	9	MW	New Gym.	Paterson
	C	10	MW	New Gym.	Paterson
	D	11	MW	New Gym.	Paterson
	K	9	TT	New Gym.	Paterson
	L	10	TT	New Gym.	Paterson
	M	11	TT	New Gym.	Paterson

P.E. 35. Tap Dancing.—

½	K	9	TT	New Gym.	Jennings
	L	10	TT	New Gym.	Jennings
	M	11	TT	New Gym.	Jennings
	P	3	TT	New Gym.	Florio

P.E. 36. Clog Dancing.—

½	N	1	TT	New Gym.	Brown
	O	2	TT	New Gym.	Brown

P.E. 37. Individual Athletics.—

½	C	10	MW	Old Gym.	Rawlinson
	D	11	MW	Old Gym.	Rawlinson
	E	1	MW	Old Gym.	Watt
	F	2	MW	Old Gym.	Watt

P.E. 38. Circus Stunts.—

½	H	4	MW	Old Gym.	Jennings
	Q	4	TT	Old Gym.	Jennings

P.E. 39. Advanced Circus Stunts.—

½	H	4	MW	Old Gym.	Jennings
	Q	4	TT	Old Gym.	Jennings

P.E. 40. Group Sports.—

½	F	2	MW	Old Gym.	Law
	G	3	MW	Old Gym.	Law
	O	2	TT	Old Gym.	Law

P.E. 41. Advanced Swimming.—Open only to students who can swim 100 yards.

½	D	11	MW	New Pool	Craig
	L	10	TT	New Pool	Craig
	M	11	TT	New Pool	Craig
	N	1	TT	New Pool	Treece
	O	2	TT	New Pool	Treece
	P	3	TT	New Pool	Treece

P.E. 42. Life Saving and Diving.—Open only to students who can swim 200 yards using two different strokes.

½	B	9	MW	New Pool	Craig
	C	10	MW	New Pool	Craig

P.E. 43. Water Polo and Ice Hockey.—Open only to students who can swim 100 yards and who can skate fairly well. Special fee, $2.50.

½	F	2	MW	New Pool	Paterson
	G	3	MW	New Pool	Paterson

P.E. 44. Handball.—

½	A	8	MW	New Gym.	Treece
	B	9	MW	New Gym.	Treece
	C	10	MW	New Gym.	Treece
	D	11	MW	New Gym.	Treece
	N	1	TT	New Gym.	Law

P.E. 45. Squash Raquets.—

½	O	2	TT	New Gym.	Dixon
	P	3	TT	New Gym.	Dixon

P.E. 46. Archery.—

½	G	9–11	S	Stadium	Kenney

P.E. 47. Sabre and Épée Fencing.—

½	O	2	TT	Old Gym.	Craig

PROFESSIONAL COURSES

Note: Certain courses in this department require laboratory fees varying from $1.00 to $2.00.

First Year

P.E. 0. Introduction to Physical Education (Orientation Course).—

2	L	10	TT	209 New Gym.	Price

P.E. 1. Beginning Basketball.—(Second half of semester).

2	E	1–3	MTWTF	New Gym.	Roettger and Monsson

P.E. 2. Tumbling and Calisthenics.—(First half of semester).

Credit	Section	Hours	Days	Room	Instructor
2	A	8–10	MTWTF	New Gym.	PRICE

P.E. 4. Beginning Football.—(First half of semester).

2	E	1–3	MTWTF	Armory Field	MILLS and MONSSON

P.E. 10. Beginning Apparatus Stunts.—(Second half of semester).

2	A	8–10	MTWTF	New Gym.	PRICE

SECOND YEAR

P.E. 5. Advanced Football.—(First half of semester).

2	A	8–10	MTWTF	Armory Field	WILSON

P.E. 6. Boxing and Wrestling.—(Second half of semester).

2	A	8–10	MTWTF	Wrestling Room	KENNEY and assistants

P.E. 11. Swimming.—

2	A	8	MTWTF	Old Pool	MANLEY

P.E. 12. Track and Field.—

2	B	9	MTWTF	Illinois Field and Armory	SEATON

THIRD YEAR

P.E. 8. Baseball.—(First half of semester).

2	E	1–3	MTWTF	Illinois Field	ROETTGER

P.E. 9. The School Program in Health.—

4	B	9	MTWTF	209 New Gym.	STAFFORD

P.E. 16. Advanced Apparatus Stunts.—(Second half of semester).

2	E	1–3	MTWTF	Old Gym.	PRICE

FOURTH YEAR

P.E. 7. Training and First Aid.—

2	K	9	TT	119-122 New Gym.	BULLOCK

P.E. 13. Program in Extra-Curricular Sports.—

3	C	10	MWF	207 New Gym.	BROWN

P.E. 18. The Curriculum in Physical Education.—

5	E	1	MTWTF	209 New Gym.	STALEY

PHYSICAL EDUCATION FOR WOMEN

Note: Each student registering for a course or courses in physical education is assessed a locker fee of $1.00 for the semester.

Freshmen and Sophomores: Of the four required semesters in physical education, the department requires: one semester of gymnastics (P.E. 72) or rhythms (P.E. 51); one semester of swimming (P.E. 75, 76, 54); one semester of individual sports (P.E. 60) or seasonal sports (P.E. 73) or team games (P.E. 58); and one semester of an elective.

Proficiency examinations in any courses offered to freshmen and sophomores may be taken at times specified by the department. These will be given each semester.

Major: For Curriculum in Physical Education for Women, see "Directions for Registration."

Courses for Undergraduates

P.E. 51. Elementary Rhythms.—

Credit	Section	Hours	Days	Room	Instructor
1	B	9	MWF	South Room, W.Gym.	JOHNSON
	D	11	MWF	South Room, W.Gym.	JOHNSON
	F	2	MWF	South Room, W.Gym.	CUTHBERT
	K†	9	TT	South Room, W.Gym.	CUTHBERT

P.E. 52. Intermediate Rhythms.†—

1		4	MW	South Room, W.Gym.	JOHNSON

P.E. 54. Diving and Swimming.†—*Prerequisite:* P.E. 76 or equivalent.

1		11	TT	Pool, W.B.	RENSHAW, MOHN

P.E. 55. Life Saving.†—*Prerequisite:* P.E. 76 or equivalent.

1		2	TT	Pool, W.B.	RENSHAW, MOHN

†This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

P.E. 56. Individual Gymnastics.—

Credit	Section	Hours	Days	Room	Instructor
1	B	9	MWF	Corr. Room, W.Gym.	SCHNAUBER
	C	10	MWF	Corr. Room, W.Gym.	
	D	11	MWF	Corr. Room, W.Gym.	
	F	2	MTT	Corr. Room, W.Gym.	
	M†	11	TT	Corr. Room, W.Gym.	

P.E. 57. Modified Sports and Dancing.†—Recommendation from Health Service is necessary for registration in this course.

1		10	TT	North Room, W.Gym.	HUELSTER

P.E. 58. Team Games.—

1					
Speedball and Volleyball	C	10	MWF	South Room, W.Gym.	HUELSTER
Soccer and Indoor Baseball	D	11	MWF	North Room, W.Gym.	LAWYER
Hockey and Volleyball	F	2	MWF	North Room, W.Gym.	ROBERTSON
Hockey and Indoor Baseball	M†	11	TT	North Room, W.Gym.	LAWYER

P.E. 60. Handball, Tenikoit, and Badminton.—

1	M†	11	TT	South Room, W.Gym.	HUELSTER
	O†	2	TT	South Room, W.Gym.	HUELSTER

P.E. 66. Elective Athletic Activities.—(Participation in W.A.A. sports; registration on recommendation of department.)

1	Two 45-minute periods to be arranged.

P.E. 70a. Physical Education Practice.—For freshmen intending to specialize in physical education. (Freshmen will also register for P.E. 75, 76, 54, or 55, on recommendation of adviser.)

2		3	MTWTF	W.Gym.	HUELSTER, LAWYER

P.E. 71a. Physical Education Practice.—For sophomores whose major is physical education.

2		3	MTWTF	W.Gym.	ROBERTSON, HUELSTER, LAWYER

P.E. 72. Gymnastics.—

1	B	9	MWF	North Room, W.Gym.	LAWYER
	C	10	MWF	North Room, W.Gym.	LAWYER

P.E. 73. Seasonal Sports.—(For Skating, Sections B, C, and O, special fee, $3.00).

1					
Tennis and Skating	B	9	MWF	129 W.Gym.	ROBERTSON
Tennis and Skating	C	10	MWF	129 W.Gym.	ROBERTSON
Tennis and Advanced Skating	O†	2	TT	129 W.Gym.	ROBERTSON
Elementary Golf and Volleyball	G†	3	MW	South Room, W.Gym.	LAWSON
Advanced Golf and Indoor Baseball	H†	4	TT	North Room, W.Gym.	LAWSON

P.E. 75. Elementary Swimming.—

1					
Sub-Int. & Int.	B	9	MWF	Pool, W.B.	RENSHAW, MOHN
	C	10	MWF	Pool, W.B.	
	D	11	MWF	Pool, W.B.	
	F	2	MWF	Pool, W.B.	

P.E. 76. Intermediate Swimming.—

1	G	3	MWF	Pool, W.B.	RENSHAW, MOHN
	L†	10	TT	Pool, W.B.	
	Q†	4	TT	Pool, W.B.	

P.E. 77. Elementary Clog and Tap Dancing.—

1	F	2	MWF	Gym., W.B.	HUELSTER
	G	3	MWF	Gym., W.B.	CUTHBERT
	M†	11	TT	Gym., W.B.	CUTHBERT

P.E. 78. Intermediate Clog and Tap Dancing.—

1		11	MWF	Gym., W.B.	HUELSTER

P.E. 79. Elementary Folk Dancing.†—

1	O	2	TT	North Room, W.Gym.	JOHNSON
	P	3	TT	South Room, W.Gym.	ROBERTSON

†This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

THEORY COURSES

P.E. 81. Games for Elementary Schools.—For juniors in the School of Physical Education.

Credit	Section	Hours	Days	Room	Instructor
2		9	TT	North Room, W.Gym.	LAWSON

P.E. 84. Therapeutics and First Aid.—For seniors in the School of Physical Education.

2 or 3		8–10 9	Tu Th	129 W.Gym.	SCHNAUBER

P.E. 85. Pageantry and Festivals.—For seniors in the School of Physical Education. Open to students of other colleges with consent of instructor.

2		1	TT	129 W.Gym.	JOHNSON

P.E. 91. Dance Composition.—Required for students taking a minor in the dance. *Prerequisite:* P.E. 51 and 52.

2		10	TT	South Room, W.Gym.	JOHNSON

P.E. 95a. Methods of Teaching.—For juniors in the School of Physical Education.

4		1	MTWTF	128 W.Gym.	ROBERTSON

P.E. 96a. Kinesiology.—For juniors in the School of Physical Education.

3		8	MWF	129 W.Gym.	HUELSTER

P.E. 97a. Educational Practice.—For seniors in the School of Physical Education.

3		1	MWF	129 W.Gym.	LAWSON

PHYSICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $10.00.

Major: 20 hours from courses offered in the department. At least five hours must be offered from the group of courses for advanced undergraduates and graduates.

Minors: 20 hours in one or two of the following subjects, with not less than eight hours in each department if two subjects are chosen: mathematics (courses in calculus and beyond), astronomy, chemistry (except Chem. 1, 2, 3, 4, 5, 6, or 7), education, or engineering.

For undergraduate students taking advanced work or a major in physics, the following courses are suggested:

Freshman year: Trigonometry and analytic geometry.

Sophomore year: Physics 1a-1b, 3a-3b, and calculus.

Junior year: Physics 14, 23, 44, 60, 61.

Senior year: Physics 30, 62, 71, 72, 78, 80.

Physics 7a-7b and 8a-8b are recommended to students not specializing in physics, mathematics, chemistry, or engineering.

The general physics prerequisite for certain courses may be satisfied by either Physics 1a-1b and 3a-3b or by 7a-7b and 8a-8b. The calculus prerequisite may be satisfied either by Mathematics 7 and 9 or by Mathematics 8a-8b.

Introductory Courses for Undergraduates

Physics 1a. General Physics.—*Prerequisite:* Math. 2 and 4; registration in Physics 3a.

Credit	Section	Hours	Days	Room	Instructor
4	Lect. A	8	W	100 P.L.	LOOMIS, KRUGER,
	Lect. B	10	W	100 P.L.	and others
	Quiz A	8	MWF	305, 306, 403, 406 P.L.	
	Quiz B	9	MWF	108, 403, 406 P.L., 109 E.H.	
	Quiz C	10	MWF	302, 305, 403, 406 P.L.	
	Quiz D	11	MWF	306, 403, 406 P.L., 204 T.B.	
	Quiz H	10	TTS	208, 305, 406 P.L.	
	Quiz J	11	TTS	208, 302, 305 P.L.	

Physics 3a. General Physics Laboratory.—*Prerequisite:* Physics 1a or registration therein.

1	A	9–12	M	305, 306 P.L.	KRUGER and others
	B	2–5	M	302, 306 P.L.	
	C	9–12	Tu	305, 302 P.L.	
	D	2–5	Tu	302, 305 P.L.	
	E	9–12	W	305, 306 P.L.	
	F	2–5	W	302, 306 P.L.	
	G	9–12	Th	305, 302 P.L.	
	H	1–4	Th	302, 306 P.L.	
	I	9–12	F	305, 306 P.L.	
	J	2–5	F	302, 306 P.L.	
	K	9–12	S	302, 305 P.L.	

Physics 1b. General Physics.—*Prerequisite:* Math. 2 and 4; Physics 1a and registration in Physics 3b.

4	Lect.	11	W	119 P.L.	SCHULZ and others
	Quiz H	10	TTS	403 P.L.	
	Quiz J	11	TTS	306, 403 P.L.	

Physics 3b. General Physics Laboratory.—*Prerequisite:* Physics 1b or registration therein.

1	D	2–5	Tu	306, 406 P.L.	SCHULZ and others
	F	2–5	W	305, 406 P L.	

Physics 7a. General Physics.—*Prerequisite:* Trigonometry; registration in Physics 8a. (The prerequisite of trigonometry may be waived by students who have passed Chemistry 1 or 2 with a grade of "C" or better.)

Credit	Section	Hours	Days	Room	Instructor
4	Lect. A	9	TT	100 P.L.	WATSON, PATON, and others
	Lect. B	11	TT	100 P.L.	
	Quiz A	8	WF	208, 302 P.L.	
	Quiz B	9	WF	208, 302 P.L.	
	Quiz C	10	WF	104, 108, 208 P.L.	
	Quiz D	11	WF	108, 208, 302, 305 P.L.	

Physics 8a. General Physics Laboratory.—*Prerequisite:* Physics 7a or registration therein.

1	A	9–12	M	208, 302 P.L.	PATON and others
	B	1–4	M	204, 208 P.L.	
	C	8–11	Tu	208, 302 P.L.	
	D	2–5	Tu	204, 208 P.L.	
	F	1–4	W	204, 208 P.L.	
	H	1–4	Th	204, 208 P.L.	
	J	1–4	F	204, 208 P.L.	

Intermediate Courses for Undergraduates

Physics 17. Light.—*Prerequisite:* General physics.

3	Lect.	9	TT	208 P.L.	SCHULZ
	Lab.	1–4	Th	313 P.L.	

Courses for Advanced Undergraduates and Graduates

Physics 14a. Theoretical Mechanics.—*Prerequisite:* General physics and calculus.

3		10	TTS	306 P.L.	MOTT-SMITH

Physics 16. Heat.—*Prerequisite:* General physics.

3		8	TTS	204 P.L.	PATON

Physics 23. Sound.—*Prerequisite:* General physics.

3	Lect.	11	MWF	204 P.L.	WATSON

Physics 30. Introduction to Theoretical Electricity.—*Prerequisite:* General physics and calculus.

3		9	MWF	204 P.L.	WILLIAMS

Physics 44a. Electric and Magnetic Measurements.—*Prerequisite:* General physics and calculus.

3	A	8–11	MF	104, 119 P.L.	KNIPP, WILLIAMS, and others
	B	1–4	MF	104, 108 P.L.	
	C	8–11	TT	104, 119 P.L.	
	D	1–4	TT	104, 108 P.L.	

Physics 60. Heat.—*Prerequisite:* General physics and calculus.

3	Lect.	8	MWF	204 P.L.	PATON

Physics 61. Heat Laboratory.—*Prerequisite:* Registration in Physics 60.

1	Lab.	2–5	Tu	213 P.L.	PATON

Physics 71a. Light.—*Prerequisite:* General physics and calculus.

2		11	TT	204 P.L.	ALMY

Physics 72a. Light Laboratory.—*Prerequisite:* Registration in Physics 71a.

2		2–5	MW	313 P.L.	ALMY

Physics 80. Atomic Physics.—*Prerequisite:* General physics and calculus.

3	Lect.	9	TTS	204 P.L.	ALMY

Physics 97. Thesis.—(3). Arrange. Professors in the department.

Courses for Graduates

Physics 122a. Dynamics.—(1 unit). 10 TTS; 302 P.L.

Physics 125. Hydrodynamics.—(1 unit). 8 TT; 108 P.L. Professor KUNZ.

Physics 131a. Physical Laboratory Technique.—(1 unit).* Arrange. Professor KNIPP and Associate Professor KRUGER.

Physics 146a. Electrodynamics.—(1 unit). 8 MWFS; 108 P.L. Professor KUNZ.

Physics 170a. Light.—(1 to 2 units).* 11 TT, 204 P.L.; 2–5 MW, 313 P.L. Assistant Professor ALMY.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Physics 184. Line Spectra and Atomic Structure.—(1 unit). 9 MWF; 202 P.L. Associate Professor KRUGER.

Physics 186a. Quantum Mechanics.—(1 unit). 10 MWF; 306 P.L. Assistant Professor MOTT-SMITH.

Physics 190. Research.—(1 to 3 units).* Arrange. Professors in the department.

Physics 198. Seminar.—(1 to 2 units).* Arrange. Professors in the department.

Physics 199. Physics Colloquium.—(No credit). 4:45 Th; 119 P.L. Assistant Professor MOTT-SMITH.

PHYSIOLOGY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $3.50.

Major: 20 hours from courses offered in the department, exclusive of Physiology 1.

Minors: 20 hours in not more than two of the following: bacteriology, botany, chemistry, entomology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Physiol. 1. Mammalian Physiology.—A survey of the field of mammalian physiology.

Credit	Section	Hours	Days	Room	Instructor
3[1]	[2]Lect. A	10	TT	228 N.H.	BURGE
	Quiz A1	3	M	425 N.H.	WICKWIRE
[1]Seniors will receive	Quiz A2	9	Tu	425 N.H.	
only 2 hours credit.	Quiz A3	1	Tu	425 N.H.	
[2]Students in Lect. A	Quiz A4	9	Th	229 N.H.	
must elect an A quiz.					
[3]Students in Lect. B	[3]Lect. B	8	MW	112 Chem.A.	STEGGERDA
must elect a B quiz.	Quiz B1	8	Th	425 N.H.	STEGGERDA
	Quiz B2	8	F	423 N.H.	
	Quiz B3	1	Tu	423 N.H.	

Physiol. 1a. Mammalian Physiology Laboratory.—*Prerequisite:* Physiology 1, or registration therein.

2	[1]Lab. A	10–12	MW	413 N.H.	KNEER
	Lab. B	1–3	MW	413 N.H.	TAYLOR
[1]Lab. A is for Home	Lab. C	10–12	TT	413 N.H.	
Econ. students only.	Lab. D	2–4	TT	413 N.H.	

Physiol. 3a. Physiological Anatomy.—(For Physical Education students).

5[1]	Lect.	11	TT	228 N.H.	ELHARDT
	Lab. A	8–10	MW	405 N.H.	ORTH
[1]Seniors will receive	[2]Lab. B	10–12	MW	408 N.H.	NEILD
only 4 hours credit.	Lab. C	1–3	MW	405 N.H.	
	Lab. D	8–10	TT	408 N.H.	
[2]For women.	Lab. E	1–3	TT	405 N.H.	
	Quiz F	9	F	425 N.H.	
	Quiz G	10	F	425 N.H.	
	Quiz H1	8	F	425 N.H.	
	[2]Quiz H2	11	F	241 N.H.	
	Quiz I	2	F	425 N.H.	

Physiol. 5. Physiology of the Special Senses and Nervous System.—(Recommended for the general student). *Prerequisite:* Physiology 1 or 3.

5	Lect.	10	MW	423 N.H.	WICKWIRE
	Quiz	10	F	423 N.H.	
	Lab. 4 hours a week.		Arrange.	415 N.H.	

Physiol. 8. Thesis.—*Prerequisite:* Senior standing and 15 hours of physiology. (3 to 5).* Time to be arranged before registration. Associate Professor BURGE.

Courses for Advanced Undergraduates and Graduates

Physiol. 6. Advanced Mammalian Physiology of Muscle, Nervous System, Circulation, and Blood.—(To be followed by Physiology 7 in the second semester). *Prerequisite:* Physiology 1 and 1a, one semester of general chemistry, or consent of the instructor.

5	Lect.	9	TT	423 N.H.	STEGGERDA
	Quiz	11	F	425 N.H.	STEGGERDA
	Lab.	8–12	S	413 N.H.	

Courses for Graduates

Physiol. 101. Journal Club.—Review of literature. (¼ unit). Arrange. Members of the staff.

Physiol. 102. Research.—(1 to 2 units).* Arrange. Associate Professor BURGE.

Physiol. 103. Experimental Physiology.—(½ to 1 unit).* Arrange. Associate Professor BURGE and Assistant Professor STEGGERDA.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

POLITICAL SCIENCE

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 44 or 62).

Minors: 20 hours selected from one or two of the following subjects: history, economics, law, sociology, philosophy, and education. At least eight hours must be offered in each subject, if two are chosen.

Courses 1a and 1b give a general survey of national, state, and local government in the United States. Undergraduates beginning the study of political science are advised to take, first, course 1a-1b, and those planning for advanced work should take course 1a and either 1b or 16 in their sophomore year.

Courses for Undergraduates

Pol. Sci. 1a. American Government.—*Prerequisite:* Sophomore standing; not open to those who have had Pol. Sci. 1 or 3.

Credit	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	340 L.H.	Cassidy
	B1	9	MWF	300 L.H.	Berdahl
	B2	9	MWF	340 L.H.	Jobst
	C1	10	MWF	340 L.H.	Mathews
	C2	10	MWF	300 L.H.	Jobst
	D1	11	MWF	227 L.H.	Kneier
	E1	1	MWF	238 L.H.	Kendall
	F1	2	MWF	238 L.H.	Kendall
	G	3	MWF	204 L.H.	Jobst
	K	9	TTS	300 L.H.	Cassidy

Pol. Sci. 1b. American Government.—(Continuation of Pol. Sci. 1a; may not be taken independently). *Prerequisite:* Sophomore standing; Pol. Sci. 1a.

3	A1	8	MWF	204 L.H.	Isakoff
	B1	9	MWF	240 L.H.	Isakoff
	B2	9	MWF	238 L.H.	Lentz
	C1	10	MWF	238 L.H.	Snider
	D1	11	MWF	340 L.H.	Hyneman
	E1	1	MWF	204 L.H.	Isakoff
	F1	2	MWF	204 L.H.	Isakoff

Courses for Advanced Undergraduates and Graduates

Note: Junior standing is required for admission to the following courses.

Pol. Sci. 4. Municipal Government.—*Prerequisite:* Junior standing.

3	Lect.	9	TT	L.H. Theatre	Kneier
	A	11	Th	305 L.H.	Snider
	B	2	Th	304 L.H.	Kneier
	C	9	F	302 L.H.	Kneier
	D	10	F	302 L.H.	Kneier
	E	11	F	311 L.H.	Snider
	F	1	F	304 L.H.	Kneier
	G	2	F	308 L.H.	Kneier

Pol. Sci. 6a. International Law.—*Prerequisite:* Open to seniors, graduate students, and second-year law students.

3	A	10	MWF	202 L.H.	Garner

Pol. Sci. 7. American Foreign Relations.—*Prerequisite:* Junior standing with six hours of political science.

3	A	3	MWF	304 L.H.	Mathews

Pol. Sci. 13. Government Regulation of Business.—*Prerequisite:* Senior standing, or junior standing with five hours of political science or of economics, or of both.

3	A	10	MWF	304 L.H.	Hyneman

Pol. Sci. 14b. Political Parties: Organization and Methods.—*Prerequisite:* Junior standing.

3	A	11	MWF	303 L.H.	Berdahl

Pol. Sci. 21. British Government.—*Prerequisite:* Graduate or senior standing, or junior standing with six hours of political science.

2	A	11	TT	304 L.H.	Berdahl

Pol. Sci. 36a. Thesis and Honors Course.—*Prerequisite:* Senior standing. (2 to 4).* Arrange. Members of the department.

Courses for Graduates

Pol. Sci. 101. History of Political Theories.—(1 unit). 11 MWF; 306 L.H. Professor Garner.

Pol. Sci. 103a. Seminar in Political Science and Public Law.—Once a week. Arrange. Members of the department.

Pol. Sci. 106a. Special Topics in International Law.—(1 unit). Twice a week. Arrange. Professor Garner.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Pol. Sci. 107. Foreign Relations of the United States.—(1 unit). Arrange. Professor MATHEWS.

Pol. Sci. 114. Studies in Political Parties.—(1 unit). Twice a week. Arrange. Professor BERDAHL.

Pol. Sci. 128. Contemporary Governmental Problems.—(1 unit). 10-12 S; 340 L.H. Assistant Professor HYNEMAN.

PSYCHOLOGY

Major: 20 hours chosen from courses announced by the department, excepting Psych. 1. At least eight hours must be offered in the advanced group.

Minors: 20 hours chosen from not more than two of the following subjects: education, mathematics, philosophy, sociology, physiology, and zoology. At least eight hours must be offered in each, if two are chosen.

Courses for Undergraduates

Psych. 1. Introduction to Psychology.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
4	Lect. A	9	TT	218 U.H.	YOUNG
	Quiz A1	8	MW	404 U.H.	
	Quiz A2	9	MW	403 U.H.	
	Quiz A3	9	MW	404 U.H.	
	Quiz A4	10	MW	404 U.H.	
	Quiz A5	10	MW	406 U.H.	
	Quiz A6	11	MW	403 U.H.	
	Quiz A7	11	MW	213 U.H.	
	Quiz A8	2	MW	403 U.H.	
	Quiz A9	3	MW	404 U.H.	
	Lect. B	11	TT	218 U.H.	YOUNG
	Quiz B1	8	MW	412 U.H.	
	Quiz B2	9	MW	213 U.H.	
	Quiz B3	9	MW	410 U.H.	
	Quiz B4	10	MW	107 U.H.	
	Quiz B5	10	MW	213 U.H.	
	Quiz B6	11	MW	404 U.H.	
	Quiz B7	11	MW	412 U.H.	
	Quiz B8	2	MW	406 U.H.	
	Quiz B9	3	MW	412 U.H.	
	Lect. C	9	MW	218 U.H.	CULLER
	Quiz C1	8	TT	404 U.H.	
	Quiz C2	9	TT	404 U.H.	
	Quiz C3	9	TT	403 U.H.	
	Quiz C4	10	TT	403 U.H.	
	Quiz C5	10	TT	404 U.H.	
	Quiz C6	11	TT	403 U.H.	
	Quiz C7	11	TT	404 U.H.	
	Quiz C8	2	TT	403 U.H.	
	Quiz C9	3	TT	404 U.H.	

Psych. 2. General Psychology.—*Prerequisite:* Psych. 1 or junior standing.

4	Lect.	10	MW	410 U.H.	HIGGINSON
	Quiz A	9	TT	407 U.H.	
	Quiz B	10	TT	211 U.H.	
	Quiz C	11	TT	407 U.H.	
	Quiz D	2	TT	412 U.H.	

Psych. 3. Laboratory Practice.—*Prerequisite:* Psych. 1. (Laboratory fee, $1.)

2	Lab. A	2–4	MW	417 U.H.	HIGGINSON and HARRELL
	Lab. B	10–12	TT	417 U.H.	
	Lab. C	2–4	TT	417 U.H.	

Psych. 27a. Thesis Course and Honors Course.—*Prerequisite:* Psych. 3; consent of the department. (2). Arrange; 419 U.H. Professor WOODROW.

Courses for Advanced Undergraduates and Graduates

Psych. 5. Comparative Psychology.—*Prerequisite:* Psych. 1; either one other course in psychology or a course in zoology.

3	A	10	MWF	315 U.H.	MCALLISTER

Psych. 8. Feeling and Emotion.—*Prerequisite:* Six hours of psychology.

2	A	2	TT	211 U.H.	YOUNG

Psych. 11. Learning and Comprehension.—*Prerequisite:* Psych. 1; junior standing.

2	A	10	TT	312 U.H.	CULLER

Psych. 16. Genetic Psychology.—*Prerequisite:* Psych. 1; junior standing.

2	A	9	TT	318 U.H.	ANDERSON

Psych. 23. Abnormal Psychology.—*Prerequisite:* Psych. 1; junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	A	11	MWF	315 U.H.	BRIGHOUSE
	B	2	MWF	315 U.H.	

Psych. 34. Individual Differences.—*Prerequisite:* Psych. 1; senior standing.

3	A	9	MWF	311 U.H.	WOODROW

Courses for Graduates

Psych. 103a. Research.—(½ to 2 units).* Arrange. Professors WOODROW, YOUNG, CULLER; Associate Professor HIGGINSON.

Psych. 105a. Seminar.—(1 unit). 7:15-9:15 p.m. M; 419 U.H. Professor WOODROW.

Psych. 106. Neural Theory of the Psychological Functions.—(1 unit). 4-6 M; 420 U.H. Professor CULLER.

RAILWAY ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.00 to $4.00.

Courses for Undergraduates

R.E. 2. Locomotive Design.—*Prerequisite:* M.E. 16 and 64; R.E. 4.

Credit	Section	Hours	Days	Room	Instructor
3	W	1–5	M	104 T.B.	
		1–3	W	104 T.B.	
		1–4	F	104 T.B.	

R.E. 5. Railway Laboratory.—*Prerequisite:* M.E. 16 and 64; R.E. 4.

3	W	8	TT	104 T.B.
		9–12	Tu	104 T.B.

R.E. 9. Seminar.—*Prerequisite:* Open to seniors in railway courses only.

1	W	4	Th	117 T.B.

R.E. 25. Railway Development.—*Prerequisite:* Sophomore standing.

2	UVW	10	TT	117 T.B.

R.E. 32. Railway Construction.—*Prerequisite:* Registration in C.E. 61a.

3	U	11	MF	117 T.B.
		1–4	W	117 T.B.

R.E. 59. Electric Railway Principles.—*Prerequisite:* Registration in E.E. 25 and 75.

2	V	9	MW	117 T.B.

R.E. 97. Thesis.—*Prerequisite:* Senior standing in railway engineering. (1 or 2).* Arrange.

R.E. 99. Inspection Trip.—*Prerequisite:* Senior standing. (No credit).

Courses for Advanced Undergraduates and Graduates

R.E. 3. Locomotives.—*Prerequisite:* Junior standing in the College of Engineering.

2	W	1	TT	104 T.B.

R.E. 31. Railway Yards and Terminals.—*Prerequisite:* C.E. 3 or senior standing in railway engineering.

3	U	11	TT	117 T.B.
		9–12	S	117 T.B.

R.E. 35. Railway Signaling.—*Prerequisite:* Senior standing in the College of Engineering.

2	UV	10	TT	105 T.B.

R.E. 62. Electric Railway Laboratory.—*Prerequisite:* R.E. 60.

2	V	1–4	TT	117 T.B.

R.E. 64. Electric Railway Practice.—*Prerequisite:* E.E. 26 and 76; R.E. 60.

3	V	10	MWF	117 T.B.

Courses for Graduates

R.E. 102. Locomotive Design.—(1 unit). Arrange. Professor YOUNG.

R.E. 106. Locomotive Operation.—(1 unit). Arrange. Professor SCHMIDT.

R.E. 110. Railway Location.—(1 unit). Arrange. Professor KING.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

ROMANCE LANGUAGES AND LITERATURE

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, and 6b, and including at least five hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), German, Greek, history, Italian, Latin, philosophy, Spanish, provided that at least eight hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, and 2a, and including at least five hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), French, German, Greek, history, Italian, Latin, philosophy, provided that at least eight hours be taken in any subject chosen.

A. FRENCH

Courses for Undergraduates

French 1a. Elementary Course.—For students who have no credit in French.

Credit	Section	Hours	Days	Room	Instructor
4[1]	A1	8	TWTF	214 U.H.	Reed
	A2	8	TWTF	212 U.H.	Alexander
[1]Seniors will receive only 3 hours credit.	A3	8	TWTF	148 L.H.	McLaughlin
	A4	8	TWTF	211 L.H.	Edwards
	A5	8	TWTF	122 New Agr.	LaSage
	B1	9	TWTF	315 U.H.	Edwards
	B2	9	TWTF	118 New Agr.	Goggin
	C1	10	TWTF	204 U.H.	Carter
	C2	10	TWTF	214 U.H.	Amiel
	C3	10	TWTF	407 U.H.	Hilton
	D1	11	TWTF	321 L.H.	Dismukes
	D2	11	TWTF	116 New Agr.	Allen
	E1	1	MTWT	133 L.H.	Karraker
	E2	1	MTWT	212 U.H.	Alexander
	F1	2	MTWT	212 U.H.	Bussard
	G	3	MTWT	113 L.H.	Adam

French 1b. Elementary Course (continued).—*Prerequisite:* French 1a, or one year of high school French.

4[1]	A	8	TWTF	235 L.H.	Ralph
	B	9	TWTF	312 U.H.	Alexander
[1]Seniors will receive only 3 hours credit.	C	10	TWTF	318 U.H.	Reed
	F1	2	MTWT	206 L.H.	Hilton
	F2	2	MTWT	122 New Agr.	Klingner

French 2a. Modern French.—*Prerequisite:* French 1b, or two years of high school French.

4	[1]A1	8	TWTF	120 L.H.	Hilton
	A2	8	TWTF	133 L.H.	Goggin
[1]Sections A1, B1, C1, D1, and E1 are primarily for students who expect to go beyond French 2b. More attention is paid to the speaking and hearing of French.	A3	8	TWTF	116 New Agr.	Pietrangeli
	A4	8	TWTF	227 L.H.	Bussard
	[1]B1	9	TWTF	310 U.H.	Roche
	B2	9	TWTF	206 L.H.	Gullette
	[1]C1	10	TWTF	113 L.H.	Bussard
	C2	10	TWTF	123 New Agr.	Dismukes
	C3	10	TWTF	116 New Agr.	Allen
	[1]D1	11	TWTF	122 New Agr.	Bussard
	D2	11	TWTF	123 New Agr.	Carter
	[1]E1	1	MTWT	214 U.H.	Pietrangeli
	E2	1	MTWT	116 New Agr.	Beadle
	F	2	MTWT	133 L.H.	Pietrangeli
	G	3	MTWT	139 L.H.	Amiel

French 2b. Modern French.—*Prerequisite:* French 2a, or three years of high school French.

4	A	8	TWTF	321 L.H.	Giovanelli
	B	9	TWTF	123 New Agr.	LaSage
	C	10	TWTF	122 New Agr.	Ralph
	F	2	MTWT	214 U.H.	Dismukes

French 3a. Introduction to French Literature.—*Prerequisite:* French 2b, or four years of high school French.

3	A	8	MWF	128 L.H.	Jacob
	B	9	MWF	224 L.H.	Will
	C	10	MWF	224 L.H.	Will
	D	11	MWF	232 L.H.	Oliver
(In French).....	E	1	MWF	128 L.H.	Roche
	F	2	MWF	235 L.H.	Jacob

French 6a. Second-Year Composition and Conversation.—*Prerequisite:* French 1b, or two years of high school French.

Credit	Section	Hours	Days	Room	Instructor
2	K	9	TT	232 L.H.	Hilton
	N	1	TT	104 L.H.	Hilton

French 7a. Intermediate Composition and Conversation.—*Prerequisite:* French 2b or 6b, or the equivalent. (*Note:* Prospective teachers of French are strongly advised to take French 7a and 7b.)

2	J	8	TT	300 L.H.	Roche
	K	9	TT	235 L.H.	Amiel
	L	10	TT	211 L.H.	Roche
	M	11	TT	235 L.H.	Amiel
	O	2	TT	105 L.H.	Amiel

French 8a. Advanced Composition and Conversation.—*Prerequisite:* French 7b.

2	O	2	TT	128 L.H.	Roche

French 25. Methods of Teaching French.—Discussion and laboratory work in phonetics. *Prerequisite:* 20 hours in French, or 16 hours in French plus 20 in Spanish. Not open to students other than seniors except by permission of the instructor. *Note:* French 25 will be given only in the first semester; Spanish 25 only in the second semester. Special fee, 50 cents.

3	F	2	MWF	310 U.H.	Gullette

French 28a. Senior Thesis.—For candidates for university honors in French. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in French have the following prerequisites: French 3b or the equivalent, and junior standing; or senior standing and consent of the instructor.

French 10a. Survey of French Literature.—

3	C	10	MWF	104 L.H.	Carnahan

French 17a. French Drama of the Nineteenth Century.—

2	K	9	TT	224 L.H.	Will
	N	1	TT	219 L.H.	Hamilton

French 24a. French Drama of the Seventeenth and Eighteenth Centuries.—

3	B	9	MWF	232 L.H.	Oliver

French 32a. French Novel of the Nineteenth Century.—

3	B	9	MWF	128 L.H.	Jacob

French 35a. Civilisation Française.—(In French).

2	K	9	TT	109 L.H.	Jacob

Courses for Graduates

French 101. Old French Literature.—(1 unit). 11 TT; 212 L.H. Professor Oliver.

French 102. Villon, Rabelais, Montaigne, La Pléiade.—(1 unit). 10 TT; 425a Lib. Assistant Professor Will.

French 104. Eighteenth Century Literature.—(1 unit). 9 TT; 233 L.H. Professor Oliver.

French 127. French Romanticism.—(1 unit). 3 TT; 425a Lib. Professor Carnahan.

French 129. Research Problems in French Romanticism.—(1 unit). Arrange. Professor Carnahan.

French 195. Seminar.—Research work in special topics. (1 to 2 units).* Members of the department.

B. ITALIAN

Courses for Undergraduates

Italian 1a. Elementary Course.—For students who have no credit in Italian.

4[1]	D	11	TWTF	139 L.H.	Van Horne

[1]Seniors will receive only 3 hours credit.

Italian 2a. Intermediate Italian.—*Prerequisite:* Italian 1b.

3	C	10	MWF	312 U.H.	Pietrangeli

Courses for Advanced Undergraduates and Graduates

Italian 3a. Dante: The Divine Comedy.—*Prerequisite:* Italian 1b; junior standing.

2	P	3	TT	214 L.H.	Dismukes

Courses for Graduates

Italian 146. Modern Italian Literature.—(1 unit). 1 TT; 214 L.H. Professor Van Horne.

Italian 195. Seminar.—Research work in special topics. (1 to 2 units).* Professor Van Horne.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

C. SPANISH

Courses for Undergraduates

Spanish 1a. Elementary Course.—For students who have no credit in Spanish.

Credit	Section	Hours	Days	Room	Instructor
4[1]	A1	8	TWTF	302 L.H.	Young
	A2	8	TWTF	306 L.H.	Kiler
[1]Seniors will receive only 3 hours credit.	B1	9	TWTF	116 New Agr.	Adam
	B2	9	TWTF	122 New Agr.	Young
	C1	10	TWTF	306 L.H.	Utley
	C2	10	TWTF	235 L.H.	Gullette
	D1	11	TWTF	211 U.H.	Young
	D2	11	TWTF	214 U.H.	Kidder
	E	1	MTWT	139 L.H.	Lodge
	F	2	MTWT	312 U.H.	Utley
	G	3	MTWT	148 L.H.	Bushart
	H	4	MTWT	227 L.H.	Williams

Spanish 1b. Elementary Course (continued).—*Prerequisite:* Spanish 1a, or one year of high school Spanish.

4[1]	A	8	TWTF	318 U.H.	Flores
	B	9	TWTF	214 U.H.	Kidder
[1]Seniors will receive only 3 hours credit.	C	10	TWTF	139 L.H.	Young
	F	2	MTWT	116 New Agr.	Lodge

Spanish 2a. Modern Spanish.—*Prerequisite:* Spanish 1b, or two years of high school Spanish.

4	[1]A1	8	TWTF	139 L.H.	Bushart
[1]In section A1, more attention is paid to the speaking and hearing of Spanish.	A2	8	TWTF	240 L.H.	Burner
	B	9	TWTF	139 L.H.	Utley
	C	10	TWTF	240 L.H.	Adam
	D	11	TWTF	240 L.H.	Hamilton
	E1	1	MTWT	227 L.H.	Flores
	E2	1	MTWT	240 L.H.	Burner
	F	2	MTWT	227 L.H.	Williams

Spanish 2b. Modern Spanish.—*Prerequisite:* Spanish 2a, or three years of high school Spanish.

4	C	10	TWTF	106 U.H.	Bushart
	F	2	MTWT	233 L.H.	Beadle

Spanish 3a. Introduction to Spanish Literature.—*Prerequisite:* Spanish 2b, or four years of high school Spanish.

3	B	9	MWF	235 L.H.	Burner
	D	11	MWF	133 L.H.	Balseiro

Spanish 5a. Commercial Spanish.—*Prerequisite:* Spanish 2b, or the equivalent.

2	K	9	TT	133 L.H.	Burner

Spanish 7a. Intermediate Composition and Conversation.—*Prerequisite:* Spanish 2b, or the equivalent. (*Note:* Prospective teachers of Spanish are strongly advised to take Spanish 7a and 7b.)

2	B	9	MW	211 L.H.	Kiler
	L	10	TT	204a L.H.	Flores

Spanish 8a. Advanced Composition and Conversation.—*Prerequisite:* Spanish 7b.

2	M	11	TT	104 L.H.	Adam

Spanish 28a. Senior Thesis.—For candidates for university honors in Spanish. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in Spanish have the following prerequisites: Spanish 3b or the equivalent, and junior standing; or senior standing and consent of the instructor.

Spanish 10. Survey of Spanish Literature.—

3	B	9	MWF	216 L.H.	Hamilton

Spanish 11a. Cervantes: Don Quijote.—

2	O	2	MW	224 L.H.	Van Horne

Spanish 17a. Modern Spanish Drama.—

2	L	10	TT	303a L.H.	Balseiro

Courses for Graduates

Spanish 131. Spanish Literature in the Seventeenth Century.—(1 unit). Arrange; 425a Lib. Professor Van Horne.

Spanish 135. La Novela española moderna.—(In Spanish). (1 unit). Arrange. Associate Professor Balseiro.

Spanish 139. Spanish Literature in the Middle Ages.—(1 unit). 9 TT; 216 L.H. Associate Professor Hamilton.

Spanish 195. Seminar.—Research work in special topics. (1 to 2 units).* Members of the department.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

SOCIOLOGY

Major: 20 hours from any courses in the department.

Minors: 20 hours from one or two of the following subjects: economics, history, philosophy, political science, psychology. At least eight hours must be offered in either minor subject, if two are chosen.

Courses for Undergraduates

Sociol. 1. Principles of Sociology.—*Prerequisite:* Junior standing, or sophomore standing with a course in one of the following subjects: economics, history, philosophy, political science, or psychology.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	304 L.H.	Hiller
	B	9	MWF	304 L.H.	Hiller
	C	10	MWF	326 L.H.	Tylor
	D	11	MWF	202 L.H.	Houghton
	E	1	MWF	306 L.H.	Houghton
	F	2	MWF	326 L.H.	Albig
	G	3	MWF	306 L.H.	Houghton

Sociol. 2. Social Factors in Personality.—*Prerequisite:* Sociol. 1.

3	A	8	MWF	202 L.H.	Ahrens
	B	9	MWF	202 L.H.	

Sociol. 90a. Honors Course.—For majors in sociology and other seniors. Consent of instructor required. (2). Arrange. Members of the department.

Courses for Advanced Undergraduates and Graduates

Sociol. 3. Social Evolution.—*Prerequisite:* Sociol. 1; junior standing.

3	A	11	MWF	326 L.H.	Ahrens

Sociol. 4. Social Control.—*Prerequisite:* Sociol 1; junior standing.

2	A	1	MW	334 L.H.	Albig

Sociol. 5. The Family.—*Prerequisite:* Sociol. 1; junior standing.

3	A	10	MWF	303 L.H.	Timmons

Sociol. 6. Urban Sociology.—*Prerequisite:* Sociol. 1; junior standing.

3	A	8	MWF	334 L.H.	Tylor

Sociol. 8. Charities.—*Prerequisite:* Sociol. 1; junior standing.

3	A	11	MWF	308 L.H.	Timmons

Sociol. 9. Criminology.—*Prerequisite:* Sociol. 2 or Sociol. 1 with senior standing. Open to pre-legal juniors by consent of the instructor.

3	A	9	MWF	334 L.H.	Taft
	B	2	MWF	334 L.H.	

Sociol. 14. Group Opinion.—*Prerequisite:* Sociol. 1; senior standing.

3	A	11	MWF	334 L.H.	Albig

Sociol. 17. Methods of Sociological Research.—*Prerequisite:* 8 hours credit in sociology.

3	Disc.	9	TT	306 L.H.	Hiller
	Research	2 hours to be arranged			

Sociol. 29. Modern Human Migrations.—*Prerequisite:* Sociol. 1; junior standing.

3	A	10	MWF	334 L.H.	Taft

Courses for Graduates

Sociol. 106. Urban Communities and Urbanization.—(1 unit). Twice a week. Arrange. Assistant Professor Tylor.

Sociol. 108. Social Effects of Poverty, Their Prevention and Treatment.—(1 unit). Twice a week. Arrange. Assistant Professor Timmons.

Sociol. 124. Advanced Penology.—(1 unit). Arrange. Professor Taft.

Sociol. 150. Seminar.—Thesis. (1 to 3 units).* Twice a week. Arrange. Members of the department.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

THEORETICAL AND APPLIED MECHANICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $2.50.

Courses for Undergraduates

T.A.M. 1. Analytical Mechanics (Statics).—*Prerequisite:* Math. 7; registration in Math. 9.

Credit	Section	Hours	Days	Room	Instructor
2	A	9	TT	310 M.T.L.	
	B	9	TT	202 E.H.	
	C	11	TT	202 E.H.	
	D	4	TT	305 M.T.L.	
	E	4	TT	202 E.H.	

T.A.M. 2. Analytical Mechanics (Dynamics).—*Prerequisite:* T.A.M. 1.

3	E	8	MWF	202 E.H.	
	S	8	MWF	105 E.H.	
	M	8	TTS	202 E.H.	
	F	9	MWF	202 E.H.	
	R	9	MWF	316 M.T.L.	
	P	10	MWF	202 E.H.	
	X	10	MWF	305 M.T.L.	
	L	11	MWF	305 M.T.L.	
	Q	11	MWF	202 E.H.	
	G	2	MWF	305 M.T.L.	
	J	3	MWF	305 M.T.L.	
	N	3	MWF	202 E.H.	
	D	4	MWF	305 M.T.L.	

T.A.M. 3. Resistance of Materials.—*Prerequisite:* T.A.M. 1.

3	Ch1	8	MWF	208 E.H.	
	G	8	MWF	305 M.T.L.	
	J	8	MWF	310 M.T.L.	
	R	8	MWF	316 M.T.L.	
	X	8	MWF	205 E.H.	
	B	9	MWF	305 M.T.L.	
	S	9	MWF	310 M.T.L.	
	E	10	MWF	310 M.T.L.	
	Ch2	11	MWF	313 M.T.L.	
	F	11	MWF	310 M.T.L.	
	P	1	MWF	305 M.T.L.	
	Q	2	MWF	310 M.T.L.	

T.A.M. 4. Hydraulics.—*Prerequisite:* T.A.M. 1 and registration in T.A.M. 2.

2	M	9	TT	305 M.T.L.	
	L	10	TT	305 M.T.L.	
	N	2	TT	305 M.T.L.	

T.A.M. 17. Statics.—*Prerequisite:* Math. 6a.

3	A	8–10	M	313 M.T.L.	
		8	WF	313 M.T.L.	

T.A.M. 63. Resistance of Materials Laboratory.—*Prerequisite:* Registration in T.A.M. 3.

1	S	3–5	M	223 M.T.L.	
	R	8–10	Tu	223 M.T.L.	
	Ch1	10–12	Tu	223 M.T.L.	
	X	1–3	Tu	223 M.T.L.	
	Q	3–5	Tu	223 M.T.L.	
	J	1–3	W	223 M.T.L.	
	G	3–5	W	223 M.T.L.	
	F	8–10	Th	223 M.T.L.	
	Ch2	10–12	Th	223 M.T.L.	
	E	1–3	Th	223 M.T.L.	
	P	3–5	Th	223 M.T.L.	
	B	10–12	F	223 M.T.L.	

T.A.M. 64. Hydraulics Laboratory.—*Prerequisite:* Registration in T.A.M. 4.

1	L	1–3	M	Hyd. Lab., M.T.L.	
	K	3–5	Tu	Hyd. Lab., M.T.L.	
	N	8–10	W	Hyd. Lab., M.T.L.	
	M	3–5	Th	Hyd. Lab., M.T.L.	

T.A.M. 97. Thesis.—*Prerequisite:* Senior standing and approval of the head of the department. (1 to 3).* Arrange. Members of the department.

Courses for Advanced Undergraduates and Graduates

T.A.M. 41. Advanced Mechanics of Materials.—*Prerequisite:* T.A.M. 3 and 63. (3). Arrange. Professor SEELY and Mr. DOLAN.

T.A.M. 43. Laboratory Work in Hydraulics.—*Prerequisite:* T.A.M. 4 and 64. (3). Twice a week. Arrange. Mr. LANSFORD.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

T.A.M. 44. Laboratory Work in Testing Materials.—*Prerequisite:* T.A.M. 3 and 63. (3 semester hours or ½ to 1 unit).* Arrange. Professors MOORE and PUTNAM.

Courses for Graduates

T.A.M. 101. The Development of Basic Ideas in Mechanics.—(1 unit). Twice a week. Arrange. Professor MOORE.

T.A.M. 103. Hydraulics.—(1 unit). Twice a week. Arrange. Professor ENGER.

T.A.M. 107. Laboratory Investigations in Strength of Materials.—(1 to 2 units).* Twice a week. Arrange. Professor MOORE.

T.A.M. 108. Laboratory Investigations in Hydraulics.—(1 to 2 units).* Twice a week. Arrange. Professor ENGER.

T.A.M. 109. Laboratory Investigations in Plain and Reinforced Concrete.—(1 to 2 units).* Twice a week. Arrange. Professor RICHART.

T.A.M. 110. Analytical Study of Experimental Work on Reinforced Concrete: Beams, Frames, and Footings.—(1 unit). Twice a week. Arrange. Professor RICHART.

T.A.M. 114. Theory of Elasticity with Applications to Engineering Problems.—(1 unit). Three times a week. Arrange. Dr. NEWMARK.

T.A.M. 116. Resistance of Materials.—(1 unit). Three times a week. Arrange. Professor SEELY.

ZOOLOGY

Note: Certain courses in this department require laboratory fees varying from $1.00 to $4.50.

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9. At least five hours must be offered from the advanced groups.

Minors: 20 hours chosen from one or two of the following subjects: animal husbandry, bacteriology, botany, chemistry, entomology, geology, physics, physiology, psychology. At least eight hours must be offered in each subject, if two are chosen.

Note: Credit for seniors who take Zoology 1 or 2 will be reduced one hour.

Courses for Undergraduates

Zool. 1. General Zoology.—

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	9	MWF	228 N.H.	THOMAS, KUDO, LUCE, BROWN, HALL, and assistants
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	TTS	310 N.H.	
	B Lab. & Quiz	8–10	TTS	312 N.H.	
	C Lab. & Quiz	8–10	TTS	314 N.H.	
	D Lab. & Quiz	10–12	MWF	310 N.H.	
	E Lab. & Quiz	10–12	MWF	312 N.H.	
	F Lab. & Quiz	10–12	MWF	314 N.H.	
	G Lab. & Quiz	1–3	MWF	310 N.H.	
	H Lab. & Quiz	1–3	MWF	312 N.H.	
	I Lab. & Quiz	1–3	MWF	314 N.H.	
	K Lab. & Quiz	1–4	TT	310 N.H.	
	L Lab. & Quiz	1–4	TT	312 N.H.	
	M Lab. & Quiz	1–4	TT	314 N.H.	
	N Lab. & Quiz	10–12	TTS	310 N.H.	
	O Lab. & Quiz	3–5	MWF	310 N.H.	

Zool. 2. Vertebrate Zoology and Comparative Anatomy.—*Prerequisite:* Zool. 1.

5[1]	Lect.	10	MWF	228 N.H.	ADAMS, KENDEIGH, HALL, and others
[1]Seniors will receive only 4 hours credit.	A Lab. & Quiz	8–10	MWF	330 N.H.	
	B Lab. & Quiz	8–10	TTS	330 N.H.	
	C Lab. & Quiz	1–3	MWF	330 N.H.	

Zool. 3. Vertebrate Embryology.—*Prerequisite:* Zool. 1 and 2.

5	Lect.	1	TT	228 N.H.	SHUMWAY ADAMSTONE and assistants
	A Lab.	8–10	MWF	323 N.H.	
[1]Lab. section D and quiz section 4 will not be opened until others are filled.	B Lab.	10–12	MWF	323 N.H.	
	C Lab.	1–3	MWF	323 N.H.	
	[1]D Lab.	3–5	MWF	323 N.H.	
	1 Quiz	8	Tu	423 N.H.	
	2 Quiz	10	Th	229 N.H.	
	3 Quiz	2	Tu	229 N.H.	
	[1]4 Quiz	2	Th	229 N.H.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Zool. 7. Evolution.—With special reference to the biological processes in which man is involved. *Prerequisite:* Sophomore standing.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	9	MW	229 N.H.	BROWN, LUCE, HALL, and others
	A Quiz	8	F	229 N.H.	
	B Quiz	2	F	229 N.H.	
	C Quiz	9	Th	425 N.H.	
	D Quiz	9	F	229 N.H.	

Zool. 15. Genetics.—(For students in the College of Agriculture). *Prerequisite:* Two years of university work; Botany 1 or 5; Zool. 1 or Entom. 1.

3	Lect.	11	MW	228 N.H.	LUCE and assistants
	A Disc.	9	Th	241 N.H.	
	B Disc.	11	F	423 N.H.	
	C Disc.	11	Th	423 N.H.	
	D Disc.	9	M	423 N.H.	

Courses for Advanced Undergraduates

Zool. 8a. Thesis Investigation.—*Prerequisite:* Two years of zoology. (3 to 5).* Arrange. Members of the department.

Courses for Advanced Undergraduates and Graduates

Zool. 11. Animal Ecology and Geography.—*Prerequisite:* One year of zoology; senior standing. Three hours credit requires the lectures and field all day September 26, October 3, October 17, and one selected day; 4 and 5 hours credit requires additional field work, or the laboratory work, or both as arranged for the individual.

3 to 5*	Lect.	4	MWF	202 Exp. Zool. Lab.	SHELFORD
	Lab. or Field	8–12	S		

Zool. 17. Field Zoology.—*Prerequisite:* One year of zoology; senior standing.

3 to 5*		8–12	TT	420 N.H.	VAN CLEAVE

Zool. 18. Protozoology.—*Prerequisite:* One year of zoology; senior standing.

2		1–3	TT	418 N.H.	KUDO

Zool. 19a. Vertebrate Ecology.—*Prerequisite:* Zool. 1 and 2; Zool. 9 or registration therein also recommended.

2 or 3*	Lect.	1	TT	202 Exp. Zool. Lab.	KENDEIGH
	Lab. and Field	To be arranged			

Zool. 20a. Current Investigation.—Required of all graduate students whose major is zoology; may be elected by seniors whose major is zoology, with consent of instructor.

1		3	F	425 N.H.	Members of the department

Zool. 21a. Introduction to Zoological Research.—*Prerequisite:* One year of zoology; senior standing.

2 to 5*	To be arranged				Members of the department

Zool. 22. Comparative Anatomy of Vertebrates.—*Prerequisite:* Zool. 3.

2 to 4*	Lect.	4	Tu	419 N.H.	ADAMS
	Lab.	1–5	TT	419 N.H.	

Zool. 63. Comparative Vertebrate Embryology.—*Prerequisite:* One year of zoology; senior standing.

2 to 5*		10	MW	326 N.H.	SHUMWAY
		Other hours to be arranged			

Courses for Graduates

Students entering on graduate study in the department of zoology should have had two years of undergraduate work in the subject. When chosen as a minor the courses listed for graduates and advanced undergraduates must be preceded by at least one full year of undergraduate work in zoology. Work done at other institutions will be evaluated on conference with the head of the department.

Zool. 103. Cytology.—Morphology of the animal cell, especially in development. (1 unit). 2 MW; 432 N.H. Professor SHUMWAY.

Zool. 111. Experimental and Field Ecology.—(½ to 2 units).* Arrange. Professor SHELFORD.

Zool. 115. Factors of Individual and Racial Development.—(1 unit). 3 MW; 340 N.H. Professor ZELENY.

Zool. 131. Helminthology.—(½ to 1 unit).* 2-5 TT; 420 N.H. Professor VAN CLEAVE, Assistant Professor THOMAS.

Individual Research Courses

Zool. 121. Invertebrate Zoology and Parasitology.—(1 to 2 units).* Arrange. Professor VAN CLEAVE, Assistant Professor TAOMAS.

Zool. 122. Vertebrate Morphology.—(1 to 2 units).* Arrange. Associate Professor ADAMS.

Zool. 124. Experimental Zoology and Genetics.—(1 to 2 units).* Arrange. Professor ZELENY.

Zool. 125. Animal Ecology and Behavior.—(1 to 2 units).* Arrange. Professor SHELFORD.

Zool. 126. Vertebrate Embryology and Cytology.—(1 to 2 units).* Arrange. 432 N.H. Professor SHUMWAY.

Zool. 128. Protozoology.—(1 to 2 units).* Arrange. Associate Professor KUDO.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

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TIME TABLE

SECOND SEMESTER
1936-1937

This Time Table is issued early, for the convenience of faculty members and students. Preserve your copy for use during the period of registration, as there will not be a supply for general distribution at that time.

PUBLISHED TWICE A WEEK BY THE UNIVERSITY OF ILLINOIS

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REGISTRATION CALENDAR

SECOND SEMESTER, 1936-37

1937

Feb. 3-6, Wed.-Sat. . . . . Entrance examinations.
Feb. 5-6, Fri.-Sat. . . . . Registration for graduate students.
Feb. 8-9, Mon.-Tues. . . . . Registration for undergraduate students.
Feb. 10, Wed., 8 a.m. . . . . Instruction begun.
Feb. 15, Mon., 8 a.m. . . . . Earliest date for special examinations.
Feb. 15, Mon., 12 m. . . . . Latest date for change of study-lists without fee.
Feb. 20, Sat., 12 m. . . . . Latest date for rebates in full.
Mar. 25, Thurs., 12 m. . . . . Easter recess begun.
Mar. 30, Tues., 1 p.m. . . . . Instruction resumed.
Apr. 10, Sat., 12 m. . . . . Latest date for rebates of one-half fees, and latest date for seniors to make substitutions in courses or to remove failures of the first semester.
Apr. 30, Fri., 10 a.m. . . . . Honors Day Convocation.
May 17, Mon. . . . . Latest date for special examinations.
May 27, Thurs. . . . . Military Day.
May 28, Fri. . . . . Semester examinations begun.
June 7, Mon. . . . . Semester examinations ended.
June 14, Mon. . . . . Sixty-sixth Annual Commencement.

SUMMER SESSION, 1937

June 21, Mon. . . . . Registration day.
June 22, Tues. . . . . Instruction begun.
Aug. 13-14, Fri.-Sat. . . . . Final examinations.

FIRST SEMESTER, 1937-38

Sept. 16-18, Thurs.-Sat. . . . . Freshman Week program.
Sept. 17-18, Fri.-Sat. . . . . Registration for graduate students.
Sept. 18, Sat. . . . . Registration for freshmen.
Sept. 20-21, Mon.-Tues. . . . . Registration for upperclassmen.
Sept. 22, Wed., 8 a.m. . . . . Instruction begun.

KEY TO NAMES OF DEPARTMENTS AND DIVISIONS

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EXPLANATION OF LISTING OF COURSES

The arrangement of subjects in the following Time Table is alphabetical by names of departments. The connections of allied departments and divisions are indicated by cross references. (See page 3 for key to names of departments and divisions.)

The courses offered by each department or division are listed, in numerical order, in groups with headings that indicate the students for whom they are designed. Groups of general, elementary, and introductory courses are listed as "Courses for Undergraduates." Intermediate and advanced groups are listed as "Courses for Advanced Undergraduates and Graduates." Courses with numbers beginning at 100 are listed as "Courses for Graduates" and are not open to undergraduates.

Following the title of each course of instruction will be found the requirements, if any, for admission to that particular course. The sequence indicated by these prerequisites must be followed. For example, on page 12, in Art 35a-35b, Commercial Art, the prerequisites given are Art 28 and Architecture 72; these two courses must be completed before Art 35a-35b may be taken.

If a course not required for graduation is selected by fewer than five students it may be withdrawn for the semester.

Credit

Credit for undergraduate students is reckoned in *semester hours*, or simply *hours*. An *hour* is one class period a week for one semester or the equivalent in laboratory, shop, or drafting room. The number of hours for which each course counts is shown in parentheses in the description of the course, thus, (2), except where the credits, sections, etc., are tabulated.

Credit for first-year graduate students, candidates for the master's degree, is counted in *units*. A *unit* course is one which requires ten hours of time per week through one semester, irrespective of the distribution of that time in class work, laboratory work, and private study. Four such courses or their equivalent constitute a full minimum program for one semester. The unit values of graduate courses (numbered 100 and upwards) are indicated in parentheses following the titles of these courses. Courses of the intermediate groups "for graduates and advanced undergraduates" generally are evaluated for graduate credit as follows: (a) courses open only to students having at least senior standing, 1 unit for a 4-hour or a 5-hour course, ½ unit for a 1-hour, 2-hour, or 3-hour course; (b) courses open to juniors, ½ unit for a 4-hour or 5-hour course, ¼ unit for a 1-hour, 2-hour, or 3-hour course.

Buildings

University buildings are designated by the following abbreviations:

Administration Building (East)	Adm.(E)
Agriculture Building (Old)	Old Agr.
Agricultural Engineering Building	Agr.Eng.
Animal Pathology Laboratory	An.Path.L.
Architecture Building	Arch.
Armory	Arm.
Ceramics Building	Cer.
Chemistry Annex	Chem.A.
Chemistry Building	Chem.
Civil Engineering Surveying Building	C.E.S.B.
Commerce Building	Com.
Dairy Manufactures Building	D.Mfrs.
Electrical Engineering Annex	E.E.A.
Electrical Engineering Laboratory	E.E.L.
Engineering Hall	E.H.
Entomology Building	Entom
Floriculture Greenhouses	F.G.
Genetics Building	Gen.Bldg.
Highway Laboratory	H.L.
Horticultural Field Laboratory	H.F.Lab.
Law Building	Law
Library	Lib.
Lincoln Hall	L.H.
Materials Testing Laboratory	M.T.L.
Mathematics Building	Math.
Mechanical Engineering Laboratory	M.E.L.
Men's New Gymnasium	New Gym.
Men's Old Gymnasium	Old Gym.
Mining Engineering Laboratory	Min.L.
Natural History Building	N.H.
New Agriculture Building	New Agr.
Physics Laboratory	P.L.
Smith Memorial Music Hall	S.M.H.
Stock Judging Pavilion	S.P.
Transportation Building	T.B.
University Hall	U.H.
University High School	U.H.S.
Vegetable Greenhouse	V.G.
Woman's Building	W.B.
Woman's Gymnasium	W.Gym.

AGRICULTURAL ADMINISTRATION

Courses for Undergraduates

Agr. Adm. 6. Agricultural Extension.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
2	A	10	TT	118 New Agr.	SPITLER

Agr. Adm. 7. Rural Organizations.—Farmers' organizations, their origins, functions, structures, and processes; factors affecting participation of farm people in organizations; trends in development of organizations and their relationship to national policies and rural life. *Prerequisite:* Junior standing.

3	A	9	MFS	118 New Agr.	LINDSTROM

AGRICULTURAL ECONOMICS

Courses for Undergraduates

Agr. Econ. 20. Farm Management.—*Prerequisite:* Sophomore standing. Local field trips will be arranged; estimated cost, $2.

Credit	Section	Hours	Days	Room	Instructor
3	Lect. and Disc.	10	TT	316 New Agr.	CASE and ROSS
	R Lab.	1–3	Tu	331 New Agr.	ROSS
	S Lab.	1–3	Th	331 New Agr.	WILLS
	T Lab.	1–3	F	331 New Agr.	ROSS

Agr. Econ. 40. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange. Work may be taken in the following subjects:

Agricultural Marketing.—Professors NORTON and LLOYD, Associate Professor ASHBY, Assistant Professor BARTLETT.
Agricultural Prices and Statistics.—Associate Professor WORKING.
Farm Management.—Professor CASE, Associate Professor ROSS.
Land Economics.—Professor STEWART.

Agr. Econ. 41. Problems in Agricultural Economics.—*Prerequisite:* Senior standing; approval of the head of the department. (5). Arrange. Work may be taken in the following subjects:

Agricultural Marketing.—Professors NORTON and LLOYD, Associate Professor ASHBY, Assistant Professor BARTLETT.
Agricultural Prices and Statistics.—Associate Professor WORKING.
Farm Management.—Professor CASE, Associate Professor ROSS.
Land Economics.—Professor STEWART.

Courses for Advanced Undergraduates and Graduates

Agr. Econ. 11. Agricultural Prices and Statistics.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	A	10	MWF	313 New Agr.	WORKING

Agr. Econ. 14. Cooperation in Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing.

2	A	11	TT	313 New Agr.	BARTLETT

Agr. Econ. 15. Financing Agriculture.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	A	11	MWF	313 New Agr.	NORTON

Agr. Econ. 18. Land Economics.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	A	9	MWF	313 New Agr.	STEWART

Agr. Econ. 23. Farm Business Analysis.—*Prerequisite:* Agr. Econ. 20; Accountancy 1a. Lectures and quiz. Local field trips will be arranged; estimated cost, $5.

3	A	1	MWF	316 New Agr.	WILLS

Agr. Econ. 25. Farm Organization.—*Prerequisite:* Agr. Econ. 20. Local field trips will be arranged; estimated cost, $5.

3	A	2	MWF	313 New Agr.	CASE, ACKERMAN

Agr. Econ. 34. Marketing Dairy Products.—*Prerequisite:* Agr. Econ. 30 or B.O.O. 2; junior standing. (Inspection trip requirement waived for 1936-37).

2	A	3–5	Tu	313 New Agr.	BARTLETT

Agr. Econ. 37. Marketing Livestock.—*Prerequisite:* Agr. Econ. 30; junior standing. (Inspection trip requirement waived for 1936-37).

2	A	9	TT	316 New Agr.	ASHBY

Agr. Econ. 42. Farm Appraisals.—*Prerequisite:* Agron. 28 and Agr. Econ. 20, or their equivalents; approval of Dean as supervisor. Local field trips to be arranged; estimated cost, $5.

5	A	8	MWF	313 New Agr.	Members of the departments involved
		8–12	S	313 New Agr.	

Courses for Graduates

Agr. Econ. 103. Personnel Relationships in Teaching, Research, and Extension Work.—(Same as Animal Husbandry 103 and Agronomy 119). (½ unit). Once a week. Arrange. Professor MUMFORD.

Agr. Econ. 109. Seminar. Thesis Course.—All graduate students majoring in Agricultural Economics must register in Agr. Econ. 109, but only those students writing theses acceptable for the degree of Master of Science will be given credit. (1 to 2 units.)* Once a week. Arrange. Members of the department.

Agr. Econ. 110. Theory of Agricultural Economics.—(1 unit). 10-12 S. Professor STEWART.

Agr. Econ. 111. Agricultural Prices and Statistics.—(1 unit). Arrange. Associate Professor WORKING.

Agr. Econ. 112. Agricultural Economics Research.—Only those who write acceptable reports of successful investigation will receive credit. (1 to 2 units).* Arrange. Members of the department.

Agr. Econ. 135. Problems in Marketing Agricultural Products.—(1 unit). Arrange.
Grain, Livestock, and General Marketing.—Professor NORTON.
Horticultural Products.—Professor LLOYD.
Dairy Products.—Assistant Professor BARTLETT.

AGRICULTURAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.00 to $8.00.

Courses for Undergraduates

Agr. Eng. 1. Introduction to Agricultural Engineering.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	9	MF	201 Agr. Eng.	YOUNG
	A Disc.	8	M		HANSEN
[1]Seniors will receive only 2 hours credit.	B Disc.	8	Tu		
	C Disc.	9	Tu		
	D Disc.	8	F		
	Lab. 1	1–3	Tu		
	Lab. 2	8–10	W		
	Lab. 3	8–10	Th		
	Lab. 4	1–3	Th		

Agr. Eng. 3. Gas Engines and Tractors.—*Prerequisite:* Agr. Eng. 1. Inspection trip costing $3 to $10 required.

3	Lect.	11	TT	201 Agr. Eng.	SHAWL
	K Quiz	9	Tu	205 Agr. Eng.	
	O Quiz	2	Th	201 Agr. Eng.	
	O Lab.	2–4	Tu		
	K Lab.	9–11	S		

Agr. Eng. 4. Farm Buildings.—*Prerequisite:* Agr. Eng. 1 or consent of instructor.

3	Lect.	1	MF	205 Agr. Eng.	FOSTER
	Lab.	To be arranged			

Agr. Eng. 12. Farm Home Equipment and Rural Electrification.—*Prerequisite:* Agr. Eng. 1 or junior standing.

3	Lect.	2	MW	205 Agr. Eng.	LEHMANN
	Lab.	2–4	F	205 Agr. Eng.	

Agr. Eng. 21. Farm Shop Work.—*Prerequisite:* Agr. Eng. 1.

2	Lab.	2–4	MW	201 Agr. Eng.	YOUNG

Courses for Advanced Undergraduates

Agr. Eng. 17. Harvesting Machinery.—*Prerequisite:* Agr. Eng. 2.

3	Lect.	11	MW	201 Agr. Eng.	SHAWL
	Lab.	2–5	W	201 Agr. Eng.	

Agr. Eng. 18b. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately.

5 To be arranged LEHMANN and SHAWL

Agr. Eng. 51. Special Problems.—*Prerequisite:* Senior standing; approval of the head of the department.

3 To be arranged Members of the department

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

AGRONOMY

Note: Certain courses in this department require laboratory fees varying from $2.00 to $4.00.

Courses for Undergraduates

Agron. 8. Forage Crops.—*Prerequisite:* Agron. 25; Bot. 5.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	11	MW	302 Old Agr.	PIEPER
	Quiz	11	F	302 Old Agr.	

Agron. 18b. Investigation with Thesis.—This course is continuous through the year; credit is not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to the thesis problem; approval of the head of the department. (5). Arrange. Work may be taken in either of the following subjects:

Soils.—Professors BAUER, DETURK, R. S. SMITH; Associate Professor SEARS.
Crops.—Professors BURLISON, WOODWORTH, DUNGAN.

Agron. 25. Farm Crops.—

3	Lect.	2	MW	103 New Agr.	PIEPER and BONNETT
	Lab. A	1–3	Tu	600 Old Agr.	
	Lab. B	1–3	Th	600 Old Agr.	
	Lab. C	10–12	Tu	600 Old Agr.	
	Quiz F1	2	F	116 New Agr.	
	Quiz F2	2	F	302 Old Agr.	
	Quiz F3	2	F	118 New Agr.	
	Quiz F4	2	F	128 New Agr.	
	Quiz F5	2	F	122 New Agr.	

Agron. 28. Soils.—*Prerequisite:* Chem. 5; Geol. 44. (Local field trip, cost not to exceed $1.00.)

5	Lect.	8	MWF	302 Old Agr.	WIMER and CRANE
	Quiz	8	TT	302 Old Agr. 553 Old Agr.	
	A Lab.	1–4	Th	650 Old Agr.	
	B Lab.	1–4	F	650 Old Agr.	
	C Lab.	8–11	S	650 Old Agr.	

Agron. 34. Crop Quality.—*Prerequisite:* Bot. 5.

3	Lab.	3–5	MW	600 Old Agr.	DUNGAN and MUMM
	Lect. and Quiz	3	F	302 Old Agr.	

Courses for Advanced Undergraduates and Graduates

Agron. 10. Genesis, Morphology, Classification, and Geography of Soils.—*Prerequisite:* Agron. 28; junior standing.

3	Lect.	1	MWF	302 Old Agr.	R. S. SMITH

Agron. 13. Soil Productivity, Its Variation, Modification, and Maintenance.—*Prerequisite:* Agron. 28; senior standing.

3	Lect. and Quiz	9	MWF	553 Old Agr.	BAUER

Agron. 22. Improvement of Farm Crops by Breeding.—*Prerequisite:* Zool. 15; junior standing.

3	Lect.	10	MWF	302 Old Agr.	WOODWORTH, BONNETT

Agron. 31. Biological Methods of Soil Investigations.—(Given in 1936-37 and in alternate years). *Prerequisite:* Agron. 11; senior standing.

3	Lab.,Dem.,Disc.	8–10	MWF	321 Old Agr.	SEARS

Agron. 35. Farm Appraisals.—(See Agricultural Economics 42).

Courses for Graduates

Agron. 104. Seminar.—(¼ unit). Once a week. Arrange. Graduate staff.

Agron. 114. Principles Underlying the Production of Crops.—(1 unit). 10-12 S, or arrange. Professors BURLISON, DUNGAN.

Agron. 118. Research.—(½ to 4 units).* Arrange.

Soils.—Professors BAUER, DETURK, R. S. SMITH.
Crops.—Professors BURLISON, WOODWORTH, DUNGAN.

Agron. 119. Personnel Relationships in Teaching, Research, and Extension Work.—(See Animal Husbandry 103). Professor MUMFORD.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

ANIMAL HUSBANDRY

Courses for Undergraduates

An. Husb. 1. Introduction to Animal Husbandry.—Required of students not having had livestock judging in high school. (No credit in this course allowed to juniors and seniors).

Credit	Section	Hours	Days	Room	Instructor
2	A	3–5	TT	S.P.	Crawford and Snapp

An. Husb. 6. Livestock Management.—*Prerequisite:* An. Husb. 21.

5	A	10	MTWTF	S.P.	Edmonds

An. Husb. 9b. Investigation with Thesis.—*Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange. Work may be taken in the following subjects:

Beef Cattle.—Professor Rusk, Associate Professor Snapp.

Horses.—Professor Edmonds.

Sheep.—Associate Professor Kammlade.

Swine.—Professor Carroll.

Poultry.—Professor Card.

Animal Nutrition.—Professor Mitchell.

Animal Genetics.—Professor Roberts.

Animal Pathology.—Professor Graham.

Meats.—Associate Professor Bull.

An. Husb. 10. Farm Meats.—*Prerequisite:* An. Husb. 36. An inspection trip will be made to the Chicago Stock Yards and packing plants. The cost of the trip will be approximately $8.

3	A	1–4	TT	403 Old Agr.	Bull

An. Husb. 12. Special Problems.—*Prerequisite:* Senior standing; approval of the head of the department.

5	To be arranged				Members of the department

An. Husb. 21. Principles of Feeding.—*Prerequisite:* Chem. 1 or 2.

3	Lect.	2	W	553 Old Agr.	Bull and Carroll
	A Quiz	2	MF	553 Old Agr.	
	B Quiz	11	TT	553 Old Agr.	

An. Husb. 37. Poultry Management.—*Prerequisite:* An. Husb. 21.

3	A	9	MWF	316 New Agr.	Card, Scott, and
	B	9	MWF	331 New Agr.	Burmester
1	Lab.	3–5	Th	Poultry Farm	Scott

Note: Students may register for this course either with or without the laboratory. Those taking the laboratory should register in Section B.

An. Husb. 42. Poultry Diseases.—*Prerequisite:* An. Husb. 37. Lectures and demonstrations on parasitic, bacterial, filterable virus, protozoan, fungus, and nutritional diseases of domestic fowl.

2	A	3 3–5	M W	An.Path.Lab.	Graham and Boley

Courses for Advanced Undergraduates and Graduates

An. Husb. 27. Sheep Husbandry.—*Prerequisite:* An. Husb. 6.

3	A	11	MWF	111 S.P.	Kammlade

An. Husb. 28. History of Breeds of Livestock.—*Prerequisite:* An. Husb. 3. It is recommended that this course precede An. Husb. 22.

3	A	3	MWF	316 New Agr.	Heads of divisions

An. Husb. 31. Advanced Course in Animal Nutrition.—*Prerequisite:* Senior standing, including An. Husb. 7.

3	To be arranged				Mitchell

An. Husb. 33. Horse Production.—*Prerequisite:* An. Husb. 3 and 6.

3	A	1	MWF	S.P.	Edmonds

An. Husb. 35. Animal Hygiene, Sanitation, Contagious Diseases of Farm Animals.—*Prerequisite:* An. Husb. 34; Bact. 5a.

2	A	3	TT	An.Path.Lab.	Graham and Boley

An. Husb. 40. Economics of Poultry Production.—*Prerequisite:* Senior standing; An. Husb. 37.

3	A	1	MWF	313 New Agr.	Card

An. Husb. 41. Animal Genetics.—

3	A	2	MWF	Gen.Bldg.	Roberts

Courses for Graduates

An. Husb. 103. Personnel Relationships in Teaching, Research, and Extension Work.—(½ unit). Once a week. Arrange. Professor MUMFORD.

An. Husb. 112. Research.—(½ to 2 units).* One to three times a week. May be taken on Saturday morning by special arrangement.

Economic Factors in Meat Production.—Professors RUSK and CARROLL.

Systems of Livestock Farming.—Professor CASE.

Animal Nutrition.—Professor MITCHELL.

Animal Genetics.—Professor ROBERTS.

Poultry Husbandry.—Professor CARD.

An. Husb. 117. Animal Genetics.—(1 unit). Two to five times a week. Arrange. Professor ROBERTS.

An. Husb. 118. Animal Nutrition Seminar.—(½ unit). Two hours a week. Arrange. Professor MITCHELL.

An. Husb. 119. Laboratory Methods in Animal Nutrition.—(½ to 1 unit).* Two to five times a week. Arrange. (Laboratory fee, $5). Professor MITCHELL.

An. Husb. 120. Laboratory Methods in the Diagnosis of Animal Diseases.—(½ to 1 unit).* Two to five times a week. Arrange. (Laboratory fee, $2). Professor GRAHAM.

An. Husb. 121. Laboratory Methods in Animal Genetics.—(½ to 1 unit).* Two to five times a week. Arrange. (Laboratory fee, $3). Professor ROBERTS.

ARCHITECTURE

Note: Certain courses in this department require a laboratory fee of $1.00.

Courses for Undergraduates

Arch. 12. History of Architecture.—*Prerequisite:* Arch. 11 or consent of instructor. Not open to students expecting a degree in Architecture.

Credit	Section	Hours	Days	Room	Instructor
3	A	3	MWF	117 L.H.	

Arch. 14. History of Architecture.—*Prerequisite:* Arch. 13.

2	A	11	MW	120 Arch.	

Arch. 16. History of Architecture.—*Prerequisite:* Arch. 15.

2	A	11	TT	120 Arch.	

Arch. 18. History of Architecture.—*Prerequisite:* Arch. 17.

2	A	8	WF	120 Arch.	

Arch. 32. Architectural Design.—*Prerequisite:* Arch. 31.

3	Lect.	10	W	120 Arch.	
	A	1–4	TT	210 Arch.	
	B	8–11	MF	210 Arch.	
	C	8–11	TT	210 Arch.	

Arch. 33. Architectural Design.—*Prerequisite:* Arch. 32.

3	(See Arch. 34 for sections)				

Arch. 34. Architectural Design.—*Prerequisite:* Arch. 33.

3	A	1–4	MW	210 Arch.	
		8–11	S	210 Arch.	
	B	1–4	WF	210 Arch.	
		8–11	S	210 Arch.	

Arch. 35. Architectural Design.—*Prerequisite:* Arch. 34.

5	(See Arch. 36 for sections)				

Arch. 36. Architectural Design.—*Prerequisite:* Arch. 35 and registration in Arch. 66.

5	A	9–12	F	200 Arch.	
		1–5	MWF	200 Arch.	

Arch. 37. Architectural Design.—*Prerequisite:* Arch. 36; senior standing in Architecture.

7	(See Arch. 38 for sections)				

Arch. 38. Architectural Design.—*Prerequisite:* Arch. 37; senior standing in Architecture.

7	A	8–11	S	200 Arch.	
		1–4	MTu	200 Arch.	
		1–5	WTF	200 Arch.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Arch. 44. Technology of Materials.—*Prerequisite:* Arch. 43.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	11	F	302 Arch.	
	A	1–4	TT	310 Arch.	
	Lect.	11	W	302 Arch.	
	B	1–4	MW	310 Arch.	

Arch. 46. Graphic Statics.—*Prerequisite:* Arch. 45.

3	Lect.	9	Tu	302 Arch.
	A	8–11	M	310 Arch.
		9–12	W	310 Arch.
	Lect.	11	M	302 Arch.
	B	1–4	TT	310 Arch.

Arch. 48. Steel Construction.—*Prerequisite:* Arch. 47 and registration in Arch. 58.

5	B	9	TT	301 Arch.
		1–4	MWF	300 Arch.

Arch. 55. Building Sanitation.—*Prerequisite:* Physics 8a-8b; Arch. 44.

1	A	10	TT	301 Arch.

Arch. 56. Building Sanitation.—*Prerequisite:* Senior standing in Architecture.

2	A	10	MW	301 Arch.

Arch. 58. Reinforced Concrete Design.—*Prerequisite:* Arch. 57 and registration in Arch. 48.

3	B	10	F	301 Arch.
		1–4	TT	300 Arch.

Arch. 60. Reinforced Concrete.—*Prerequisite:* Senior standing in Architecture.

2	A	11	TT	302 Arch.

Arch. 66. Theory of Architecture.—*Prerequisite:* Arch. 65 and registration in Arch. 36.

1	A	9	Th	302 Arch.

Arch. 68. Specifications.—*Prerequisite:* Senior standing in Architecture.

3	A	11	MWF	301 Arch.

Arch. 72. Architectural Design.—*Prerequisite:* Arch 71. Not open to students expecting a degree in Architecture.

3	A	2–5	MWF	210 Arch.
	B	9–12	MWF	310 Arch.

Arch. 76. Masonry Construction Details.—*Prerequisite:* Arch. 75. Not open to students expecting a degree in Architecture.

2	A	1–4	TT	310 Arch.

Courses for Graduates

Arch. 101. Architectural Construction.—Theory and design. (½ to 2 units).* Professor PALMER.

Arch. 103. Architectural Construction.—Special problems. (½ to 2 units).* Professor MORGAN.

Arch. 104. Architectural Design.—(1 to 3 units).* Professor DEAM.

Arch. 105. Architectural Practice.—(¼ to ½ unit).* Professor PROVINE.

Arch. 106. Architectural History.—(½ to 2 units).* Dean NEWCOMB.

ART

Note: Certain courses in this department require laboratory fees varying from $1.50 to $6.00.

Courses for Undergraduates

Art 1a. Design.—

Credit	Section	Hours	Days	Room	Instructor
2	A	3–5	MW	342 L.H.	ANDERSON, GOUGLER

Art 1b. Design.—*Prerequisite:* Art 1a.

2	A	8–10	MW	342 L.H.	GOUGLER
	B	10–12	MW	342 L.H.	GOUGLER
	C	1–3	MW	342 L.H.	ANDERSON
	D	3–5	TT	342 L.H.	GOUGLER

Art 2a-2b. Water Color.—*Prerequisite:* Art 26.

2	A	2–5	TT	403a Arch.	NEARPASS

Art 3a-3b. Water Color.—*Prerequisite:* Art 2b.

2	A	2–5	TT	403a Arch.	NEARPASS

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Art 4a-4b. Interior Design.—*Prerequisite:* Art 32a concurrently or Art 1b.

Credit	Section	Hours	Days	Room	Instructor
2	A	1–3	TT	342 L.H.	ANDERSON

Art 9. Applied Art Methods.—*Prerequisite:* Art 32b.

3	Lect.	9	Th	342 L.H.	ANDERSON
	Dem.	10	Th	342 L.H.	ANDERSON
	Quiz	11	Th	342 L.H.	ANDERSON

Art 10b. Course for Teachers.—*Prerequisite:* Art 32b or junior standing.

3	Lect.	9	Tu	342 L.H.	ANDERSON
	Dem.	10	Tu	342 L.H.	ANDERSON
	Quiz	11	Tu	342 L.H.	ANDERSON

Art 12. History of Fine Arts.—*Prerequisite:* Sophomore standing.

2	A	8	TT	120 Arch.	LAKE

Art 14a. History of Medieval Art.—*Prerequisite:* Art 13a or junior standing.

2	A	1	TT	120 Arch.	NICHOLSON

Art 16a. History of Modern Art.—*Prerequisite:* Junior standing.

2	A	1	MF	120 Arch.	NICHOLSON

Art 18a. Art Appreciation.—*Prerequisite:* Junior standing.

3	A	9	MWF	120 Arch.	NICHOLSON

Art 21a-21b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture).

2	A	8–11	TT	407 E.H.	RAUSHENBERGER
	B	2–5	MF	407 E.H.	HULT
	C	9–12	MF	407 E.H.	HULT

Art 22a-22b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture). *Prerequisite:* Art 21b.

2	A	8–11	TT	Hall of Casts	KENNEDY
	B	1–4	TT	410b Arch.	KENNEDY

Art 23a-23b. Freehand Drawing.—(Primarily for students in Architecture and Landscape Architecture). *Prerequisite:* Art 22b.

2	A	1–4	TT	Hall of Casts	WOODROOFE

Art 24a-24b. Freehand Drawing.—(Primarily for students in Architecture). *Prerequisite:* Art 23b.

2	A	8–11	TT	10 Arch.	BAILEY, WOODROOFE

Art 25. Art Form.—

5	(See Art 26 for sections)	

Art 26. Art Form.—*Prerequisite:* Art 25.

5	A	9–12	MWF	410a Arch.	RAUSHENBERGER
		9–12	S	410a Arch.	KENNEDY
		9–12	Th	20 Arch.	LAKE
	B	2–5	M	20 Arch.	LAKE
		10–12	TT	410a Arch.	DONOVAN
		2–5	W	410a Arch.	DONOVAN
		2–4	F	410a Arch.	DONOVAN
		9–12	S	403a Arch.	HOGAN

Art 27. Life Drawing.—*Prerequisite:* Art 26.

5	(See Art 28 for sections)	

Art 28. Life Drawing.—*Prerequisite:* Art 27.

5	A	2–5	MF	403a Arch.	HOGAN
		2–5	TWT	10 Arch.	BAILEY
	B	9–12	TT	10 Arch.	BAILEY, WOODROOFE
		2–5	W	10 Arch.	BAILEY
		2–5	MF	403a Arch.	HOGAN

Art 29. Life Drawing and Portrait.—*Prerequisite:* Art 28.

5	A	9–12	MTWTF	403b Arch.	BRADBURY, HOGAN

Art 30. Life Drawing and Portrait.—*Prerequisite:* Art 29.

5	A	9–12	MTWTF	403b Arch.	BRADBURY, HOGAN

Art 32a-32b. Elementary Composition.—*Prerequisite:* Sophomore standing in Art.

2	A	9–11	TTS	200 Arch.	NEARPASS
	B	8–11	MW	200 Arch.	NEARPASS

Art 33a-33b. Intermediate Composition.—*Prerequisite:* Art 32b.

3	A	2–5	MWF	310 Arch.	WOODROOFE

Art 34a-34b. Advanced Composition.—*Prerequisite:* Art 33b.

Credit	Section	Hours	Days	Room	Instructor
3	A	2–5	MF	403b Arch.	Bradbury
		1–4	W	403b Arch.	Bradbury

Art 35a-35b. Commercial Art.—*Prerequisite:* Art 28 and Arch. 72.

2	A	8	TT	301 Arch.	Donovan
		9–12	S	310 Arch.	Donovan

Art 36a-36b. Commercial Art.—*Prerequisite:* Art 35b.

2	A	8	TT	301 Arch.	Donovan
		9–12	S	310 Arch.	Donovan

Art 37a-37b. Illustration.—*Prerequisite:* Art 32b.

2	A	2–5	TT	403a Arch.	Nearpass

Art 41a-41b. Still Life.—*Prerequisite:* Art 26.

2	A	8–11	MW	410b Arch.	Kennedy
	B	1–4	TT	410a Arch.	Donovan

Art 42a-42b. Landscape.—*Prerequisite:* Art 41b.

2	A	1–4	TT	410a Arch.	Donovan

Art 43a-43b. Landscape.—*Prerequisite:* Art 42b.

2	A	1–4	TT	410a Arch.	Donovan

Art 47. Life Painting.—*Prerequisite:* Art 30.

5	A	9–12	MTWTF	403b Arch.	Bradbury

Art 48. Life Painting.—*Prerequisite:* Art 47.

5	A	9–12	MTWTF	403b Arch.	Bradbury

Art 50. Modeling.—*Prerequisite:* Art 25 or consent of instructor.

2	A	2–5	TT	20 Arch.	Lake
	B(Arch.)	8–11	M	20 Arch.	Bailey
		9–12	W	20 Arch.	Bailey

Art 51a-51b. Modeling.—*Prerequisite:* Art 50 or equivalent.

2	A	2–5	TT	20 Arch.	Lake

Art 52a-52b. Modeling.—*Prerequisite:* Art 51b.

2	A	2–5	TT	20 Arch.	Lake

ASTRONOMY

Courses for Undergraduates

Astron. 2. Descriptive Astronomy.—Continuation of Astron. 1. *Prerequisite:* Astron. 1.

Credit	Section	Hours	Days	Room	Instructor
3	A	11	MWF	229 N.H.	Baker
		One hour Wednesday evening		Observatory	

Courses for Graduates

Astron. 101. Seminar.—(1 unit). 1 MWF; Observatory. Professor Baker.

Astron. 103. Celestial Mechanics.—(1 unit). 11 TTS; Observatory. Professor Baker.

BACTERIOLOGY

Note: Certain courses in this department require laboratory fees varying from $4.50 to $5.50.

Major: 20 hours chosen from the courses offered by this department. Dairy Husbandry 10 (Advanced Dairy Bacteriology) may be offered in partial satisfaction of this requirement. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: agronomy, botany, chemistry, entomology, physiology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Bact. 5a. Introductory Bacteriology and Sanitary Science.—*Prerequisite:* Sophomore standing or consent of the instructor.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	8	TT	100 Chem.	TANNER and assistants
	A1	8	S	301 Chem.	
	A2	8	S	303 Chem.	
	B1	2	Tu	303 Chem.	
	B2	2	Tu	301 Chem.	
	C1	3	Tu	301 Chem.	
	C2	3	Tu	303 Chem.	
	D	2	Th	301 Chem.	
	E	3	Th	301 Chem.	
	F	2	W	300 Chem.	
	G1	3	W	301 Chem.	
	G2	3	W	300 Chem.	
	H1	10	M	301 Chem.	
	H2	10	M	303 Chem.	
	I	10	W	301 Chem.	
	J1	10	F	301 Chem.	
	J2	10	F	303 Chem.	

Bact. 5b. Introductory Bacteriology Laboratory.—*Prerequisite:* Bact. 5a or concurrent registration in it.

2	Lab. A	8–10	MW	367 Chem.	WALLACE and assistant
	Lab. B	10–12	MW	367 Chem.	EDWARDS and assistant
	Lab. C	1–3	MW	367 Chem.	CLARK and assistant
	Lab. D	10–12	TT	367 Chem.	EDWARDS and assistant
	Lab. E	1–3	TT	367 Chem.	CLARK and assistant

Courses for Advanced Undergraduates

Bact. 7b. Research and Special Problems for Undergraduates.—*Prerequisite:* Junior standing, 10 hours of bacteriology, consent of the instructor. (3 to 5).* Arrange. Conference, 2-4 W. Professor TANNER, Assistant Professor WALLACE.

Courses for Advanced Undergraduates and Graduates

Bact. 8. Food and Applied Bacteriology.—*Prerequisite:* Bact. 5a and 5b; junior standing; consent of the instructor.

5	Lect.	8	MW	229 N.H.	TANNER
	Lab.	8–10	TTS	367 Chem.	CLARK, BEAMER

Bact. 10. Epidemiology.—*Prerequisite:* Bact. 5a, or 20; junior standing; consent of the instructor.

2	Lect.	11	TT	300 Chem.	WALLACE

Courses for Graduates

Bact. 107. Research.—(½ to 4 units).* Arrange. Professor TANNER.

Bact. 118b. Current Literature.—Required of all graduate students majoring in general bacteriology. *Prerequisite:* 10 hours of bacteriology; consent of instructor. (¼ unit). 9 M; 366 Chem. Professor TANNER

BOTANY

Note: Certain courses in this department require laboratory fees varying from $1.00 to $6.00.

Major: 20 hours of botany exclusive of Bot. 1 and 5, and inclusive of Bot. 2 or 12, 3, and at least five hours in courses listed for advanced undergraduates and graduates.

Minors: 20 hours in one or two departments chosen in consultation with the head of the department from the following list: agronomy, bacteriology, chemistry, entomology, geology, horticulture, mathematics, physics, physiology, and zoology. At least eight hours must be offered in each department, if two are chosen.

Courses for Undergraduates

Bot. 1a. Introductory Botany (Cultural Course).—The relation of the plant world to the physical and animal worlds. The progressive development of the plant world and its evolutional significance; its part in the formation of soils, the production of food, and the maintenance of life. Lectures, demonstrational quiz, one or two field trips. Designed to accompany Bot. 1b, but may be elected without it.

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect.	9	TT	228 N.H.	HOTTES, BUCHHOLZ, STEVENS, FULLER, and others
	Discussion sections for students taking Bot. 1a only.				
[1]Seniors will receive only 2 hours credit.	Disc. 1	8	Tu	258 N.H.	
	Disc. 2	10	Tu	258 N.H.	
	Disc. 4	1	Tu	258 N.H.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Bot. 1a. Introductory Botany (Cultural Course) (concluded)

Discussion sections for students taking both Bot. 1a and 1b.

Credit	Section	Hours	Days	Room	Instructor
	Disc. 3	11	Tu	258 N.H.	
	Disc. 5	1	Tu	349 N.H.	
	Disc. 6	2	Tu	258 N.H.	
	Disc. 7	8	Tu	350 N.H.	
	Disc. 8	10	Th	258 N.H	

Bot. 1b. Introductory Botany (Laboratory).—Morphology, physiology, and ecology of representative groups of the plant world. *Prerequisite:* Bot. 1a or concurrent registration therein.

2	A Lab.	8–10	MW	258 N.H.	FULLER and
	B Lab.	10–12	MW	258 N.H.	assistants
	C Lab.	1–3	MW	258 N.H.	

Bot. 5. Botany for Students in Agriculture.—

3[1]	Lect.	8	Th	228 N.H.	HOTTES, BUCHHOLZ,
[1]Seniors will receive	A Lab.	10–12	TT	259 N.H.	STEVENS, FULLER,
only 2 hours credit.	B Lab.	1–3	TT	259 N.H.	and assistants

Bot. 6. Introductory Systematic Botany.—Classification and identification of flowering plants, with special reference to local flora, and needs of high school teachers. Occasional field trips required; expenses about $2.50. *Prerequisite:* Bot. 1a and 1b, or 5.

3	Lect.	10	Th	229 N.H.	FULLER and
	Lab.	10–12	Tu	349 and 350 N.H.	assistants
		11–12	Th	349 and 350 N.H.	

Bot. 8. Forest Ecology.—*Prerequisite:* Bot. 1a and 1b, or 5.

3		1–4	TT	216 N.H.	BUCHHOLZ

Bot. 12. Morphology of Vascular Plants.—*Prerequisite:* Bot. 1a and 1b, or 5.

3	A	1–3	MWF	204 Entom.	HAGUE

Bot. 13. Plant Physiology: Growth and Response.—*Prerequisite:* Bot. 1a and 1b, or 5.

3	Lect.	10	W	229 N.H.	FULLER and
	Lab.	10–12	MF	153 N.H.	assistant

Courses for Advanced Undergraduates

Bot. 14. Botany for Teachers.—*Prerequisite:* 15 hours of botany.

3		11	TT	216 N.H.	BUCHHOLZ
		One additional hour to be arranged			

Bot. 90b. Thesis Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

Bot. 91b. Honors Course.—*Prerequisite:* 15 hours of botany and senior standing. (2). Arrange.

Courses for Advanced Undergraduates and Graduates

Bot. 34. Physiology.—*Prerequisite:* One year of botany inclusive of Bot. 3; junior standing.

3 or 5*	A	1–3	MWF	155 N.H.	HOTTES and assistant

Bot. 41. Algae and Bryophytes.—(Students registering for 5 hours will choose the additional work in algae or bryophytes.) *Prerequisite:* Bot. 1a and 1b; junior standing.

3 or 5*	A	10–12	MWF	204 Entom.	HAGUE

Bot. 44. Spermatophytes.—*Prerequisite:* One year of botany inclusive of Bot. 12; junior standing.

3 or 5*	A	8–10	MWF	201 Entom.	BUCHHOLZ

Bot. 79. Research Methods in Plant Pathology.—Credit above 3 hours will involve not less than 2 weeks field work. Expenses about $50. The additional credit may be earned either concurrently or subsequent to the regular course. *Prerequisite:* Bot. 7; junior standing.

3 or 5*	Lect.	To be arranged			STEVENS
	Lab.	10–12	TT	304 N.H.	

Bot. 88. Ecology: Plant Communities.—*Prerequisite:* One year of botany inclusive of Bot. 8 or 81; junior standing.

3 or 5*	A	10–12	MWF	216 N.H.	STEVENS
		Field study on two or three Saturdays.			

Courses for Graduates

Bot. 110. Botanical Discussion.—Required of all graduate students in botany and members of the instructional staff. (No credit). 4 Tu; 258 N.H.

Bot. 112. Discussions in Plant Morphology.—(¼ unit). 4 F; 205 Entom. Professor BUCHHOLZ.

Bot. 113. Discussions in Physiology.—(¼ unit). 4 Th; 155 N.H. Professor HOTTES.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Bot. 117. Discussions in Pathology and Mycology.—(¼ unit). 4 W; 304 N.H. Professor STEVENS.

Bot. 118. Discussions in Ecology.—(¼ unit). 4 M; 204 N.H.

Research Courses

Bot. 120. Morphology.—(½ to 2 units).* (Botany 112 to be taken concurrently.) One hour on either W or F, from 1 to 3, the rest to be arranged; 201 Entom. Professor BUCHHOLZ.

Bot. 130. Physiology.—(½ to 2 units).* (Botany 113 to be taken concurrently.) One hour on M, W, or F, from 1 to 3, the rest to be arranged; Botany Annex. Professor HOTTES.

Bot. 170. Pathology or Mycology.—(½ to 2 units).* (Botany 117 to be taken concurrently.) One hour on either M or W, from 2 to 4, the rest to be arranged; 304 N.H. Professor STEVENS.

Bot. 180. Plant Ecology or Geography.—(½ to 2 units).* (Botany 118 to be taken concurrently.) Conf., 1 M or 10 Tu, the rest to be arranged; 204 N.H. Professor STEVENS.

BUSINESS ORGANIZATION AND OPERATION

(Including Accountancy and Business Law)

A. ACCOUNTANCY

Courses for Undergraduates

Accy. 1a. Principles of Accounting.—Beginners' course. (Students who present one unit of bookkeeping for entrance will not be allowed credit in Accy. 1a and should register in Accy. 1e.)

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8	MWF	223 Com.	GAA
	J	8	TTS	115 Com.	
[1]Seniors will receive only 2 hours credit. Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above.	B	9	MWF	219 Com.	GAA
	K	9	TTS	325 Com.	GAA
	L	10	TTS	325 Com.	GAA
	D	11	MWF	223 Com.	GAA
	M1	11	TTS	113 Com.	KARRENBROCK
	M2	11	TTS	111 Com.	HIGGINBOTHAM
	F1	2	MWF	115 Com.	
	F2	2	MWF	119 Com.	
	G1	3	MWF	115 Com.	
	G2	3	MWF	119 Com.	

Accy. 1b. Accounting Procedure.—A continuation of Accy. 1a. (Credit is given for Accy. 1a without Accy. 1b.) *Prerequisite:* Accy. 1a or 1e.

3[1]	A	8	MWF	306 Com.	SLATER
	J1	8	TTS	312 Com.	HUFF
[1]Seniors will receive only 2 hours credit.	J2	8	TTS	223 Com.	KIRKHAM
	J3	8	TTS	307 Com.	SLATER
	B1	9	MWF	306 Com.	SLATER
	B2	9	MWF	122 Com.	BREEN
	K1	9	TTS	223 Com.	KIRKHAM
	K2	9	TTS	312 Com.	HUFF
	K3	9	TTS	307 Com.	SLATER
	C	10	MWF	122 Com.	BAILY
	L	10	TTS	322 Com.	GRIFFITH
	D1	11	MWF	122 Com.	BAILY
	D2	11	MWF	125 Com.	SLATER
	M	11	TTS	322 Com.	GRIFFITH
	F1	2	MWF	122 Com.	BREEN
	F2	2	MWF	312 Com.	SECOY
	F3	2	MWF	125 Com.	THOMAS
	G1	3	MWF	122 Com.	BREEN
	G2	3	MWF	312 Com.	SECOY
	G3	3	MWF	125 Com.	THOMAS
	G4	3	MWF	123 Com.	GRIFFITH

Accy. 1e. Principles of Accounting.—Similar to Accy. 1a. (Students who have one unit entrance credit in bookkeeping must take this course rather than Accy. 1a.) *Prerequisite:* One unit of entrance credit in bookkeeping.

2[1]	J	8	TT	113 Com.	KESSLER
[1]Seniors will receive only 1 hour credit. Students who have failed in Accy. 1a may register in Accy. 1e and will receive 3 hours credit if their final grade is "C" or above.	K	9	TT	113 Com.	KESSLER
	L	10	TT	113 Com.	THEISS
	M	11	TT	125 Com.	KESSLER

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Accy. 2a. Elementary Cost Accounting.—*Prerequisite:* Accy. 1b; registration or credit in Econ. 1.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	113 Com.	Kessler
	J	8	TTS	322 Com.	Moyer
	K	9	TTS	322 Com.	Moyer
	C	10	MWF	305 Com.	McMahan
	D	11	MWF	305 Com.	McMahan

Accy. 2b. Intermediate Accounting.—*Prerequisite:* Accy. 2a.

3	A1	8	MWF	125 Com.	Karrenbrock
	A2	8	MWF	123 Com.	Hackett
	J	8	TTS	119 Com.	Higginbotham
	B1	9	MWF	125 Com.	Karrenbrock
	B2	9	MWF	119 Com.	Newcomer
	K	9	TTS	119 Com.	Higginbotham
	C1	10	MWF	113 Com.	Moyer
	C2	10	MWF	119 Com.	Hackett
	D1	11	MWF	119 Com.	Hackett
	D2	11	MWF	113 Com.	Moyer
	F1	2	MWF	113 Com.	Newcomer
	F2	2	MWF	108 Com.	Hackett
	G	3	MWF	113 Com.	Newcomer

Courses for Advanced Undergraduates

Accy. 12. Fundamentals of Accounting.—A survey course for non-commerce students only. *Prerequisite:* Junior standing

3	D	11	MWF	308 Adm.(E)	Karrenbrock

Accy. 90b. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis as part of the requirement.

2 to 4*	To be arranged	Littleton and others

Accy. 91b. Independent Study.—Seniors registered in the College of Commerce and Business Administration who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this department or sixteen semester hours if divided between this department and any other department. This course may be elected by candidates for high honors in lieu of a thesis.

3 to 5*	To be arranged	Littleton and others

Courses for Advanced Undergraduates and Graduates

Accy. 3a. Advanced Accounting.—*Prerequisite:* Accy. 2a-2b; Econ. 3; an average of "C" or better in Accy. 1 and 2.

3	C	10	MWF	111 Com.	Littleton
	D	11	MWF	111 Com.	Newcomer

Accy. 3b. Auditing.—*Prerequisite:* Accy. 3a.

3	A	8	MWF	115 Com.	Filbey
	B	9	MWF	115 Com.	Filbey
	C	10	MWF	115 Com.	Theiss
	D	11	MWF	115 Com.	Theiss

Accy. 4a. Cost Accounting.—*Prerequisite:* Accy. 2a.

2	K	9	TT	219 Com.	Schlatter
	L	10	TT	219 Com.	Schlatter

Accy. 4b. Accounting Systems.—*Prerequisite:* Accy. 2a-2b; Econ. 3.

2	J	8	TT	111 Com.	Baily
	K	9	TT	111 Com.	Baily

Accy. 5b. C.P.A. Problems.—*Prerequisite:* Accy. 5a.

3	C	10	MWF	317 Com.	Scovill
	D	11	MWF	317 Com.	Scovill

Accy. 13. Governmental Accounting.—*Prerequisite:* Accy. 3a.

2	O	2	TT	125 Com.	Hackett

Accy. 20. Income Tax Procedure.—*Prerequisite:* Senior standing; registration or credit in Accy. 3b.

2	J	8	TT	317 Com.	Filbey
	K	9	TT	317 Com.	Filbey
	M	11	TT	317 Com.	Filbey

Accy. 30. Budgets and Accounting Control.—*Prerequisite:* Accy. 2b.

3	F	2	MWF	119 Com.	Theiss

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

Accy. 103. Advanced Theory.—(1 unit). 3-5 Tu; 209 Com. Professor LITTLETON.

Accy. 104. Accounting Systems.—(1 unit). 10-12 S; 209 Com. Professor SCOVILL.

Accy. 106. Cost Accounting.—(1 unit). Arrange. Professor SCHLATTER.

Accy. 113. Governmental Accounting.—(1 unit). Arrange. Professor MOREY.

Accy. 129. Thesis.—(1 unit). 4-6 W; 420 Com. Professor LITTLETON and members of the staff.

B. BUSINESS ORGANIZATION AND OPERATION

Courses for Undergraduates

B.O.O. 1. Industrial Organization and Management.—*Prerequisite:* Econ. 1 or 2; 45 credit hours. Junior and senior engineering students admitted with consent of instructor.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	307 Com.	MANDEVILLE
	J	8	TTS	106 Com.	JONES
	B	9	MWF	307 Com.	MANDEVILLE
	K1	9	TTS	108 Com.	MANDEVILLE
	K2	9	TTS	106 Com.	JONES
	C	10	MWF	306 Com.	ANDERSON
	L1	10	TTS	108 Com.	MANDEVILLE
	L2	10	TTS	119 Com.	
	D	11	MWF	306 Com.	ANDERSON
	M1	11	TTS	106 Com.	JONES
	M2	11	TTS	108 Com.	
	F1	2	MWF	305 Com.	
	F2	2	MWF	310 Com.	ANDERSON
	G	3	MWF	108 Com.	

B.O.O. 2. Marketing Organization and Operation.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	A	8	MWF	325 Com.	JONES
[1]Section F is for those who do not expect to take advanced work in marketing.	B	9	MWF	325 Com.	JONES
	C	10	MWF	307 Com.	CONVERSE
	D	11	MWF	307 Com.	CONVERSE
	[1]F	2	MWF	307 Com.	CONVERSE
	G	3	MWF	307 Com.	HUEGY

B.O.O. 12b. Typewriting.—A continuation of B.O.O. 12a, being a course for beginners who intend to apply their knowledge later in teaching the subject. Required of all students in the Curriculum in Commercial Teaching in the College of Commerce and Business Administration. To be taken concurrently with B.O.O. 13b. *Prerequisite:* Junior standing; satisfactory completion of B.O.O. 12a; credit or concurrent registration in Education 10 and 25 (No University credit allowed)

H 4 MTWTF 204 U.H.S. HAGAN

B.O.O. 13b. Shorthand.—A continuation of B.O.O. 13a, being a course for beginners who intend to apply their knowledge later in teaching the subject. Required of all students in the Curriculum in Commercial Teaching in the College of Commerce and Business Administration. To be taken concurrently with B.O.O. 12b. *Prerequisite:* Junior standing; satisfactory completion of B.O.O. 13a; credit or concurrent registration in Education 10 and 25. (No University credit allowed).

G 3 MTWTF 214 U.H.S. HAGAN

B.O.O. 24. Purchasing.—Organization and operation of the purchasing department, basic materials, substitutes, imitations, sources of supply, catalogs, terms and discounts, relation to salesmen. *Prerequisite:* B.O.O. 1; junior standing.

2 J 8 TT 308 Adm.(E) EDWARDS

B.O.O. 90b. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis as part of the requirement.

2 to 4* To be arranged HUEGY and others

B.O.O. 91b. Independent Study.—Seniors registered in the College of Commerce and Business Administration who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this department or sixteen semester hours if divided between this department and any other department. This course may be elected by candidates for high honors in lieu of a thesis.

3 to 5* To be arranged HUEGY and others

Courses for Advanced Undergraduates and Graduates

B.O.O. 3. Retail and Chain Store Organization and Operation.—*Prerequisite:* B.O.O. 2.

3	A	8	MWF	126 Com.	WHITLO
	C	10	MWF	126 Com.	WHITLO

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

B.O.O. 7. Salesmanship.—*Prerequisite:* B.O.O. 2.

Credit	Section	Hours	Days	Room	Instructor
2	J	8	TT	325 Com.	Beach
	K	9	TT	126 Com.	Beach
	M	11	TT	306 Com.	Beach
	O	2	TT	306 Com.	Beach
	P	3	TT	306 Com.	Beach

B.O.O. 8. Advertising.—*Prerequisite:* B.O.O. 2.

3	A	8	MWF	119 Com.	Heslip
	C	10	MWF	224 Com.	Heslip
	D	11	MWF	224 Com.	Heslip
	F	2	MWF	325 Com.	Whitlo
	G	3	MWF	325 Com.	Whitlo

B.O.O. 9. Trade Associations and Commercial Organizations.—*Prerequisite:* B.O.O. 2; senior standing.

2	M	11	TT	219 Com.	Bruce

B.O.O. 14. The Technique of Executive Control.—*Prerequisite:* B.O.O. 1.

3	A	8	MWF	310 Com.	Anderson

B.O.O. 17. Problems in Sales Administration.—*Prerequisite:* B.O.O. 7.

2	M	11	TT	325 Com.	Heslip

B.O.O. 18. Advertising Campaigns.—*Prerequisite:* B.O.O. 8.

3	A	8	MWF	317 Com.	Russell
	B	9	MWF	317 Com.	Russell

B.O.O. 20. Credits and Collections.—*Prerequisite:* B.O.O. 2; junior standing.

3	D	11	MWF	326 Com.	Huegy
	F	2	MWF	326 Com.	Huegy

B.O.O. 22. Marketing Research and Policies.—*Prerequisite:* B.O.O. 2.

3	A	8	MWF	305 Com.	Converse

Courses for Graduates

B.O.O. 102. Marketing Research and Policies.—(1 unit). Arrange. Professor Converse.

B.O.O. 104. Scientific Management.—(1 unit). Arrange. Professor Anderson.

B.O.O. 107. Sales Campaigns.—(1 unit). Arrange. Professor Russell.

B.O.O. 129. Thesis.—(1 unit). Arrange. Professor Russell and others.

C. BUSINESS LAW

Courses for Undergraduates

Bus. Law 1a. General Principles of Business Law.—*Prerequisite:* 60 hours of university credit, including Accy. 1b and Econ. 1.

3	A	8	MWF	219 Com.	Roberts
	C	10	MWF	108 Com.	Jeanblanc
	L	10	TTS	219 Com.	Jeanblanc
	D	11	MWF	101 Com.	Jeanblanc

Bus. Law 1b. General Principles of Business Law.—*Prerequisite:* Bus. Law 1a.

3	A	8	MWF	224 Com.	Curtis
	B1	9	MWF	113 Com.	Roberts
	B2	9	MWF	222 Com.	Curtis
	K	9	TTS	115 Com.	Roberts
	L	10	TTS	115 Com.	Roberts
	D	11	MWF	310 Com.	Curtis
	E	1	MWF	223 Com.	Dillavou
	F	2	MWF	223 Com.	Dillavou

Bus. Law 2. Elementary Law of Business.—This course is offered exclusively for non-commerce students. *Prerequisite:* Junior standing.

3	F	2	MWF	126 Com.	Curtis

Courses for Advanced Undergraduates and Graduates

Bus. Law 10. Law of Security Relations and Banking.—*Prerequisite:* Senior standing and registration or credit in Bus. Law 1b.

3	B	9	MWF	223 Com.	Dillavou
	C	10	MWF	223 Com.	Dillavou

D. BUSINESS ENGLISH

(See Rhetoric 10, 21, and 22 under English Department.)

CERAMIC ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2.00 to $12.50.

Courses for Undergraduates

Cer.E. 4. Ceramic Materials.—*Prerequisite:* Cer.E. 1.

Credit	Section	Hours	Days	Room	Instructor
3	A	1	Th	218 Cer.	
		1–3	MWF	113 Cer.	
	B	1	Tu	218 Cer.	
		10–12	MWF	113 Cer.	

Cer.E. 8. Glass Technology.—*Prerequisite:* Chem. 40; Cer.E. 14.

2	A	4	TT	214 Cer.

Cer.E. 10. Cements.—*Prerequisite:* Chem. 40; registration in Cer.E. 28.

2	A	10	MW	214 Cer.

Cer.E. 11. Drying Clay Products.—*Prerequisite:* Physics 1a-1b, 3a-3b; Cer.E. 1.

3	A	11	MWF	218 Cer.
	B	9	MWF	218 Cer.

Cer.E. 14. Glasses and Glazes.—*Prerequisite:* Cer.E. 5; registration in Chem. 40.

3	AB	11	TT	218 Cer.
	A	8–11	TT	113, 114 Cer.
	B	2–5	TT	113, 114 Cer.

Cer.E. 16. Enamels.—*Prerequisite:* Registration in Cer.E. 14.

3	A	4	MWF	218 Cer.
	B	4	MWTh	218 Cer.

Cer.E. 20. Refractory Materials.—*Prerequisite:* Chem. 40.

2	A	9	MW	214 Cer.

Cer.E. 21. Pyrometry.—*Prerequisite:* General physics; inorganic chemistry.

1	A	8	W	218 Cer.

Cer.E. 24. Ceramic Engineering Design.—*Prerequisite:* Cer.E. 23; T.A.M. 3.

3	A	2–5	MWF	214 Cer.

Cer.E. 28. Pyrochemical Problems.—*Prerequisite:* Cer.E. 14; Chem. 40.

2	A	11	TT	214 Cer.

Cer.E. 98. Thesis.—(1 to 3).* Arrange.

Courses for Graduates

Cer.E. 101. Chemistry of the Compounds of Silicon.—*Prerequisite:* Elementary courses in organic and physical chemistry. (1 unit). Arrange.

Cer.E. 102. General Technology of the Clay Industries.—*Prerequisite:* The elements of mineralogy and of physical chemistry. Lectures; seminar; laboratory. (1 or 2 units).* Arrange.

Cer.E. 104. Technology of Glass.—Lectures and laboratory. (1 or 2 units).* Arrange.

Cer.E. 105. Methods of Ceramic Research.—Lectures. (1 unit). Arrange.

Cer.E. 106. Research.—Arrange.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

CHEMISTRY

(Including Chemical Engineering)

Note: Certain courses in this department require laboratory fees varying from $2.50 to $18.00.

Students in the curricula of chemistry and chemical engineering, majors in chemistry, and all others who desire a thorough training in the fundamentals of chemistry and their applications to modern life, should select courses from the following, and usually in the sequence given: Chemistry 1 or 2, 6, 10, 24, 34a, 36b, 37b, 40, 41, 42, 43, 50a, and courses in chemical engineering, sanitary chemistry, and miscellaneous groups. Students in engineering should register for Chemistry 3 or 2, 4, 24. Students who are compelled to meet chemical requirements briefly may register for the following sequence: Chemistry 1 or 2, 5, 24, 32 or 33.

Students who find it impossible to take more than one semester's work are requested to register in Chemistry 1 or 2 in the second semester rather than in the first.

Major: 20 hours, exclusive of Chemistry 1, 2, 3, 4, 5, 6, 7, and inclusive of courses in qualitative, quantitative, and organic chemistry. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from not more than two of the following: bacteriology, botany, ceramic engineering, entomology, geology, mathematics, philosophy, physiology, physics, psychology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Note: Seniors receive reduced credit in Chemistry 1, 2, 3, 4, 5, 6, and 7.

Courses for Undergraduates

Chem. 7. General Chemistry.—Not open to students who have earned credit in high school chemistry. This course may be applied toward the science group requirements. After completing Chem. 7, a student is permitted to register in Chem. 2; or by securing special permission he may register in Chem. 4, 5, or 6.

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	10	TT	112 Chem.A.	NICHOLSON
	70 Quiz	8	MW	210 Chem.A.	
[1]Seniors will receive only 3 hours credit.	Lab.	8–10	TT	1 Chem.A.	
	71 Quiz	10	MW	103 Chem.	
	Lab.	1–3	TT	1 Chem.A.	
	72 Quiz	11	TT	308 Chem.A.	
	Lab.	10–12	MW	1 Chem.A.	

Chem. 1. Inorganic Chemistry.—*Prerequisite:* One unit of entrance credit in physics, or 2½ units of entrance credit in mathematics, or registration in Math. 2 or 3. Students may register in either lecture section but are required to take the quiz and laboratory in some one section.

5[1]	A Lect.	11	TT	112 Chem.A.	COPLEY
	B Lect.	9	TT	112 Chem.A.	HOPKINS
[1]Students who have received entrance credit for high school chemistry are given only 3 hours credit for Chem. 1. Seniors will receive only 3 hours credit.	1 Quiz	8	TT	111, 163 Chem.	
	Lab.	8–10	MWF	1 Chem.A.	
	2 Quiz	10	TT	8, 9, 210 Chem.A.	
	Lab.	10–12	MWF	1 Chem.A.	
	3 Quiz	11	MW	8, 9 Chem.A.	
	Lab.	2–5	TT	101 Chem.A.	
	4 Quiz	1	TT	9 Chem.A., 103, 301 Chem.	
	Lab.	1–3	MWF	1, 101 Chem.A.	
	5 Quiz	2	TT	8 Chem.A.	
	Lab.	10–12	MWF	101 Chem.A.	
	6 Quiz	9	MW	162, 163 Chem.	
	Lab.	3–5	MWF	101 Chem.A.	

Chem. 2. Inorganic Chemistry.—(For all students who have had one year of high school chemistry.) *Prerequisite:* One unit of entrance credit in chemistry. *Note:* Students whose preparation in Chemistry is inadequate are advised to register for Chem. 1 or Chem. 3, rather than Chem. 2.

3[1]	C Lect.	9	W	217 Chem.	AUDRIETH
	D Lect.	11	W	112 Chem.A.	AUDRIETH
[1]Students who have received credit in Chem. 7 and seniors will receive only 2 hours credit in Chem. 2. Students below the rank of senior receive 5 hours credit, provided their high school chemistry has not been used for entrance and their final grade in Chem. 2 is "C" or above.	20 Quiz	3	MW	9 Chem.A.	
	Lab.	3–5	Tu	1 Chem.A.	
	21 Quiz	8	TT	303 Chem.	
	Lab.	8–10	S	201 Chem.A.	
	22 Quiz	9	TT	300, 301 Chem.	
	Lab.	8–10	F	1 Chem.A.	
	23 Quiz	2	TT	210, 9 Chem.A.	
	Lab.	3–5	Tu	1 Chem.A.	
	24 Quiz	10	MW	8 Chem.A., 204 Chem.	
	Lab.	10–12	Th	101 Chem.A.	
	25 Quiz	10	TT	204, 111 Chem.	
	Lab.	10–12	M	212 Chem.A.	
	26 Quiz	11	MF	301 Chem.	
	Lab.	3–5	W	212 Chem.A.	
	27 Quiz	11	TT	8 Chem.A., 103 Chem.	
	Lab.	10–12	F	212 Chem.A.	
	28 Quiz	11	MF	163 Chem., 210 Chem.A.	
	Lab.	10–12	Tu	201 Chem.A.	
	29 Quiz	11	MF	201 Chem.	
	Lab.	10–12	Th	101 Chem.A.	

Chem. 3. Inorganic Chemistry.—(For engineering students who have had no chemistry.) *Note:* Students who have credit for high school chemistry should register for Chem. 2.

Credit	Section	Hours	Days	Room	Instructor
4[1]	A Lect.	11	TT	112 Chem.A.	COPLEY
[1]Students who have	B Lect.	9	TT	112 Chem.A.	HOPKINS
used their high school	81 Quiz	10	TT	308 Chem.A., 161 Chem.	
chemistry for entrance	Lab.	3–5	MF	1, 212 Chem.A.	

credit are given only 3 hours credit for Chem. 3. Seniors will receive only 3 hours credit.

Chem. 4. Chemistry of the Metallic Elements.—(Limited to students in the engineering curricula.) *Prerequisite:* Chem. 1, 2, or 3.

4[1]	E Lect.	10	MF	100 Chem.	NICHOLSON
	F Lect.	11	MF	100 Chem.	BAILAR
[1]Seniors will receive	90 Quiz	8	MW	9, 308 Chem.A.	
only 3 hours credit.	Lab.	1–3	MF	1 Chem.A.	
	91 Quiz	9	MW	103 Chem.	
	Lab.	1–3	TT	1 Chem.A.	
	92 Quiz	10	TT	103 Chem.	
	Lab.	8–10	TT	1 Chem.A.	
	93 Quiz	9	TT	9 Chem.A.	
	Lab.	1–3	TT	1 Chem.A.	
	94 Quiz	11	TT	303 Chem.	
	Lab.	8–10	MW	1 Chem.A.	
	95 Quiz	8	TT	201 Chem., 308 Chem.A.	
	Lab.	10–12	TT	1 Chem.A.	
	96 Quiz	11	MW	103 Chem.	
	Lab.	1–3	MF	1 Chem.A.	
	97 Quiz	8	MW	8 Chem.A., 300 Chem.	
	Lab.	3–5	MF	1 Chem.A.	
	98 Quiz	1	TT	303 Chem.	
	Lab.	3–5	MF	1 Chem.A.	
	99 Quiz	2	MW	210 Chem.A.	
	Lab.	3–5	TT	1 Chem.A.	

Chem. 5. Inorganic Chemistry and Qualitative Analysis.—(For all second semester students who are not eligible for Chem. 4 or Chem. 6.) *Prerequisite:* Chem. 1, 2, or 3.

5[1]	G Lect.	9	TT	100 Chem.	COPLEY
	H Lect.	11	TT	100 Chem.	REED
[1]Seniors will receive	50 Quiz	2	MW	111, 301 Chem.	
only 3 hours credit.	Lab.	{3–5	TT	201 Chem.A.	
		{9–11	S	201 Chem.A.	
	51 Quiz	3	TT	9, 8, 210 Chem.A.	
	Lab.	3–5	MWF	201, 212 Chem.A.	
	52 Quiz	2	MW	8, 9 Chem.A.	
	Lab.	3–5	MWF	201 Chem.A.	
	53 Quiz	2	MW	201, 204 Chem.	
	Lab.	10–12	MWF	201 Chem.A.	
	54 Quiz	11	TT	116 Chem.	
	Lab.	1–3	MWF	201 Chem.A.	
	55 Quiz	1	TT	201, 204, 300 Chem.	
	Lab.	1–3	MWF	201 Chem.A.	
	56 Quiz	8	TT	204, 300, 301 Chem.	
	Lab.	8–10	MWF	201 Chem.A.	
	57 Quiz	9	MW	201 Chem., 9 Chem.A.	
	Lab.	10–12	MWF	201 Chem.A.	
	58 Quiz	9	MW	8, 210 Chem.A.	
	Lab.	1–4	TT	201 Chem.A.	
[2]Sections 55h and 56h	[2]55h Quiz	1	TT	116 Chem., 8 Chem.A.	
are for home econom-	Lab.	1–3	MWF	212 Chem.A.	
ics students only.	[2]56h Quiz	8	TT	8, 9 Chem.A., 103 Chem.	
	Lab.	8–10	MWF	201, 212 Chem.A.	

Chem. 6. Inorganic Chemistry.—(Limited to students in the curricula of chemistry, chemical engineering, ceramics and ceramic engineering, and chemistry majors who are not pre-medics.) *Prerequisite:* Chem. 1, 2, or 3.

5[1]	Lect.	10	TT	100 Chem.	AUDRIETH
	61 Quiz	11	TT	204, 301 Chem.	
	Lab.	3–5	MWF	101 Chem.A.	
[1]Seniors will receive	62 Quiz	1	TT	210, 308 Chem.A.	
only 3 hours credit.	Lab.	1–3	MWF	101 Chem.A.	
	63 Quiz	8	TT	210 Chem.A.	
	Lab.	8–10	MWF	101 Chem.A.	
	64 Quiz	11	TT	210, 9 Chem.A., 201 Chem.	
	Lab.	10–12	MWF	101 Chem.A.	
	65 Quiz	9	TT	210, 308 Chem.A., 103 Chem.	
	Lab.	8–10	MWF	101 Chem.A.	
	66 Quiz	10	MW	116, 201 Chem.	
	Lab.	2–5	TT	101 Chem.A.	

Chem. 10. Qualitative Analysis.—(Required of students majoring in chemistry and of those registered in the curriculum of chemistry or of chemical engineering.) *Prerequisite:* Chem. 6.

Credit	Section	Hours	Days	Room	Instructor
5	Lect.	8	F	112 Chem.A.	Reedy
	1 Quiz	8	MW	111, 116 Chem.	
	Lab.	1–4	MWF	310 Chem.A.	
	2 Quiz	8	MW	301 Chem.	
	Lab.	1–4	TT	310 Chem.A.	
		8–11	S	310 Chem.A.	

Chem. 12b. Teachers' Course.—*Prerequisite:* 13 hours of chemistry and senior standing. Open to students who expect to teach.

3	Lect.	8	TT	116 Chem.	Parr
	Practice teaching to be arranged				

Chem. 22. Elementary Quantitative Analysis.—*Prerequisite:* Chem. 4 or 5 (for students in home economics and premedical courses, and all others who have not followed the sequence Chem. 1, 2 or 3, 6 and 10).

5	Lect.	11	M	112 Chem.A.	Englis
	A Quiz	11	WF	111 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	11	WF	300 Chem.	
	Lab.	1–5:30	TT	301 Chem.A.	
	C Quiz	11	WF	162 Chem.	
	Lab.	8–11	TTS	301 Chem.A.	

Chem. 23b. Quantitative Analysis.—(For students in ceramics and ceramic engineering only.) *Prerequisite:* Chem. 10.

4	Lect.	9	W	100 Chem.	Clark
	Quiz	9	MF	300 Chem.	
	Lab.	8–11	TT	301 Chem.A.	

Chem. 24. Quantitative Analysis.—(Regular course for all students other than those specified for Chem. 22 and 23b.) *Prerequisite:* Chem. 10.

5	Lect.	9	W	100 Chem.	Clark
	A Quiz	9	MF	303, 111 Chem.	
	Lab.	1–4	MWF	301 Chem.A.	
	B Quiz	9	MF	116, 204 Chem.	
	Lab.	1–4	TT	301 Chem.A.	
		8–11	S	301 Chem.A.	
	C Quiz	9	MF	308 Chem.A.	
	Lab.	8–11	TTS	301 Chem.A.	
	D Quiz	9	MF	301 Chem.	
	Lab.	1–5:30	TT	301 Chem.A.	

Chem. 32. Elementary Organic Chemistry.—(Especially for students in agriculture.) *Prerequisite:* Chem. 5 or 10.

3	Lect.	8	TT	161 Chem.	Fuson and assistants
	A Quiz	1	Tu	111, 163 Chem.	
	Lab.	2–5	Tu	216 Chem.	
	B Quiz	1	Th	161 Chem.	
	Lab.	2–5	Th	218 Chem.	

Chem. 33. Elementary Organic Chemistry.—(For students in home economics and pre-medical courses.) *Prerequisite:* Chem. 10 or 5.

5	Lect.	8	MW	100 Chem.	Shriner
	Quiz	8	F	100, 111 Chem.	
	Quiz section assignments will be made by the instructor after registration is complete.			161, 163 Chem.	
				204, 300 Chem.	
				303, 301 Chem.	
	A Conf.	8	Tu	217 Chem.	
	Lab.	9–11	Tu	250 Chem.	
		8–11	Th	250 Chem.	
[1]Section B is limited to 20 students.	[1]B Conf.	1	Tu	217 Chem.	
	Lab.	2–4	Tu	250 Chem.	
		1–4	Th	250 Chem.	
[2]Section C is limited to 24 students.	[2]C Conf.	1	M	217 Chem.	
	Lab.	2–4	M	218 Chem.	
		1–4	W	218 Chem.	

Chem. 90b. Thesis.—Each student who desires research must receive special permission both from the instructor under whom he is to work and from the head of the division in which the research is to be taken. Such written permission should be presented, at the time of registration, to the adviser for the chemists or chemical engineers. *Prerequisite:* Chem. 24, 34a, 40, 41, 42, and 43, or the consent of the head of the department. (3 to 5).* Professor Adams (in charge).

Chem. 91b. Elements of Glass-blowing.—*Prerequisite:* Two years work in chemistry.

1	To be arranged				Anders

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Chem. 25b. A Survey of Analytical Chemistry.—(For advanced undergraduate and graduate students requiring further training and review in analytical chemistry.) *Prerequisite:* Senior standing or consent of the instructor.

Credit	Section	Hours	Days	Room	Instructor
3	Lect. and Disc.	11	MWF	116 Chem.	Reedy

Chem. 27. Special Methods and Instruments in Quantitative Analysis.—*Prerequisite:* Chem. 24, 34a, 40, and 41 or registration in 40 and 41.

3	Lect.	11	Tu	111 Chem.	Smith
	A Lab.	1–4	TT	305 Chem.	
	B Lab.	1–4	WF	305 Chem.	

Chem. 29b. Food Analysis.—*Prerequisite:* Chem. 24 and 33 or 34a.

5	Lect.	9	TT	201 Chem.	Englis
	Quiz	1	M	301 Chem.	
	Lab.	2–4	M	305a Chem.	
		1–4	WF	305a Chem.	

Chem. 36b. Organic Chemistry.—(Second course). *Prerequisite:* Chem. 34a.

3	Lect.	9	MWF	112 Chem.A.	Marvel

Chem. 37b. Organic Chemistry.—(Laboratory). (Second course). To accompany Chem. 36b. *Prerequisite:* Chem. 34a, and 36b or registration in 36b.

2	A Conf.	1	W	217 Chem.	Fuson
	A Lab.	1–4	M	250 Chem.	
		2–4	W	250 Chem.	
	B Conf.	1	Th	217 Chem.	
(Section B is limited to 60 students.)	B Lab.	1–4	Tu	218 Chem.	
		2–4	Th	218 Chem.	

Chem. 40. Elementary Physical Chemistry.—*Prerequisite:* Chem. 24; Physics 1a-1b or 7a-7b; Math. 7 or 8.

3	Lect.	10	MWF	112 Chem.A.	Rodebush

Chem. 41. Elementary Physical Chemistry.—(Laboratory). To accompany Chem. 40.

1	A Lab.	1–4	Tu	124 Chem.	Phipps and assistants
	B Lab.	1–4	Th	124 Chem.	
	C Lab.	1–4	F	124 Chem.	

Chem. 42. Elementary Physical Chemistry.—*Prerequisite:* Chem. 40.

3	A Lect.	8	TTS	112 Chem.A.	Phipps
	B Lect.	8	MWF	217 Chem.	Seifert

Chem. 43. Elementary Physical Chemistry.—(Laboratory). *Prerequisite:* Chem. 40, 41, and registration in 42.

1	A Lab.	1–4	M	124 Chem.	Phipps and assistants
	B Lab.	1–4	Tu	124 Chem.	
	C Lab.	1–4	W	124 Chem.	
	D Lab.	1–4	Th	124 Chem.	
	E Lab.	1–4	F	124 Chem.	

Chem. 44b. Advanced Physical Chemistry.—*Prerequisite:* Chem. 40 and 41.

2	Lect.	10	TT	116 Chem.	Rodebush

Chem. 49b. Chemistry of Colloids.—*Prerequisite:* Chem. 24 and 40 or consent of the instructor.

3	Lect.	10	MWF	161 Chem.	Buswell and assistant

Chem. 51b. Biochemistry. Problems of Metabolism.—*Prerequisite:* Chem. 50a.

3	Lect.	11	M	111 Chem.	Carter and assistants
	Lab.	1–4	TT	450 Chem.	

Chem. 61b. Principles of Chemical Engineering.—*Prerequisite:* Chem. 61a.

4	Lect.	9	MWF	161 Chem.	Comings
	A Lab.	1–6	M	50 Chem.	Comings and Johnstone
	B Lab.	1–6	Tu	50 Chem.	Comings and Johnstone
	C Lab.	1–6	W	50 Chem.	Comings and Johnstone
	D Lab.	1–6	Th	50 Chem.	Comings and Johnstone

Chem. 62b. Economics of Chemical Engineering.—*Prerequisite:* Senior standing in chemistry or chemical engineering.

2	Lect.	10	MW	111 Chem.	Keyes

Chem. 63b. Introduction to Chemical Engineering.—*Prerequisite:* Junior standing; Chem. 40.

3	Lect.	10	MWF	217 Chem.	Comings

Chem. 65b. Chemical Engineering Calculations.—*Prerequisite:* Senior standing in chemistry or chemical engineering.

3	Lect.	11	MWF	161 Chem.	Johnstone

Chem. 66. Inspection Trip.—(Required of chemical engineers.) (Estimated cost $15 to $20). *Prerequisite:* Senior standing in chemistry or chemical engineering. (No credit). Associate Professor JOHNSTONE and others.

Chem. 92b. Chemical Literature and Reference Work.—(Required of juniors in chemistry; advised for juniors who are majoring in chemistry and for students in the curriculum of chemical engineering.) *Prerequisite:* 18 hours of chemistry; one year of French or German; junior standing.

Credit	Section	Hours	Days	Room	Instructor
1	A	10	Th	201 Chem.	BARTOW
[1]Section C is for stu-	B	8	F	201 Chem.	
dents who have not	[1]C	10	Tu	201 Chem.	

had previous work in this field. This section will not be given unless there are 20 registrants.

Courses for Graduates

Graduate students whose major subject is in some department other than chemistry must have had the equivalent of 15 university credits in chemistry, and the ground covered should include satisfactory work in general chemistry and in qualitative and quantitative analysis and elementary organic chemistry. Such students are advised to make selections from the following courses: Chemistry 40, 41, 42, 43, 27, 34a, 36b, 37b, 50a, 15a, and 29b. Courses of a more special nature will not, as a rule, be accepted for graduate work unless preceded by one of the courses above. Graduate students who are candidates for an advanced degree in chemistry must have had the equivalent of 25 university credits in chemistry, properly distributed.

Graduate students whose major subject is in some department other than chemistry and who intend to take a first minor in chemistry or any branch of chemistry toward the Ph.D. degree must include among the courses taken Chemistry 40 and 41, or must have had the equivalent.

Graduate students who are candidates for the A.M. or M.S. degree in chemistry or in chemical engineering must include in the courses taken Chemistry 40 and 41, or must have had the equivalent. Graduate students who are candidates for the Ph.D. degree in any branch of chemistry or in chemical engineering must include among their courses Chemistry 40, 41, 42, and 43, or must have had the equivalent. Those courses (with the exception of Chemistry 12b) listed under the heading "Advanced Undergraduate and Graduate Courses" may be all counted toward advanced degrees in chemistry.

Chem. 101b. Inorganic Chemistry.—The less familiar elements and their relationship in the periodic system. (½ unit). (For laboratory work see Chem. 102b). 8 MW; 303 Chem. Professor HOPKINS.

Chem. 102b. Inorganic Chemistry.—Inorganic preparations and qualitative analysis of the less familiar elements. (Laboratory work to accompany or follow Chem. 101b.) (¼ to ¾ unit).* Arrange. Professor HOPKINS.

Chem. 105b. Inorganic Seminar.—(¼ unit). Seminar, 4 Tu; 162 Chem. Professor HOPKINS.

Chem. 106b. Special Topics in Inorganic Chemistry.—Lectures, discussions, and reports. Chemical radicals as pseudoatoms. (¾ unit). 8 TT; 456 Chem. Dr. REED.

Chem. 124b. Quantitative Analysis.—Advanced principles, calculations, experimental methods, and applications. (For majors and minors in analytical chemistry). (½ unit). Lectures, 9 TT; 116 Chem. Associate Professor SMITH.

Chem. 124d. Quantitative Analysis.—(Laboratory work, optional, to accompany Chem. 124b.) (¼ to ¾ unit).* Arrange; 350 Chem. Associate Professor SMITH.

Chem. 125b. Analytical Chemistry.—(Seminar). Required of all students taking a major or minor in analytical chemistry. (¼ to 1 unit).* 4 Th; 162 Chem. Additional meetings to be arranged. Professor CLARK.

Chem. 127b. Applied X-rays.—(½ unit). Lectures, 10 TT; 217 Chem. Professor CLARK.

Chem. 127d. Applied X-rays.—(Laboratory work, optional, to accompany Chem. 127b.) (¼ to ½ unit).* Arrange; 308 Chem. Professor CLARK.

Chem. 133b. Organic Chemistry.—(¾ unit). 11 TT; 217 Chem. Professor ADAMS.

Chem. 134. Organic Chemistry.—Chiefly laboratory work. (½ to 1 unit).* Arrange; 219 Chem. Professor MARVEL.

Chem. 135b. Organic Chemistry.—(Seminar). (¼ unit). 11 W; 217 Chem. Professor ADAMS.

Chem. 145b. Physical Chemistry.—(Seminar). (¾ unit). 10-12 S; 176 Chem. Professor RODEBUSH.

Chem. 150b. Biochemistry.—(¾ unit). 9 TT; 111 Chem. Professor ROSE.

Chem. 152b. Biochemistry.—(½ to 1 unit).* Chiefly laboratory work. Arrange; 467b Chem. Professor ROSE.

Chem. 155b. Biochemistry.—(Seminar). Required of all students majoring in biochemistry. (¾ unit). 9-11 F; 456 Chem. Professor ROSE.

Chem. 160b. Advanced Chemical Engineering.—*Prerequisite:* Chem. 61a and 61b. (½ unit). Lectures, 9 TT; 162 Chem. Professor KEYES.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Chem. 161b. Chemical Plant Design.—*Prerequisite:* Chem. 61a and 61b. (½ unit). 8 TT; 162 Chem. Associate Professor JOHNSTONE.

Chem. 185b. The Chemistry of Water Treatment.—(Seminar). (½ to 1¼ units).* Arrange; 60b Chem. Professor BUSWELL.

Chem. 190b. Research.—Work may be taken in the following subjects:

Physical and Electrochemistry.—Professor RODEBUSH, Associate Professor PHIPPS, Assistant Professor COPLEY.

Inorganic Chemistry.—Professor HOPKINS, Associate Professor REEDY, Assistant Professors BAILAR, AUDRIETH, and COPLEY, Dr. REED.

Analytical Chemistry.—Professor CLARK, Associate Professors REEDY, SMITH, and ENGLIS.

Food and Phyto-Chemistry.—Associate Professor ENGLIS.

Applied X-rays.—Professor CLARK.

Organic Chemistry.—Professors ADAMS, MARVEL, FUSON, and SHRINER, Assistant Professor BAILAR.

Sanitary Chemistry.—Professor BUSWELL.

Biochemistry.—Professor ROSE.

Chemical Engineering.—Professor KEYES, Associate Professor JOHNSTONE, Assistant Professor SWANN.

Ceramic Chemistry.—Professor PARMELEE.

Zymochemistry.—Professor BUSWELL.

CIVIL ENGINEERING

Courses for Undergraduates

Note: Certain courses in this department require laboratory fees varying from $0.50 to $2.00.

C.E. 1. Plane Surveying.—*Prerequisite:* Math. 4; G.E.D. 1 or 4.

Credit	Section	Hours	Days	Room	Instructor
3	E	10–12	MWF	109 C.E.S.B.	CLARK

C.E. 2. Topographic Surveying.—*Prerequisite:* C.E. 1.

3	E	1–3	WF	202 C.E.S.B.	CROSSMAN
		1–5	M		
	F	10–12	MF	201 C.E.S.B.	DELL
		1–5	Tu		
	G	1–3	MF	201 C.E.S.B.	EVANS
		1–5	W		
	H	8–10	TT	201 C.E.S.B.	DELL
		1–5	Th		

C.E. 3. Railway and Highway Surveying.—*Prerequisite:* C.E. 2, 15, or 18.

4	E	1–3	TWTF	109 C.E.S.B.	WILEY
	F	1–3	MTWF	208 E.H.	PICKELS
	G	8–10	MTWF	202 C.E.S.B.	RAYNER

C.E. 15. General Surveying.—*Prerequisite:* Math. 4; G.E.D. 1 or 4.

3	E1	8–11	TT	108 C.E.S.B.	CLARK
	E2	8–11	TT	109 C.E.S.B.	

C.E. 16. Elementary Surveying.—*Prerequisite:* Math. 4; G.E.D. 1 or 4.

2	E	2–4	WF	108 C.E.S.B.	CLARK

C.E. 18. Surveying for Landscape Architects.—*Prerequisite:* C.E. 17.

3	E	1–3	MWF	108 C.E.S.B.	RAYNER

C.E. 19. Construction Surveying.—*Prerequisite:* C.E. 3; Math. 7.

3	E	4–6	TT	108 C.E.S.B.	RAYNER
		(Arrange Field Hours)			

C.E. 20a. Highway Construction.—*Prerequisite:* C.E. 2, 15, or 18, or consent of instructor.

3	E	10	MWF	102 E.H.	WILEY
	F	11	MWF	101 E.H.	CRANDELL

C.E. 23. Highway Administration.—*Prerequisite:* C.E. 20a or consent of instructor.

3	E	9	MWF	102 E.H.	WILEY

C.E. 28. Regional Design.—*Prerequisite:* C.E. 20 and 21; senior standing.

3	E	10	TT	101 E.H.	CRANDELL
		1–4	Th	309 E.H.	

C.E. 29. Municipal Transportation.—*Prerequisite:* Junior standing.

3	E	8	MWF	101 E.H.	CRANDELL, KING, TUTHILL

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

C.E. 31. Advanced Highway Materials.—*Prerequisite:* C.E. 30a and 35.

Credit	Section	Hours	Days	Room	Instructor
2	E[1]	8 1–4	T Th	112 M.T.L.	Bauer
	F[2]	8 (Arrange Lab.)	W	112 M.T.L.	Bauer

C.E. 35. Plain Concrete.—*Prerequisite:* Sophomore standing in engineering or architecture.

2	E	9 9–12	Tu Th	112 M.T.L.	Bauer
	F	10 1–4	W Tu	112 M.T.L.	Bauer

C.E. 36. Construction Materials.—*Prerequisite:* Junior standing in engineering, architecture, or landscape architecture.

1	E	8	Tu	400 E.H.	Oliver

C.E. 40. Water Supply.—*Prerequisite:* T.A.M. 3, 4, and 64.

4	E	10 1–4	MWF Tu	208 E.H. 309 E.H.	Doland

C.E. 41. Sewerage.—*Prerequisite:* T.A.M. 4 and 64.

3	E	9 1–4	TT Tu	208 E.H. 211 E.H.	Babbitt
	F	11 1–4	TT Tu	208 E.H. 214 E.H.	Babbitt

C.E. 43. Sewage Treatment.—*Prerequisite:* Registration or credit in C.E. 41 and 42.

4	E	8–10	MWF	208 E.H.	Babbitt

C.E. 51. Drainage and Flood Control.—*Prerequisite:* C.E. 50.

3	E	8	MWF	102 E.H.	Pickels

C.E. 55. Water Power.—*Prerequisite:* T.A.M. 4 and 64.

3	E	9	MWF	205 E.H.	Doland

C.E. 60. Bridge and Building Construction.—*Prerequisite:* Sophomore standing in engineering or architecture.

3	E	8	TWT	205 E.H.	Doland

C.E. 61. Structural Stresses.—*Prerequisite:* Registration or credit in T.A.M. 3.

4	E	10 1–4	MWF Tu	405 E.H. 419 E.H.	Vawter Clark

C.E. 62. Elementary Structural Design.—*Prerequisite:* Registration or credit in C.E. 61.

3	E	8–10	MWF	419 E.H.	Vawter
	F	8–10	MWF	408 E.H.	Oliver
	G	1–3	MWF	419 E.H.	Dell

C.E. 63. Theory of Reinforced Concrete.—*Prerequisite:* T.A.M. 3; registration or credit in C.E. 61.

2	E	9	TT	405 E.H.	Shedd
	F	10	TT	400 E.H.	Oliver
	G	11	TT	405 E.H.	Evans

C.E. 64a. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 62 and 63.

5	E	11 1–4	MWF MW	205 E.H. 309 E.H.	Vawter

C.E. 65a. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 64a.

4	E	8 1–4	Th MWF	405 E.H. 211 E.H.	Shedd
	F	8 1–4	Th MWF	400 E.H. 214 E.H.	Oliver

C.E. 66. Masonry Construction.—*Prerequisite:* C.E. 61 and 63.

3	E	11	MWF	102 E.H.	Huntington

C.E. 68. Indeterminate Structures.—*Prerequisite:* C.E. 67.

3	E	8	MWF	405 E.H.	Shedd

C.E. 87. Steel, Concrete, and Timber Design.—*Prerequisite:* C.E. 86.

4	E	1 2–5	TT TT	408 E.H. 408 E.H.	Evans

C.E. 90. Contracts and Specifications.—*Prerequisite:* Senior standing in engineering or architecture.

2	E	11	TT	101 E.H.	Crandell

C.E. 91. Estimates and Costs.—*Prerequisite:* Senior standing in architecture or engineering.

2	E	10	TT	405 E.H.	Evans

C.E. 98. Thesis.—*Prerequisite:* High standing and approval of head of the department.

1 to 3*		To be arranged			Members of the department

[1]Subgrade soils.
[2]Materials other than soils.
*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

	Credit	Section	Hours	Days	Room	Instructor
C.E. 102. Sewerage.—	1 unit		8	TT	204 E.H.	Babbitt
C.E. 104. Municipal Engineering.—	1 unit		9	TT	101 E.H.	Crandell
C.E. 105. Reinforced Concrete Design.—	1 unit		4	MTh	205 E.H.	Cross
C.E. 108. Structural Theory and Design.—	1 to 2 units*		4	WF	205 E.H.	Cross
C.E. 110. Sewage Disposal, Wastes Disposal, and General Sanitation.—	1 unit		10	WF	204 E.H.	Babbitt
C.E. 113. Foundations.—	½ to 1 unit*		10	M	101 E.H.	Huntington
C.E. 120. Highway Traffic, Transport, and Safety.—	1 unit		10	TT	102 E.H.	Wiley
C.E. 131. Water Power.—	1 unit		11	TT	205 E.H.	Doland

C.E. 140. Special Problems.—(½ to 2 units). To be arranged. Members of the department.

C.E. 198. Thesis.—(1 to 2½ units).* To be arranged. Members of the department.

Extra-mural Courses for Graduates

C.E. E108. Continuous Frames.—(1 unit). 6-8 P.M. Tu; Western Society of Engineers, 205 W. Wacker Drive, Chicago. Professors Cross, Shedd, and Wilson.

CLASSICS

Greek

Major: 20 hours, excluding Greek 1a-1b, 15, 16, and 17.

Minors: 20 hours chosen from not more than two of the following: foreign language (Latin being especially recommended), English literature, history, and philosophy. At least eight hours must be taken in each subject, if two are chosen.

Latin

Major: 20 hours, excluding Latin 1a-1b, 6, 13, and 20, and including six hours in translation courses for advanced undergraduates and graduates.

Minors: 20 hours chosen from not more than two of the following: foreign language (Greek being especially recommended), English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

Classics

Major: 20 hours in Greek and Latin, excluding Greek 1a-1b, 15, 16, 17 and Latin 1a-1b, 6, 9, 11a-11b, 13, 20. At least six hours shall be offered in the secondary language and the remaining hours in the primary one.

Minors: 20 hours chosen from not more than two of the following: foreign language, English literature, history, and philosophy. At least eight hours must be offered in each subject, if two are chosen.

A. GREEK

Courses for Undergraduates

	Credit	Section	Hours	Days	Room	Instructor
Greek 1b. Elementary Greek (continuation of 1a).—	4	A	11	TWTF	120 L.H.	Perry
Greek 4. Second Year Greek. Homer.—*Prerequisite:* Greek 3 or an equivalent.	3	A	9	MWF	113 L.H.	Perry

Greek Life and History

Note: For Greek 15 and 17 a knowledge of Greek is not required.

	Credit	Section	Hours	Days	Room	Instructor
Greek 15. Greek Athletics.—	2	A	11	MW	103 New Agr.	Oldfather
Greek 17. Greek Drama in English Translation.—*Prerequisite:* Sophomore standing.	2	A	2	TT	114 L.H.	Perry

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

Greek 7. Drama: Tragedy and Comedy.—*Prerequisite:* Greek 4 and 5.

Credit	Section	Hours	Days	Room	Instructor
3	A	9	TTS	114 L.H.	DILLER

Courses for Graduates

Note: Students desiring to take graduate work in Greek should have had at least three years of college Greek or an equivalent.

Greek 110b. See Latin 110b.

Greek 121. Thucydides.—(1 unit). 9 TT; 124 L.H. Associate Professor PERRY.

B. LATIN

Courses for Undergraduates

Latin 1b. Virgil.—*Prerequisite:* Three entrance units in Latin, or Latin 6.

4	A	1	TWTF	114 L.H.	OLIVER

Latin 4. Horace (Satires) and Virgil (Eclogues and Georgics).—*Prerequisite:* Latin 12a-12b or an equivalent.

3	A	10	MWF	120 L.H.	ZICKGRAF

Latin 5b. Latin Composition.—*Prerequisite:* Three entrance units in Latin, Latin 6, or registration in Latin 1b. Required to secure the department's recommendation to teach.

1	A	4	Th	120 L.H.	CANTER

Latin 9. Teachers' Course.—*Prerequisite:* 12 hours of Latin acceptable for a major. Required to secure the department's recommendation to teach.

2	A	11	TT	114 L.H.	CANTER

Latin 12b. Sallust and Cicero (De Senectute).—*Prerequisite:* Four entrance units in Latin, or Latin 1a-1b.

4	A	9	TWTF	120 L.H.	BEDRICK

Latin 13. Roman Private Life.—*Prerequisite:* Sophomore standing. Knowledge of Latin not required.

1	A	3	Th	202 L.H.	ZICKGRAF

Latin 30b. Honors Course.—Thesis or special course of study approved by the department. *Prerequisite:* Senior standing and 14 hours of Latin acceptable for a major.

2		To be arranged			CANTER

Courses for Advanced Undergraduates and Graduates

Latin 10. Latin Composition.—*Prerequisite:* 12 hours of Latin acceptable for a major including Latin 5a-5b or equivalent. Required to secure the department's recommendation to teach.

2	A	10	TT	120 L.H.	DILLER

Latin 18. Roman Archaeology.—

2	A	2	TT	120 L.H.	ZICKGRAF

Latin 24. Ovid (Elegy) and Seneca (Epistles and Tragedies).—*Prerequisite:* 12 hours of Latin acceptable for a major.

3	A	2	MWF	120 L.H.	CANTER

Latin 56. Roman History.—See History 56. 1 MWF; 202 L.H. Professor OLDFATHER.

Courses for Graduates

Note: Students desiring to take graduate work in Latin should have had at least three years of college Latin in addition to the Latin presented to meet entrance requirements.

Latin 110b. Bibliography and Criticism.—(1 unit). Arrange; 118 Lib. Professors OLDFATHER, CANTER, and Associate Professor PERRY.

Latin 107. Latin Epigraphy.—(1 unit). 4-6 Tu; 120 L.H. Professor CANTER.

Latin 114. Caesar.—(1 unit). 10-12 S; 118 Lib. Professor OLDFATHER.

DAIRY HUSBANDRY

Note: Certain courses in this department require laboratory fees varying from $2.00 to $3.00.

Courses for Undergraduates

D.H. 2a. Dairy Cattle Breeding and Feeding.—*Prerequisite:* D.H. 24a or junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	A	9	MWF	302 Old Agr.	YAPP, NEVENS

D.H. 2b. Dairy Cattle Judging.—*Prerequisite:* D.H. 24a or junior standing.

Credit	Section	Hours	Days	Room	Instructor
2	A	8–10	TT	S.P.	YAPP

D.H. 6b. Dairy Products Plant Operations.—*Prerequisite:* D.H. 24b; consent of instructor.

3		To be arranged		D.Mfrs.	TRACY, TUCKEY

D.H. 9. Dairy Products Judging.—*Prerequisite:* D.H. 24b. Inspection trip waived, 1936-37.

2	A	4	TT	D.Mfrs.	TRACY, TUCKEY

D.H. 11. General Dairy Bacteriology.—*Prerequisite:* Sophomore standing.

2	A	11	TT	302 Old Agr.	PRUCHA

D.H. 12. General Dairy Bacteriology.—*Prerequisite:* D.H. 11 or registration therein.

2	A	3–5 or arrange	TT	455 Old Agr.	PRUCHA, BRANNON

D.H. 23. Investigation with Thesis.—This course is continuous through the year; credit is not given for either semester separately. *Prerequisite:* Senior standing, including not less than 20 hours pertinent to thesis problem; approval of the head of the department. (5). Arrange. Work may be taken in the following subjects:

Dairy Bacteriology.—Professor PRUCHA, Assistant Professor BRANNON.
Dairy Chemistry.—Associate Professor OVERMAN.
Dairy Farming and Economic Milk Production.—Professor FRASER.
Dairy Manufactures.—Professor RUEHE, Associate Professor TRACY.
Dairy Production.—Professors GAINES, YAPP, NEVENS.

D.H. 24a. Elementary Dairy Production.—

3[1]	Lect.	8	M	103 New Agr.	NEVENS, KUHLMAN, and YAPP
[1]Juniors and seniors receive only 2 hours credit.	Quiz	8	F	103, 118, 127 New Agr.	
	A Lab.	8–10	W	S.P.	
	B Lab.	1–3	Th	S.P.	

D.H. 24b. Elementary Testing and Manufacture of Dairy Products.—

3[1]	Lect.	3	M	127 New Agr.	TUCKEY
[1]Juniors and seniors receive only 2 hours credit.	Quiz	4	M	127 New Agr.	
	A Lab.	3–5	W	D.Mfrs.	
	B Lab.	3–5	F	D.Mfrs.	

Courses for Advanced Undergraduates and Graduates

D.H. 5. Composition of Dairy Products.—*Prerequisite:* Junior standing, including Chem. 32.

3	A	10–12	MWF	502 Old Agr.	OVERMAN

D.H. 7. Creamery Buttermaking and Factory Management.†—*Prerequisite:* D.H. 24b or its equivalent; junior standing.

5	Lect.	1	MTu	D.Mfrs.	RUEHE, TUCKEY
	Lab.	1–3	Th	D.Mfrs.	
		1–6	F		
	Quiz	2	Tu	D.Mfrs.	

D.H. 8. Fluid Milk Plant Operations.†—*Prerequisite:* D.H. 24b or its equivalent; junior standing.

3	A	8–10	MWF	D Mfrs.	TRACY

D.H. 14. Milk Condensing.†—*Prerequisite:* D.H. 24b or its equivalent; junior standing.

3	Lect.	9	TT	D.Mfrs.	TRACY
	Lab.	1–5	W	D.Mfrs.	

D.H. 21. Systems of Dairy Farming.—*Prerequisite:* Junior standing.

3	A	11	MWF	553 Old Agr.	FRASER

D.H. 27. Special Problems.—*Prerequisite:* Senior standing; approval of the head of the department.

3		To be arranged	Members of the department

Courses for Graduates

D.H. 101. Economic Milk Production.—(½ to 2 units).* Twice a week. Arrange. Professor FRASER.

D.H. 105. Dairy Manufactures.—(½ to 2 units).* 10-12 S, or arrange. Professor RUEHE, Associate Professor TRACY.

D.H. 106. Dairy Bacteriology.—(½ to 2 units).* Arrange. Professor PRUCHA.

D.H. 107. Dairy Chemistry.—(½ to 2 units).* Arrange. Associate Professor OVERMAN.

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†All students specializing in dairy manufactures are expected to take an inspection trip either in the junior or senior year. The trip will cover dairy manufacturing plants and wholesale markets and probably will cost about $15.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

D.H. 108. Physiology of Lactation.—(½ to 2 units).* Arrange. Professor GAINES.

D.H. 112. Research.—(1 to 4 units).* 10-12 S, or arrange. *Note:* Graduate students writing a thesis should so indicate when registering in Dairy Husbandry 112.

Dairy Bacteriology.—Professor PRUCHA.
Dairy Chemistry.—Associate Professor OVERMAN.
Dairy Cattle Breeding.—Professor YAPP.
Dairy Cattle Feeding.—Professor NEVENS.
Milk Production.—Professor GAINES.
Dairy Manufactures.—Professor RUEHE, Associate Professor TRACY.

D.H. 113. Seminar.—(½ unit). Once a week. Both semesters. Current literature in dairy bacteriology, dairy chemistry, and dairy manufactures. Members of the graduate staff.

D.H. 114. Seminar.—(½ unit). Once a week. Both semesters. Current literature in biology of milk production. Professor GAINES.

ECONOMICS

Including courses formerly in Public Utilities and Transportation

(See also Agricultural Economics and Business Organization and Operation)

Major: For students in the College of Liberal Arts and Sciences, 20 hours made up of Economics 1 and other courses in economics for which it is a prerequisite.

Minors: 20 hours in any one or two of the following subjects: geography, history, mathematics, philosophy, political science, and sociology.

Note: Economics 22 and 27 are open only to freshmen, without previous requirements.

Economics 1 is the fundamental course in economics. It is a prerequisite for most of the advanced courses, and students expecting to do advanced work in economics should take it in their sophomore year.

The courses in economics may be grouped in several rather distinct fields in which students may find it profitable to concentrate in their junior and senior years. The following fields are suggested: economic theory, history, and statistics; public and private finance, including insurance; labor; foreign trade; public utilities and transportation.

Courses for Undergraduates

Econ. 1. Principles of Economics.—*Prerequisite:* 30 hours of university work.

Credit	Section	Hours	Days	Room	Instructor
5	Lect.	9	Th	114 Com.	HUNTER
	A Quiz	8	MTWF	101 Com.	HOOVER
	B1 Quiz	9	MTWF	224 Com.	HUNTER
	B2 Quiz	9	MTWF	123 Com.	OSBORN
	B3 Quiz	9	MTWF	329 Com.	WATERS
	B4 Quiz	9	MTWF	101 Com.	HOOVER
	C Quiz	10	MTWF	123 Com.	OSBORN
	D Quiz	11	MTWF	329 Com.	WATERS

Econ. 2. Elements of Economics.—*Prerequisite:* 30 hours of university work.

3	B Quiz	9	MWF	328 Com.	LOUNSBURY
	C1 Quiz	10	MWF	326 Com.	LOUNSBURY
	C2 Quiz	10	MWF	219 Com.	BRUCE
[1]Section C3 for engineers.	[1]C3 Quiz	10	MWF	408 E.H.	BONNELL
	D Quiz	11	MWF	219 Com.	BRUCE
	E1 Quiz	1	MWF	328 Com.	HUDSON
	E2 Quiz	1	MWF	123 Com.	WESTON
	F1 Quiz	2	MWF	123 Com.	WESTON
	F2 Quiz	2	MWF	328 Com.	HUDSON

Econ. 3. Principles of Money, Credit, and Banking.—*Prerequisite:* Econ. 1 or 2.

3	[1]Lect. I	8	W	114 Com.	LEE
	A1 Quiz	8	MF	326 Com.	LOCKLING
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II, in Lect. II.	A2 Quiz	8	MF	122 Com.	BERNHARD
	A3 Quiz	8	MF	108 Com.	MARSH
	A4 Quiz	8	MF	222 Com.	LOUNSBURY
	A5 Quiz	8	MF	329 Com.	ELLIOTT
	J1 Quiz	8	TT	306 Com.	BERNHARD
	K1 Quiz	9	TT	305 Com.	LOUNSBURY
	K2 Quiz	9	TT	122 Com.	WESTON
	N Quiz	1	TT	328 Com.	MARSH
	O Quiz	2	TT	328 Com.	MARSH
	[1]Lect. II	8	Th	114 Com.	LEE
	B1 Quiz	9	MF	111 Com.	ELLIOTT
	B2 Quiz	9	MF	305 Com.	LEE
	J2 Quiz	8	TuS	328 Com.	LOCKLING
	J3 Quiz	8	TuS	329 Com.	ELLIOTT
	K3 Quiz	9	TuS	328 Com.	LOCKLING
	L1 Quiz	10	TuS	306 Com.	BERNHARD
	L2 Quiz	10	TT	122 Com.	WESTON
	M Quiz	11	TT	122 Com.	WESTON

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Econ. 27. Introduction to Business.—Open to freshmen, and to others with consent of instructor.

Credit	Section	Hours	Days	Room	Instructor
3	[1]Lect. I	1	Tu	114 Com.	Russell
	A Quiz	8	WF	111 Com.	Shaw
[1]Students registered in quiz sections listed under Lect. I must enroll in Lect. I; those under Lect. II, in Lect. II; and those under Lect. III, in Lect. III.	E1 Quiz	1	WF	101 Com.	West
	E2 Quiz	1	WF	106 Com.	Morris
	E3 Quiz	1	WF	113 Com.	Boner
	E4 Quiz	1	WF	111 Com.	Mathews
	E5 Quiz	1	WF	219 Com.	Losee
	E6 Quiz	1	WF	222 Com.	Flanders
	E7 Quiz	1	WF	224 Com.	Masiko
	J1 Quiz	8	TT	123 Com.	Losee
	O1 Quiz	2	TT	222 Com.	Boner
	P1 Quiz	3	TT	101 Com.	Hoover
	[1]Lect. II	2	M	114 Com.	Russell
	F1 Quiz	2	WF	106 Com.	Morris
	F2 Quiz	2	WF	219 Com.	Losee
	F3 Quiz	2	WF	101 Com.	West
	F4 Quiz	2	WF	329 Com.	Boner
	F5 Quiz	2	WF	111 Com.	Mathews
	F6 Quiz	2	WF	222 Com.	Flanders
	F7 Quiz	2	WF	224 Com.	Masiko
	N Quiz	1	TT	223 Com.	Shaw
	O2 Quiz	2	TT	101 Com.	Hoover
	O3 Quiz	2	TT	113 Com.	Miller
	P2 Quiz	3	TT	113 Com.	Miller
	[1]Lect. III	10	Tu	114 Com.	Russell
	C2 Quiz	10	WF	100 Com.	West
	C3 Quiz	10	WF	114 Com.	Mathews
	D Quiz	11	WF	325 Com.	Mandeville
	J2 Quiz	8	ThS	101 Com.	Hudson
	K3 Quiz	9	ThS	101 Com.	Wiley
	L1 Quiz	10	ThS	223 Com.	Morris
	L2 Quiz	10	ThS	111 Com.	Wiley
	L3 Quiz	10	ThS	101 Com.	Hudson
	O4 Quiz	2	TT	223 Com.	Shaw
	G Quiz	3	MW	306 Com.	Miller

Econ. 92. Economics of Transportation.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	A Quiz	8	MWF	106 Com.	Locklin
	C Quiz	10	MWF	106 Com.	Turney
	D Quiz	11	MWF	106 Com.	Turney

Courses for Advanced Undergraduates

Econ. 90b. Senior Thesis.—Candidates for graduation with honors may, and candidates for graduation with high honors with thesis must, present an acceptable thesis or take a comprehensive examination, as part of the requirement.

2 or 4* To be arranged Brown and others

Econ. 91b. Independent Study.—Seniors registered in the College of Commerce and Business Administration who were awarded either class or college honors in their junior year may do independent study for a total of not more than ten semester hours in this department or sixteen semester hours if divided between this department and any other department.

3 to 5* To be arranged Gray and others

Courses for Advanced Undergraduates and Graduates

Econ. 5. History and Theory of Money, Credit, and Banking Institutions, with Particular Reference to the United States.—*Prerequisite:* Econ. 1 or 2; junior standing.

2	K	9	TT	326 Com.	Wright

Econ. 8. Foreign Exchange and the Money Market.—*Prerequisite:* Econ. 1 and 3; senior standing.

3	Lect.	8	W	215 Com.	Wright
	A Quiz	8	MF	326 Com.	Wright
	J Quiz	8	TT	326 Com.	Wright

Econ. 10. Corporation Finance and Management.—*Prerequisite:* Econ. 1 and 3; Accy. 1a and 1b.

3	A Quiz	8	MWF	322 Com.	Behling
	C1 Quiz	10	MWF	125 Com.	Gray
	C2 Quiz	10	MWF	222 Com.	Van Arsdell
	C3 Quiz	10	MWF	322 Com.	Behling
	D1 Quiz	11	MWF	222 Com.	Van Arsdell
	D2 Quiz	11	MWF	322 Com.	Behling
	D3 Quiz	11	MWF	123 Com.	Gray
	K Quiz	9	TTS	306 Com.	Behling
	L Quiz	10	TTS	222 Com.	Van Arsdell

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Econ. 11. Industrial Consolidation.—*Prerequisite:* Econ. 10.

Credit	Section	Hours	Days	Room	Instructor
3	C	10	MWF	101 Com.	Brown

Econ. 20. Economic Development of the United States since 1860.—*Prerequisite:* Econ. 1 or 2; senior standing.

2	L	10	TT	212 Com.	Thompson

Econ. 23. Current Economic Problems.—*Prerequisite:* Econ. 1 or 2; junior standing. Not open to Commerce students or L.A.S. students whose major subject is economics.

3	D	11	MWF	212 Com.	Lee

Econ. 24. Economic Development of Modern Europe.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	9	ThS	215 Com.	Bogart
	K Quiz	9	Tu	125 Com.	Bogart
	L Quiz	10	Tu	125 Com.	Bogart

Econ. 29. Foreign Commerce and Commercial Policies.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	B	9	MWF	322 Com.	Litman

Econ. 30. World Markets.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	10	W	215 Com.	Litman
	C Quiz	10	MF	310 Com.	Litman
	L Quiz	10	TT	310 Com.	Litman

Econ. 36. Investments.—*Prerequisite:* Econ. 10; senior standing.

3	Lect.	9	W	114 Com.	Brown
	B1 Quiz	9	MF	106 Com.	Brown
	B2 Quiz	9	MF	108 Com.	Van Arsdell
	L Quiz	10	TT	106 Com.	Brown

Econ. 42. Trade Unionism.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	C	10	MWF	325 Com.	Lockling

Econ. 43. Personnel Administration.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	2	F	114 Com.	Helbing
	F1 Quiz	2	MW	322 Com.	Helbing
	F2 Quiz	2	MW	223 Com.	Miller
	J Quiz	8	TT	310 Com.	Miller
	O Quiz	2	TT	322 Com.	Helbing

Econ. 44. Socialism and Economic Reform.—*Prerequisite:* Econ. 1 or 2; senior standing.

3	E	1	MWF	215 Com.	Helbing

Econ. 51. Public Finance.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	A Quiz	8	MWF	312 Com.	Steiner
	C Quiz	10	MWF	312 Com.	Steiner

Econ. 52. Modern Problems of Taxation.—*Prerequisite:* Econ. 51.

3	D	11	MWF	312 Com.	Hunter

Econ. 56. Property Insurance.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	Lect.	8	M	215 Com.	Dickinson
	J Quiz	8	TT	222 Com.	Dickinson
	K Quiz	9	TT	222 Com.	Dickinson

Econ. 61. Economic Theory.—*Prerequisite:* Econ. 1 or 2; senior standing.

3	D	11	MWF	126 Com.	Lockling

Econ. 72. Economic Statistics.—*Prerequisite:* Econ. 71 or consent of the instructor.

3	L Quiz	10	TT	317 Com.	Dickinson
	Practice	1–3	Tu	317 Com.	Dickinson

Econ. 83. Public Utility Rates.—*Prerequisite:* Econ. 1 or 2; junior standing.

3	B	9	MWF	126 Com.	Gray

Econ. 93. Industrial Traffic Management.—*Prerequisite:* Econ. 92.

3	K	9	TTS	100 Com.	Locklin

Econ. 96. Current Transportation Problems.—*Prerequisite:* Econ. 92.

3	L	10	TTS	100 Com.	Locklin

Courses for Graduates

Econ. 101. Economic Theory.—(1 unit). 2-4 M; 212 Com. Visiting Professor Carver.

Econ. 102. Monetary Theory and History from the Restriction Period to the Present.—(1 unit). Arrange. Dr. Lounsbury.

Econ. 103. Distribution of Wealth.—(1 unit). 2-4 W; 212 Com. Visiting Professor Carver.

Econ. 105. Public Finance.—(1 unit). 4-6 Tu; 420 Com. Professor Hunter.

Econ. 106. International Exchange and the Money Markets.—(1 unit). 11 TT; 209 Com. Professor WRIGHT.

Econ. 110. Corporation Finance.—(1 unit). 4-6 M; 420 Com. Assistant Professor BROWN.

Econ. 118. Seminar.—Thesis course. (All graduate students writing theses in economics must register in Econ. 118; registration for other students is optional.) (1 to 4 units).* 4-6 Th (alternate weeks); 420 Com.

(a) **Third Year: Seminar.**—Professor LITMAN.
(b) **First Year: General Economics.**—Assistant Professor BROWN.
(c) **First Year: Public Utilities.**—Associate Professor GRAY.

Econ. 120. History of Economic Thought.—(1 unit). 4-6 Tu; 212 Com. Professor LITMAN.

Econ. 123. Industrial and Financial Organization of Society.—(1 unit). 10-12 S; 420 Com. Professor LEE.

Econ. 124. International Economics and Finance.—(1 unit). 10-12 S; 212 Com. Professor BOGART.

Econ. 140. Capitalism, Socialism, Fascism, and Communism.—(1 unit). Arrange. Dr. HELBING.

Econ. 144. Economic Statistics with Special Reference to Time Series and Business Cycles.—(1 unit). Arrange. Assistant Professor DICKINSON.

Econ. 180. Management of Public Utilities.—(1 unit). 4-6 W; 209 Com. Associate Professor GRAY.

Econ. 192. Economics of Transportation.—(1 unit). Arrange. Associate Professor LOCKLIN.

EDUCATION

A. GENERAL EDUCATION

Introductory Courses

Ed. 2. History of Education.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	B	9	MWF	303 Adm.(E)	SEYBOLT
	C	10	MWF	303 Adm.(E)	SEYBOLT

Ed. 5. Comparative Education.—*Prerequisite:* Junior standing.

3	E	1	MWF	204 Adm.(E)	JOHNSTON
	F	2	MWF	204 Adm.(E)	JOHNSTON

Ed. 6. Principles of Secondary Education.—*Prerequisite:* Ed. 25.

3	A	8	MWF	307 Adm.(E)	WILLIAMS
	K	9	TTS	308 Adm.(E)	CLEMENT
	L	10	TTS	204 Adm.(E)	JOHNSTON
	M	11	TTS	204 Adm.(E)	JOHNSTON
	E	1	MWF	307 Adm.(E)	PETERSON
	F	2	MWF	307 Adm.(E)	ODELL
	G	3	MWF	307 Adm.(E)	ODELL

Ed. 10. Technic of Teaching.—*Prerequisite:* Ed. 6. All students, except those in art and music, who plan to take Educational Practice must register in the proper section of Ed. 10 listed immediately below, and must register at the same time for the Educational Practice indicated. Only students specializing in the fields indicated may enroll in these sections. Sections G1 and G2 are offered for 4 hours credit and meet four days a week; all others 3 hours credit.

(Biology—Ed. Prac. 6) (Chemistry—Ed. Prac. 7) (Gen. Sci.—Ed. Prac. 13) (Physics—Ed. Prac. 21)	A1	8	MWF	303 U.H.S.	HARNISH
(Elem. Sch.—Ed. Prac. 25)	A2	8	MWF	308 Adm.(E)	REAGAN
(Ind. Ed.—Ed. Prac. 10) (Mech. Draw.—Ed. Prac. 16)	D	11	MWF	310 Adm.(E)	MAYS
(Civics—Ed. Prac. 8) (History—Ed. Prac. 15) (Economics—Ed. Prac. 27)	E	1	MWTF	210 U.H.S.	HABBERTON
(Home Econ.—Ed. Prac. 14)	F1	2	MWF	104 U.H.S.	KING
(P.E. Men—Ed. Prac. 1, 2, 3, 4)	F2	2	MWF	211 L.H.	JACKSON
(Stenography—Ed. Prac. 24) (Typewriting—Ed. Prac. 24) (Bookkeeping—Ed. Prac. 26)	F3	2	MWF	214 U.H.S.	HAGAN
(English—Ed. Prac. 11) (Speech—Ed. Prac. 11a)	G1	3	MTWF	205 U.H.S.	MCHARRY
(French—Ed. Prac. 12) (German—Ed. Prac. 28) (Latin—Ed. Prac. 17) (Spanish—Ed. Prac. 23)	G2	3	MWF	312 U.H.S.	ARNDT
(Mathematics—Ed. Prac. 19)	G3	3	MWF	314 U.H.S.	HARTLEY
(Agriculture—Ed. Prac. 5)	H	4	MWF	122 Old Agr.	NOLAN

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Ed. 25. Educational Psychology.—*Prerequisite:* Psych. 1 for all sections except Section G.

Credit	Section	Hours	Days	Room	Instructor
3	J	8	TTS	304 Adm.(E)	POTTHOFF
	B	9	MWF	308 Adm.(E)	PETERSON
	K	9	TTS	304 Adm.(E)	DOLCH
	L	10	TTS	304 Adm.(E)	POTTHOFF
	E	1	MWF	304 Adm.(E)	DOLCH
	F	2	MWF	304 Adm.(E)	PETERSON
	[1]G	3	MWF	204 Adm.(E)	POTTHOFF
	H	4	MWF	307 Adm.(E)	DOLCH

[1]Section G is for students who have not taken Psych. 1. Consent of the instructor must be obtained.

Ed. 91. Special Problems of Education in Rural Communities.—(Same as Agr. Ed. 91). *Prerequisite:* Senior standing and at least 6 hours in education.

2 A 11 MW 122 Old Agr. NOLAN

Ed. 99b. Thesis.—*Prerequisite:* Senior standing.

2 To be arranged BENNER and others

Courses for Advanced Undergraduates and Graduates

Ed. 18. Educational Measurements.—*Prerequisite:* Ed. 25.

3 A 10 MWF 307 Adm.(E) ODELL

Ed. 30. History of American Education.—*Prerequisite:* Senior standing or Ed. 2 or 11.

2 A 9 TT 303 Adm.(E) SEYBOLT

Ed. 31. Introduction to Modern Theories in Education.—*Prerequisite:* Junior standing.

3 A 2 MWF 303 Adm.(E) BROWNE

Ed. 41. Principles of Vocational Education.—(Same as Ind. Ed. 41). *Prerequisite:* Senior standing.

3 A 3 MWF 304 Adm.(E) MAYS

Ed. 42. Special Education (Superior and Handicapped Children).—*Prerequisite:* Ed. 25.

2 A 10–12 S 206 U.H. DOLCH

Ed. 55. Problems of Vocational Guidance.—(Same as Ind. Ed. 55). *Prerequisite:* Senior standing.

3 A 9 MWF 304 Adm.(E) MAYS

Courses for Graduates

In addition to complying with the general rules of the Graduate School, candidates for the master's degree in education must meet the following requirements: (1) Education 125 is a required course for all students; (2) for students who have not taken a course in the history of education, Education 11 or Education 30 is required; (3) Education 6 and 25, or their equivalents, are prerequisites for all graduate courses.

No student is recommended to the Dean of the Graduate School for formal admission to candidacy for the master's degree until at least four units of the eight ordinarily required for the degree have been completed satisfactorily. In the case of a student who has been allowed to waive the thesis (see Graduate School Bulletin), two papers will be required. The first shall be written during the first half of the student's residence and shall be an important factor in determining his further status in the department. The second shall be written during the second half of the student's period of residence.

Ed. 101. Philosophy of Education.—(1 unit). 4-6 Th; 303 Adm.(E). Professor CAMERON.

Ed. 102. Research in the History of Education.—(1 unit). Arrange; 311 Adm.(E). Professor SEYBOLT.

Ed. 104. Educational Administration.—(1 unit). 4-6 W; 308 Adm.(E). Associate Professor WEBER.

Ed. 110. Recent Research in the Teaching of High School Subjects.—(1 unit). 4-6 W; 304 Adm.(E). Professor MONROE.

Ed. 120a. Seminar in the Supervision of Secondary Education.—*Prerequisite:* Ed. 106. (1 unit). 4-6 Tu; 308 Adm.(E). Professor CLEMENT.

Ed. 121. Educational Measurements.—Seminar. (1 unit). 4-6 M; 308 Adm.(E). Associate Professor ODELL.

Ed. 124. Techniques in Educational Research.—(1 unit). 4-6 Th; 304 Adm.(E). Professor MONROE.

Ed. 125. Educational Psychology.—(1 unit). 10-12 S; 204 Adm.(E). Assistant Professor REAGAN.

Ed. 129. The Junior College.—*Prerequisite:* 3 units of graduate work in education. (1 unit). 4-6 Th; 308 Adm.(E). Professor CLEMENT.

Ed. 131. A Study of Textbooks and Other Materials of Instruction in Secondary Schools.—*Prerequisite:* Ed. 127. (1 unit). 10-12 S; 308 Adm.(E). Professor CLEMENT.

Ed. 148. Psychology of High School Subjects.—(1 unit). 4-6 W; 204 Adm.(E). Professor CAMERON.

Ed. 150. Thesis.—(1 to 2 units).* Dean BENNER and others.

Ed. 184. Seminar in School Administration.—*Prerequisite:* 3 units of graduate work in education including Ed. 104 or 106 and consent of instructor. (1 unit). Arrange. 314 Adm.(E). Associate Professor WEBER.

Ed. 185. Seminar in Educational Psychology.—*Prerequisite:* Ed. 125 and consent of instructor. (1 unit). Arrange. 203 Adm.(E). Professors CAMERON, GRIFFITH.

Ed. 186. Seminar in Secondary Education.—For interns only. (1 unit). 9-11 S; 307 Adm.(E). Professor CLEMENT and Assistant Professor SANFORD.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Ed. 188. Selection and Organization of Instructional Materials in Industrial Education.—(1 unit). 10-12 S; 312 Adm.(E). Professor MAYS.

Ed. 190. Research in Education.—*Prerequisite:* 3 units of graduate work in education and consent of the dean. (1 unit). Dean BENNER and others.

Extra-mural Courses for Graduate Students

Ed.E. 101. Philosophy of Education.—(1 unit). 10-12 S; Eastern Illinois State Teachers College, Charleston. Professor CAMERON.

Ed.E. 125. Educational Psychology.—(1 unit). 7:30-9:30 P.M. M; Illinois State Normal University, Normal. Professor GRIFFITH.

Ed.E. 184. Seminar in School Administration.—(1 unit). *Prerequisite:* Consent of instructor. 10-12 S; Southern Illinois State Normal University, Carbondale. Associate Professor WEBER.

B. RELATED COURSES IN SPECIAL SUBJECTS

The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 20 hours in Education for graduation; for the 15 hours in Education for the State High School Certificate; or for the hours of Education necessary as a qualification for teachers in the North Central Association accredited schools.

Art 10b. Course for Teachers.—(3). (See Art).
Botany 14. Course for Teachers.—(3). (See Botany).
Chemistry 12b. Teachers' Course.—(3). (See Chemistry).
English 41. Teaching of English Literature.—(2). (See English).
German 25. Teachers' Course.—(2). (See German).
History 18. Teaching of History.—(2). (See History).
Home Economics 11. Teaching of Home Economics.—(3). (See Home Economics).
Latin 9. Teachers' Course.—(2). (See Classics).
Music 25b. Instrumental Methods.—(2). (See Music).

C. EDUCATIONAL PRACTICE

The courses listed below are open only to seniors. *Prerequisite:* Ed. 6. All students, except those in art and music, who take Educational Practice must register at the same time for the corresponding section of Ed. 10. For Educational Practice in Agriculture, see Associate Professor NOLAN at 116 Old Agriculture. For Educational Practice in Physical Education, see Assistant Professor JACKSON at 202 Old Gymnasium. For Educational Practice in Home Economics, see Associate Professors ROBINSON and KING at 119 Woman's Building. Arrange for all other courses in Educational Practice with Principal C. W. SANFORD at 102 University High School.

Ed. Prac. 1. Physical Education for Men.—(2 to 4).* Students must be registered in Ed. 10, Section F2.

Ed. Prac. 2. Physical Education for Men.—(2 to 4).* Students must be registered in Ed. 10, Section F2.

Ed. Prac. 3. Physical Education for Men.—(2 to 4).* Students must be registered in Ed. 10, Section F2.

Ed. Prac. 4. Physical Education for Men.—(2 to 4).* Students must be registered in Ed. 10, Section F2.

Ed. Prac. 5. Agricultural Education.—(2 to 5).* (Same as Agr. Ed. 50). Students must be registered in Ed. 10, Section H.

Ed. Prac. 6. Biology.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 7. Chemistry.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 8. Civics.—(5). Students must be registered in Ed. 10, Section E.

Ed. Prac. 9. Drawing, Art.—(3 to 5).*

Ed. Prac. 10. Drawing, Mechanical.—(3 to 5).* Students must be registered in Ed. 10, Section D.

Ed. Prac. 11. English.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 11a. Speech.—(5). Students must be registered in Ed. 10, Section G1.

Ed. Prac. 12. French.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 13. General Science.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 14. Home Economics Education.—(5). Students must be registered in Ed. 10, Section F1.

Ed. Prac. 15. History.—(5). Students must be registered in Ed. 10, Section E.

Ed. Prac. 16. Industrial Education.—(3 to 5).* Students must be registered in Ed. 10, Section D.

Ed. Prac. 17. Latin.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 19. Mathematics.—(5). Students must be registered in Ed. 10, Section G3.

Ed. Prac. 20. Music.—(3 to 5).*

Ed. Prac. 21. Physics.—(5). Students must be registered in Ed. 10, Section A1.

Ed. Prac. 23. Spanish.—(5). Students must be registered in Ed. 10, Section G2.

Ed. Prac. 24. Stenography and Typewriting.—(3 to 5).* Students must be registered in Ed. 10, Section F3.

Ed. Prac. 25. Elementary Education.—(5). Students must be registered in Ed. 10, Section A2.

Ed. Prac. 26. Bookkeeping.—(5). Students must be registered in Ed. 10, Section F3.

Ed. Prac. 27. Economics.—(5). Students must be registered in Ed. 10, Section E.

Ed. Prac. 28. German.—(5). Students must be registered in Ed. 10, Section G2.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

D. AGRICULTURAL EDUCATION

Agr. Ed. 10. Teachers' Course in Agriculture.—(Same as Ed. 10). *Prerequisite:* Ed. 6; senior standing.

Credit	Section	Hours	Days	Room	Instructor
3	A	4	MWF	122 Old Agr.	NOLAN

Agr. Ed. 50.† Teaching.—(Same as Ed. Prac. 5). *Prerequisite:* Ed. 25; senior standing; Agr. Ed. 51 or registration in the course.

2 to 5*	A	Conference 4 Tu Teaching to be arranged		Tolono H.S.	HENDERSON
	B	Conference 4 Tu Teaching to be arranged		St. Joseph H.S.	RUCKER
	C	Apprentice teaching in state			NOLAN

Agr. Ed. 91. Special Problems of Education in Rural Communities.—(Same as Ed. 91). *Prerequisite:* Senior standing and at least 6 hours in education.

2	A	11	MW	122 Old Agr.	NOLAN

Agr. Ed. 92. Adult Education in Vocational Agriculture.—*Prerequisite:* 20 hours of technical agriculture; Ed. 25; senior standing. (Subject-matter and methods in part-time and evening classes, and other extension service in vocational agriculture.)

2	A	11	TT	122 Old Agr.	NOLAN

E. INDUSTRIAL EDUCATION

Ind. Ed. 1. Industrial Arts.—First course.

4	Lect.	2	TT	5 Wood Shop	BRAUCHER and
	Shop	2–4	MWF	5 Wood Shop	assistant

Ind. Ed. 2. Advanced Industrial Arts.—

4	Lect.	9	TT	5 Wood Shop	BRAUCHER and
	Shop	8–10	MWF	5 Wood Shop	assistant

Ind. Ed. 2a. Problems of House Construction.—

4	Lect.	10	TT	5 Wood Shop	BRAUCHER and
	Shop	10–12	MWF	5 Wood Shop	assistant

Ind. Ed. 10. Organization and Methods of Industrial Education.—(Same as Ed. 10).

3	A	11	MWF	310 Adm.(E)	MAYS

Note: The following courses given by departments not in the College of Education may be presented as meeting in part the requirements for the 25 hours in Industrial Education.

G.E.D. 1. **Elements of Drawing.**—(4). (See General Engineering Drawing).
G.E.D. 2. **Descriptive Geometry.**—(4). (See General Engineering Drawing).
G.E.D. 4. **Advanced Drawing.**—(4). (See General Engineering Drawing).
Journ. 9b. **History and Practice of Printing and Publishing.**—(2 or 3).* (See Journalism).
M.E. 85. **Pattern and Foundry Laboratory.**—(3). (See Mechanical Engineering).
M.E. 87. **Machine Laboratory.**—(3). (See Mechanical Engineering).

Courses for Advanced Undergraduates and Graduates

Ind. Ed. 41. Principles of Vocational Education.—(Same as Ed. 41). *Prerequisite:* Senior standing.

3	A	3	MWF	304 Adm.(E)	MAYS

Ind. Ed. 55. Problems of Vocational Guidance.—(Same as Ed. 55). *Prerequisite:* Senior standing.

3	A	9	MWF	304 Adm.(E)	MAYS

Extra-mural Courses

Extra-mural Courses in Industrial Education.—Arrange. Assistant Professor DODGE.

ELECTRICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.00 to $2.00.

Courses for Undergraduates

E.E. 2. Electrical Equipment.—*Prerequisite:* One year of college physics.

Credit	Section	Hours	Days	Room	Instructor
3		11	MWF	200 E.E. Annex	

E.E. 5. Applications of Electrical Equipment.—*Prerequisite:* E.E. 4 and 64; registration in E.E. 65.

2		8	TT	200 E.E. Annex	

†Students registering in Sections A and B must secure the signature of the instructor and will be required to teach 5 consecutive periods at each teaching assignment.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

E.E. 12. Direct and Alternating Current Apparatus.—*Prerequisite:* E.E. 11 and 61; registration in E.E. 62.

Credit	Section	Hours	Days	Room	Instructor
3	C1	8	MWF	305 E.H.	
	C2	8	MWF	111 E.H.	
	Q1	10	MWF	305 E.H.	
	Q2	10	MWF	105 E.H.	
	J1	11	MWF	305 E.H.	
	J2	11	MWF	400 E.H.	
	P1	1	MWF	305 E.H.	
	P2	1	MWF	109 E.H.	

E.E. 14. Commercial and Industrial Wiring and Illumination.—*Prerequisite:* Sophomore standing or equivalent.

3	K	8	MWF	200 E.E. Annex
	L	11	TTS	200 E.E. Annex

E.E. 26. Alternating Currents.—*Prerequisite:* E.E. 25; Physics 44a; registration in E.E. 76.

4	N	9	MTWTF	111 E.H.
	L	11	MTWTF	111 E.H.
	M	11	MTWTF	105 E.H.
	K	1	MTWTF	111 E.H.

E.E. 36. Alternating Current Apparatus.—*Prerequisite:* E.E. 35; registration in E.E. 86.

4	K	8	MTWTF	109 E.H.
	L	10	MTWTF	109 E.H.
	M	11	MTWTF	109 E.H.

E.E. 48. Fundamentals of Telephone Transmission.—*Prerequisite:* Senior standing in electrical engineering or consent of instructor.

3	KL	1	TT	109 E.H.
	Lab. K	2–5	Tu	311a E.E.L.
	Lab. L	2–5	Th	311a E.E.L.

E.E. 52. Radio Communication Theory.—*Prerequisite:* E.E. 35 or consent of instructor.

3	KL	10	TT	305 E.H.
	Lab. K	2–5	W	311 E.E.L.
	Lab. L	2–5	Th	311 E.E.L.

E.E. 56. Economical Design of Electrical Systems.—*Prerequisite:* E.E. 35.

4	Lect. KLM	9	Th	215 E.E.L.
	K	9	MWF	312 E.H.
	L	10	MWF	312 E.H.
	M	1	MWF	312 E.H.

E.E. 58. Power and Communication Networks.—*Prerequisite:* Grade of "A" or "B" in E.E. 26.

3		10	MWF	111 E.H.

E.E. 62. Direct and Alternating Current Laboratory.—*Prerequisite:* E.E. 11 and 61; registration in E.E. 12.

1	J1	9–12	Tu	200 E.E.L.
	J2	9–12	Tu	214 E.E.L.
	Q1	2–5	Tu	200 E.E.L.
	Q2	2–5	Tu	214 E.E.L.
	X	9–12	W	214 E.E.L.
	P1	9–12	Th	200 E.E.L.
	P2	9–12	Th	214 E.E.L.
	R1	2–5	Th	200 E.E.L.
	R2	2–5	Th	214 E.E.L.
	C1	1–4	F	214 E.E.L.
	C2	1–4	F	200 E.E.L.
	C3	9–12	S	214 E.E.L.
	C4	9–12	S	200 E.E.L.

E.E. 65. Electrical Equipment Laboratory.—*Prerequisite:* Registration in E.E. 5.

1	A	1–4	M	214 E.E.L.
	B	1–4	Tu	214 E.E.L.

E.E. 71. Electrical Engineering Problems.—*Prerequisite:* Consent of instructor.

1 to 3*		To be arranged

E.E. 72. Electrical Engineering Problems.—*Prerequisite:* Consent of instructor.

1 to 3*	K	8	MWF	300 E.E.L.
	Lab. K	2–5	W	300 E.E.L.
	MN	8	TT	111 E.H.
	Lab. M	2–5	M	110 E.E.L.
	Lab. N	2–5	F	110 E.E.L.
	(Others—arrange)			

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

E.E. 76. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 25 and 75; registration in E.E. 26.

Credit	Section	Hours	Days	Room	Instructor
2	Lect. MYZN	8	Tu	215 E.E.L.	
	Lect. KLA	10	W	400 E.H.	
	K	2–5	M	200 E.E.L.	
	L	2–5	Tu	200 E.E.L.	
	M	8–11	W	200 E.E.L.	
	Y	2–5	W	200 E.E.L.	
	Z	2–5	W	214 E.E.L.	
	N	2–5	Th	200 E.E.L.	
	A	8–11	S	200 E.E.L.	

E.E. 86. Electrical Engineering Laboratory.—*Prerequisite:* E.E. 85; registration in E.E. 36.

2	Lect. LMNY	9	Tu	215 E.E.L.
	L	2–5	M	200 E.E.L.
	M	2–5	W	200 E.E.L.
	N	2–5	Th	200 E.E.L.
	Y	1–4	F	200 E.E.L.

E.E. 90. Building Lighting.—*Prerequisite:* Junior standing.

1		10	Tu	200 E.E. Annex

E.E. 96. Seminar.—*Prerequisite:* Senior standing in electrical engineering.

1	K	1	Tu	305 E.H.
	L	11	Tu	305 E.H.
	M	9	W	305 E.H.
	N	11	Th	305 E.H.
	Y	1	Th	305 E.H.

E.E. 98. Thesis.—(3). Arrange.

Courses for Graduates

Note: Entrance on graduate work in electrical engineering presupposes the equivalent of the full undergraduate course in that subject. The undergraduate courses in electrical engineering (except E.E. 14, 90, 92) are open for minor credit to students majoring in other departments who have the proper prerequisite.

E.E. 101. Advanced Courses in Alternating Currents.—(0 to 2 units).* Arrange.
(a) **Graduate Seminar.**—Professor Paine.
(c) **Machine Transients.**—Assistant Professor Keener.

E.E. 102. Electric Waves, Oscillations, and Transients.—(½ to 2 units).* Arrange.
(a) **Theory of Electric Waves, Oscillations, and Transients.**—Associate Professor Reich.
(b) **Demonstration Lecture.**—Associate Professor Reich.
(c) **Theory of Energy Radiation.**—Assistant Professor Brown.
(d) **Principles of Television Engineering.**—Assistant Professor Brown.

E.E. 103. Electric Design.—(1 to 3 units).* Arrange.
(a) **Power Plant Design.**—Professor Paine.
(b) **Machine Design.**—Professor Paine.
(c) **Illumination Practice and Design.**—Assistant Professor Kraehenbuehl.

E.E. 104. Courses in Electronics.—(1 unit). Arrange.
(a) **Theoretical Electronics.**—Associate Professor Reich.
(c) **Photoelectric Cells, Gaseous Control Tubes and Inverters.**—Associate Professor Reich.

E.E. 105. Electrical Engineering Research.—(1 to 3 units).* Professors Paine, Tykociner, Knight; Associate Professor Reich; Assistant Professors Brown, Keener, Kraehenbuehl.

ENGINEERING

Courses for Undergraduates

Note: Each of the following courses may be used as an approved or non-technical elective in all engineering curricula.

Eng. 10. Engineering Economics.—Evolution and growth of industry; basic industrial principles; ownership and securities; standardization; valuation and depreciation; comparisons and selections of engineering projects. *Prerequisite:* Junior standing in engineering.

Credit	Section	Hours	Days	Room	Instructor
3	A	9	MWF	105 T.B.	King
	B	10	MWF	105 T.B.	

Eng. 39. Industrial Relations.—History of the development of industry; the factory system; manufacturers' organizations; labor organizations; works management; trade unions; wage systems; personnel problems; labor legislation. *Prerequisite:* Junior standing.

3	A	11	MWF	Mach. Lab.	Casberg

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Eng. 92. Engineering Law.—Contracts, evidence, torts, equity, real property, corporations, agency, sales, negotiable instruments, water rights, patent rights, special assessments, contract letting, general conditions. *Prerequisite:* Senior standing in engineering or architecture.

Credit	Section	Hours	Days	Room	Instructor
3	A	9	MWF	101 E.H.	Pickels
	B	1	MWF	101 E.H.	Crandell

ENGLISH

(Including Rhetoric, Speech, and Scandinavian Languages)

Major in English

Major: 20 hours in English *excluding* Rhetoric 1, 2, 10, 12, 21, 22, English 10a, 10b, 20a, 20b, 41, 42, and courses in Scandinavian and Speech, and *including* at least ten hours in English literature, at least three hours in composition, and two courses chosen from the advanced groups in English literature.

Minors: 20 hours in (a) Latin or Greek or French or German or Spanish or Italian; or (b) in any two of those languages; or (c) in one of those languages and philosophy; or (d) in one of those languages and history; or (e) in history and philosophy. No language courses may be regarded as satisfying the minor requirement if they are excluded from the majors of the language departments (excepting elementary courses in Greek, Latin, French 2a, Italian 2a, and Spanish 2a). At least eight hours must be offered in each subject, if two are chosen.

Major in Speech

Major: 10 hours in Speech, inclusive of Speech 7 and 8 and either 4 or 6; and 10 hours of English, exclusive of English 10a, 10b, 41, 42, and of Rhetoric 1, 2, 10, 12, 21, 22, and inclusive of one course in English literature chosen from the advanced groups.

Minors: 20 hours in any one or two of the following subjects: psychology, philosophy, Greek, Latin, French, German, history, political science, economics, law, or sociology. At least eight hours must be offered in each subject, if two are chosen.

A. ENGLISH LANGUAGE AND LITERATURE

Courses for Undergraduates

Engl. 10a. An Introduction to Literature.—Forms of poetry, mainly narrative. *Prerequisite:* The minimum entrance requirement in English. (Credit is not given for Engl. 10a in addition to 20a and 20b).

Credit	Section	Hours	Days	Room	Instructor
3[1]	A1	8	MWF	142 L.H.	Secord
	A2	8	MWF	412 U.H.	Gettmann
[1]Seniors will receive only 2 hours credit.	B	9	MWF	202 U.H.	Busey
	C	10	MWF	133 L.H.	Zeitlin
	D1	11	MWF	219 L.H.	Tupper
	D2	11	MWF	213 U.H.	Templeman
	E1	1	MWF	148 L.H.	Finney
	E2	1	MWF	203 U.H.	Bloom
	F1	2	MWF	203 U.H.	Edwards
	F2	2	MWF	302 U.H.	McDowell

Engl. 10b. An Introduction to Literature.—Forms of poetry, mainly lyrical. *Prerequisite:* Engl. 10a. (Credit is not given for Engl. 10b in addition to 20a and 20b).

3[1]	A1	8	MWF	204a L.H.	Busey
	A2	8	MWF	310 U.H.	Haswell
[1]Seniors will receive only 2 hours credit.	B1	9	MWF	128 L.H.	Rinaker
	B2	9	MWF	219 L.H.	Tupper
	C1	10	MWF	206 L.H.	Rapp
	C2	10	MWF	232 L.H.	Rinaker
	D1	11	MWF	232 L.H.	Landis
	D2	11	MWF	235 L.H.	Weirick
	E1	1	MWF	106 U.H.	Shattuck
	E2	1	MWF	235 L.H.	Kelley
	F	2	MWF	133 L.H.	Parry

Engl. 13. American Literature.—*Prerequisite:* Sophomore standing, or exemption from Rhet. 2.

2	A	9	TT	103 New Agr.	Paul
	B	3	TT	103 New Agr.	Paul

Engl. 20a. Chief English Writers of the Nineteenth Century.—Intended for students in professional and technical courses such as law, medicine, commerce, engineering, etc. *Prerequisite:* One year of college work. (Credit is not given for English 20a in addition to Engl. 10a and 10b).

4	A1	8	MTWT	203 U.H.	Orlovich
	A2	8	MTWT	302 L.H.	Wheeler
	B	9	MTWT	203 U.H.	Johnson
	C	10	MTWT	214 U.H.	Peterson
	D	11	MTWT	207 U.H.	Stutzman
	E1	1	MTWT	133 L.H.	Dolk
	E2	1	MTWT	406 U.H.	Hamilton

Engl. 20b. Chief English Writers Before 1800.—*Prerequisite:* Engl. 20a. (Credit is not given for Engl. 20b in addition to Engl. 10a and 10b).

Credit	Section	Hours	Days	Room	Instructor
4	A	8	MTWT	302 U.H.	Glenn
	B	9	MTWT	232 L.H.	Graham
	C1	10	MTWT	302 U.H.	Trelease
	C2	10	MTWT	312 U.H.	Templeman
	D1	11	MTWT	106 U.H.	Blair
	D2	11	MTWT	139 L.H.	Rinaker
	E1	1	MTWT	208 U.H.	French
	E2	1	MTWT	107 U.H.	Harris
	E3	1	MTWT	213 U.H.	Martin
	F	2	MTWT	107 U.H.	French

Engl. 22. Literary Study of the Bible.—*Prerequisite:* 6 hours of English literature.

3	A	11	MWF	202 L.H.	E. C. Baldwin

Engl. 23. Introduction to Shakespeare.—*Prerequisite:* Sophomore standing, or exemption from Rhet. 2.

3	B	9	MWF	109 L.H.	Hillebrand
	F	2	MWF	109 L.H.	Finney

Engl. 44. Contemporary Poetry.—*Prerequisite:* 6 hours of English literature, or junior standing.

3	A	1	MWF	103 New Agr.	Weirick

Courses for Advanced Undergraduates

Prerequisite: Junior standing, except as otherwise specified.

Engl. 4. English Versification.—

2	A	10	TT	123 L.H.	Landis

Engl. 5. Shakespeare.—

3	A	8	MWF	109 L.H.	T. W. Baldwin

Engl. 30. Tendencies in American Fiction Since 1870.—(Consent of instructor must be obtained).

3	A	10	MWF	235 L.H.	Tupper

Engl. 31. English Literature from 1688 to 1789.—

3	A	9	MWF	148 L.H.	Secord

Engl. 41. Teaching of English Literature.—*Prerequisite:* 9 hours of English literature.

2	A	2	TT	202 L.H.	Paul

Engl. 43. Browning.—

3	A	10	MWF	L. H. Theatre	Graham

Engl. 53. Modern American Criticism.—

3	A	11	MWF	206 L.H.	Zeitlin

Engl. 58. Motion Pictures: Their Appreciation, and Their Relation to Literature.—A comparative study of the two arts. Practice in literary criticism and in the criticism of motion pictures. Students are required to attend designated motion picture performances not less than once a week. Enrollment limited to fifty students. Arrange for registration in the course at 324 U.H.

3	A	10	TT	106 L.H.	Bernbaum

Engl. 60b. Thesis and Honors.—(Credit to be arranged). Professor Jones, Dr. Tupper, and others.

Courses for Advanced Undergraduates and Graduates

Prerequisite: Junior standing, except as otherwise specified.

Engl. 3. Poetry of Milton.—

3	A	9	MWF	304 L.H.	E. C. Baldwin

Engl. 9. Old English (Anglo-Saxon).—Beowulf.

3	A	11	MWF	305 L.H.	Jones

Engl. 17. History of the English Language.—(Consent of instructor must be obtained).

3	A	9	MWF	305 L.H.	Flom

Engl. 26. Spenser.—

3	A	10	MWF	142 L.H.	Jones

Engl. 36. English Drama (Exclusive of Shakespeare) from 1600 to 1700.—

3	A	2	MWF	204a L.H.	Hillebrand

Engl. 38. Development of Arthurian Romance.—

3	A	1	MWF	329 L.H.	Parry

Engl. 54b. Introduction to Comparative Literature.—*Prerequisite:* English 54a. Survey of the greatest French, German, and English authors.

3	Lect.	10	WF	303 L.H.	Carnahan, Aron, and Landis
	A Disc.	10	M	308 L.H.	Landis
	B Disc.	10	M	335 L.H.	Parry

Engl. 55b. Survey of English Literature.—*Prerequisite:* Senior standing.

Credit	Section	Hours	Days	Room	Instructor
3	A	9	MWF	139 L.H.	PARRY

Courses for Graduates

Engl. 101. Research in Special Topics.—(1 to 2 units).* Professors BERNBAUM, FLOM, PAUL, ZEITLIN, T. W. BALDWIN, GRAHAM, E. C. BALDWIN, JONES, HILLEBRAND, JEFFERSON; Associate Professors PARRY, FLETCHER, SECORD; Assistant Professors RINAKER, FINNEY.

Engl. 114b. The Development of the Essay.—(1 unit). 11 TT; 309 Lib. Professor ZEITLIN.

Engl. 129b. English Literature from the Norman Conquest to 1400.—(1 unit). 10 TT; 104 L.H. Professor JONES.

Engl. 130b. Tragedy.—(1 unit). 1 TT; 117 L.H. Professor HILLEBRAND.

Engl. 135b. Problems in American Literature.—Poe and Whitman. (1 unit). 8 TT; 113 L.H. Professor PAUL.

Engl. 138b. The Romantic Movement.—(1 unit). 2 TT; 303a L.H. Professor BERNBAUM.

Engl. 140. Investigations in Modern English Literature.—(1 to 3 units).* Three hours once a week. Arrange. Professor BERNBAUM.

Engl. 141a. Study of the Prose of the Seventeenth Century.—(1 unit). 3 TT; 302 L.H. Professor E. C. BALDWIN.

Engl. 143b. Seminar in the History and Theory of Prose Fiction.—(1 unit). Two hours a week. Arrange; 220 L.H. Professor BERNBAUM.

Engl. 145b. Studies in Eighteenth Century Literature.—(1 unit). 10-12 S; 113 L.H. Professor GRAHAM.

Engl. 146. The Text of Milton.—(1 unit). Arrange. Associate Professor FLETCHER.

Engl. 147b. Shakespeare and Elizabethan Drama.—(1 unit). 10 MW; 303a L.H. Professor T. W. BALDWIN.

Engl. 148. Seminar in Elizabethan Drama.—(1 unit). Arrange; 135 L.H. Professor T. W. BALDWIN.

B. RHETORIC

Courses for Undergraduates

Rhet. 1. Rhetoric and Composition.—*Prerequisite:* The minimum entrance requirements in English.

3[1]	A1	8	MWF	213 U.H.	JOHNSON
	[2]A2	8	MWF	207 U.H.	MAY
[1]Seniors will receive only 2 hours credit.	B1	9	MWF	411 U.H.	STUTZMAN
	[2]B2	9	MWF	407 U.H.	HOSMER
	C1	10	MWF	212 U.H.	KELLEY
[2]Sections A2, B2, C2, D2, E2, F2, G2 are for students who are repeating Rhet. 1.	[2]C2	10	MWF	207 U.H.	MOSHER
	D1	11	MWF	412 U.H.	PETERSON
	[2]D2	11	MWF	407 U.H.	ALLEN
	E1	1	MWF	413 U.H.	MCDOWELL
	[2]E2	1	MWF	412 U.H.	HOOK
	F1	2	MWF	106 U.H.	CAMP
	[2]F2	2	MWF	204 U.H.	CARTER
	G1	3	MWF	204 U.H.	HAMILTON
	[2]G2	3	MWF	207 U.H.	HARRIS
	H	4	MWF	202 U.H.	

Rhet. 2. Rhetoric and Composition.—*Prerequisite:* Rhet. 1.

3[1]	A1	8	MWF	406 U.H.	BUTLER
	A2	8	MWF	411 U.H.	KELLEY
[1]Seniors will receive only 2 hours credit.	A3	8	MWF	413 U.H.	FOGLE
	A4	8	MWF	407 U.H.	HOSMER
	A5	8	MWF	106 U.H.	WASHBURN
[2]Special sections.	A6	8	MWF	211 U.H.	MATHEWS
	A7	8	MWF	315 U.H.	MOSHER
	A8	8	MWF	311 U.H.	QUINN
	[2]A9	8	MWF	208 U.H.	
	[2]A10	8	MWF	107 U.H.	NANNES
	[2]A11	8	MWF	318 U.H.	
	B1	9	MWF	207 U.H.	GLENN
	B2	9	MWF	311 U.H.	TEMPLEMAN
	B3	9	MWF	413 U.H.	BLAIR
	B4	9	MWF	212 U.H.	QUINN
	B5	9	MWF	302 U.H.	TRELEASE
	B6	9	MWF	412 U.H.	WASHBURN
	[2]B7	9	MWF	204 U.H.	PETERSON
	[2]B8	9	MWF	406 U.H.	MATHEWS
	[2]B9	9	MWF	404 U.H.	GETTMANN
	C1	10	MWF	204 U.H.	WHEELER
	C2	10	MWF	412 U.H.	ALLEN

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Rhet. 2. Rhetoric and Composition (concluded)

Credit	Section	Hours	Days	Room	Instructor
3[1]	C3	10	MWF	211 U.H.	French
	C4	10	MWF	311 U.H.	May
[1]Seniors will receive only 2 hours credit.	C5	10	MWF	411 U.H.	Jefferson
	C6	10	MWF	413 U.H.	Nannes
	C7	10	MWF	310 U.H.	
[2]Special sections.	[2]C8	10	MWF	407 U.H.	Butler
	[2]C9	10	MWF	406 U.H.	Fogle
	D1	11	MWF	311 U.H.	Roberts
	D2	11	MWF	148 L.H.	Secord
	D3	11	MWF	413 U.H.	Haswell
	D4	11	MWF	406 U.H.	Mathews
	D5	11	MWF	211 L.H.	Rapp
	D6	11	MWF	211 U.H.	
	D7	11	MWF	203 U.H.	
	[2]D8	11	MWF	204 U.H.	
	[2]D9	11	MWF	302 U.H.	Wheeler
	E1	1	MWF	232 L.H.	Morrison
	E2	1	MWF	204 U.H.	Fisher
	E3	1	MWF	411 U.H.	Carter
	E4	1	MWF	214 U.H.	Edwards
	E5	1	MWF	407 U.H.	Osenburg
	E6	1	MWF	302 U.H.	Camp
	E7	1	MWF	310 U.H.	
	[2]E8	1	MWF	311 U.H.	Ballard
	[2]E9	1	MWF	312 U.H.	Hughes
	[2]E10	1	MWF	211 L.H.	Henneberger
	F1	2	MWF	208 U.H.	Martin
	F2	2	MWF	413 U.H.	Harris
	F3	2	MWF	406 U.H.	Hook
	F4	2	MWF	412 U.H.	Ballard
	F5	2	MWF	206 L.H.	Stutzman
	F6	2	MWF	318 U.H.	Lowry
	F7	2	MWF	411 U.H.	Shattuck
	F8	2	MWF	207 U.H.	Hughes
	F9	2	MWF	213 U.H.	
	[2]F10	2	MWF	128 L.H.	Morrison
	[2]F11	2	MWF	404 U.H.	Bloom
	G1	3	MWF	406 U.H.	Sweney
	G2	3	MWF	311 U.H.	Martin
	G3	3	MWF	213 U.H.	Henneberger
	G4	3	MWF	212 U.H.	Shattuck
	G5	3	MWF	211 U.H.	Hughes
	G6	3	MWF	411 U.H.	Edwards
	G7	3	MWF	312 U.H.	Hook
	G8	3	MWF	208 U.H.	Dolk
	[2]G9	3	MWF	106 U.H.	Camp
	[2]G10	3	MWF	203 U.H	Osenburg
	H1	4	MWF	203 U.H.	Bloom
	H2	4	MWF	204 U.H.	Hamilton
	H3	4	MWF	208 U.H.	Ballard
	H4	4	MWF	211 U.H.	Osenburg
	H5	4	MWF	106 U.H.	Henneberger
	[2]H6	4	MWF	206 U.H.	Lowry
	K1	8	TTS	211 U.H.	Owen
	K2	8	TTS	315 U.H.	Bruner
	[2]K3	8	TTS	208 U.H.	Ekstrom
	L1	9	TTS	318 U.H.	Owen
	L2	9	TTS	311 U.H.	Ekstrom
	[2]L3	9	TTS	211 U.H.	Bruner
	M1	10	TTS	413 U.H.	Owen
	M2	10	TTS	211 U.H.	Rust
	N1	11	TTS	407 U.H.	Ekstrom
	N2	11	TTS	211 U.H.	Rust

Rhet. 3. Exposition.—*Prerequisite:* Rhet. 1 and 2; sophomore standing.

3	B	9	MWF	211 U.H.	Haswell
	D	11	MWF	128 L.H.	Busey
	G	3	MWF	104 L.H.	Landis

Rhet. 4. Narration and Description.—Elements of narrative writing. (Not a course in short-story writing). *Prerequisite:* Rhet. 1 and 2; sophomore standing.

3	B	9	MWF	104 L.H.	Rapp
	C	10	MWF	107 U.H.	Roberts
	D	11	MWF	310 U.H.	Trelease
	G	3	MWF	113 L.H.	Finney

Rhet. 10. Business Letter Writing.—*Prerequisite:* Rhet. 1 and 2; sophomore standing.

2	A1 (Com.)	8	MW	204 L.H.	Trimble
	B2 (Com.)	9	MW	306 Com.	Anderson
	B3 (Com.)	9	TT	128 L.H.	Trimble
	C1 (Com.)	10	MW	123 Com.	Anderson

Rhet. 10. Business Letter Writing (concluded)

Credit	Section	Hours	Days	Room	Instructor
2	C2 (Com.)	10	TT	305 Com.	Saunders
	C3 (Com.)	10	TT	222 Com.	Lang
	C4 (Com.)	10	TT	123 Com.	Trimble
	D1 (Eng.)	11	MW	101 E.H.	Lang
	D2 (Com.)	11	TT	128 L.H.	Anderson
	D3 (Com.)	11	TT	123 Com.	Lang
	E1 (Com.)	1	MW	305 Com.	Saunders
	E2 (Com.)	1	TT	322 Com.	Trimble
	F1 (Com.)	2	MW	310 Com.	Saunders
	F2 (Com.)	2	TT	312 Com.	Lang

Courses for Advanced Undergraduates

Prerequisite: Junior standing, except as otherwise specified.

Rhet. 7. Advanced Narrative Composition.—

3	A	3	MWF	204a L.H.	Weirick

Rhet. 21. Advanced Business Writing.—Sales letter campaigns and advertising copy. *Prerequisite:* Grade of "A" or "B" in Rhet. 10.

2	A	11	TT	305 Com.	Saunders

Rhet. 22. Special Types of Business Writing.—Business magazine articles and business reports. *Prerequisite:* Rhet. 10.

2	A	10	TT	123 Com.	Anderson

C. SPEECH

Courses for Undergraduates

Speech 1. Principles of Effective Speaking.—*Prerequisite:* Rhet. 2.

3	A1	8	MWF	136 L.H.	Anderson
	A2	8	MWF	202 Entom.	Scott
	B1	9	MWF	136 L.H.	Anderson
	B2	9	MWF	202 Entom.	Scott
	C1	10	MWF	136 L.H.	Parrish
	C2	10	MWF	202 Entom.	
	D1	11	MWF	136 L.H.	Moody
	D2	11	MWF	202 Entom.	
	E1	1	MWF	136 L.H.	Swanson
	E2	1	MWF	202 Entom.	Moody
	F1	2	MWF	136 L.H.	Scott
	F2	2	MWF	202 Entom.	
	G1	3	MWF	136 L.H.	Scott
	G2	3	MWF	142 L.H.	

Speech 2. Business and Professional Speaking.—*Prerequisite:* Speech 1.

2	B	9	TT	142 L.H.	Huston
	C	10	TT	142 L.H.	Huston
	D	11	TT	142 L.H.	Huston

Speech 3. Elements of Debating.—*Prerequisite:* Speech 1.

3	D	11	MWF	240 L.H.	Anderson
	F	2	MWF	114 L.H.	Anderson

Speech 10. Oral Interpretation of Literature.—*Prerequisite:* Speech 1.

2	B	9	TT	136 L.H.	Nelson
	C	10	TT	136 L.H.	Nelson
	D	11	TT	148 L.H.	Moody
	E	1	TT	136 L.H.	Nelson
	F	2	TT	128 L.H.	

Courses for Advanced Undergraduates

Speech 4. Advanced Debating.—*Prerequisite:* Speech 3; junior standing.

3	A	10	MWF	128 L.H.	Huston

Speech 7. Masters of Public Address.—*Prerequisite:* Speech 2 or 3; junior standing.

3	A	11	MWF	142 L.H.	Parrish

Speech 8. Dramatization.—*Prerequisite:* Speech 10; junior standing.

3	A	2	MWF	L. H. Theatre	Swanson

Speech 12. The Teaching of Speech.—*Prerequisite:* Ten hours of speech.

2	A	11	TT	136 L.H.	Nelson

Speech 14. Methods of Speech Correction.—*Prerequisite:* Ten hours of speech, or consent of instructor; junior standing.

2	A	1	MW	142 L.H.	Nelson

Speech 16. Advanced Acting and Play Directing.—*Prerequisite:* Speech 8.

Credit	Section	Hours	Days	Room	Instructor
2	A	1	TT	L. H. Theatre	SWANSON

Speech 17. Advanced Interpretation.—*Prerequisite:* Speech 10.

3	A	9	MWF	142 L.H.	PARRISH

D. SCANDINAVIAN LANGUAGES AND LITERATURE

Courses for Undergraduates

Scand. 4b. Intermediate Swedish.—Reading; conversation; review grammar. *Prerequisite:* Scand. 4a or an equivalent knowledge of the language.

3	A	To be arranged		201 U.H.	JOHNSON

Scand. 6. Ibsen.—Lectures. Study of three of the social dramas; parallel reading of three of the early and three of the later dramas; Ibsen's technique. Archer's translation is used. *Prerequisite:* Junior standing.

2	A	9	TT	202 L.H.	FLOM

Scand. 22b. Elementary Swedish.—Grammar; conversation; reading of recent writers. *Prerequisite:* Scand. 22a or an equivalent knowledge of the language.

3	A	11	MWF	107 U.H.	JOHNSON

Courses for Graduates

Scand. 101. Old Norse (Old Icelandic).—(1 unit). Arrange; 209 L.H. Professor FLOM.

Scand. 150. Research.—Thesis. Conferences. (1 to 2 units).* Arrange; 209 L.H. Professor FLOM.

ENTOMOLOGY

Note: Certain courses in this department require laboratory fees varying from $1.50 to $4.00.

Major: 20 hours exclusive of Entomology 1, 2, 31. At least five hours must be offered from the advanced group.

Minors: 20 hours in not more than two of the following, with not less than eight hours in either department, if two subjects are chosen: zoology, botany, chemistry, physiology, horticulture, and agronomy.

Entomology 1 is open to freshmen, and 2 and 31 to sophomores, without prerequisites. Either 1, or both 2 and 9, are prerequisite to all other courses in the department. Recommended sequences of courses are 1, 8, 20, and 31, for those desiring strictly practical or economic work; 2, 9, and 21 for those interested in the cultural or biological values of insect study. Students whose major is entomology should include some advanced work in classification, morphology, and control and should plan all of their work with the advice of the department. Seniors receive reduced credit in Entomology 1.

Courses for Undergraduates

Entom. 1. Destructive and Useful Insects.—Two discussion periods and four hours laboratory a week.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8–10	MWF	309 Entom.	METCALF, MILUM, and FAY
[1]Seniors will receive only 2 hours credit.	B	10–12	MWF	309 Entom.	METCALF, MILUM, and BALDUF
	C	1–3	MWF	309 Entom.	HAYES, MILUM, and SMITH
	D	3–5	MWF	309 Entom.	HAYES and FAY

Entom. 2. Insects: Their Ways and Their Relation to Man.—A non-technical, cultural course of illustrated lectures with exhibits. *Prerequisite:* Sophomore standing. (Not open to students who have taken Entom. 1.)

2	A	11	TT	202 Entom.	BALDUF
	B	2	TT	202 Entom.	BALDUF

Entom. 4. Classification of Insects. Orders with Complete Metamorphosis.—*Prerequisite:* Entomology 9 or its equivalent; sophomore standing.

5	Lab.	8–10	MWF	310 Entom.	BALDUF
	Disc.	To be arranged		310 Entom.	BALDUF

Entom. 7b. Insect Morphology.—Internal morphology and physiology. *Prerequisite:* Entom. 7a; sophomore standing.

3	Lect.	10	M	312 Entom.	HAYES
	Lab.	11	M	312 Entom.	HAYES
		10–12	WF	312 Entom.	

Entom. 8b. Insect Pests of Field Crops.—*Prerequisite:* Entom. 1 or 9; sophomore standing.

3	Lect.	1	TT	312 Entom.	HAYES
	Lab.	2–4	TT	312 Entom.	HAYES

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Entom. 31. Essentials of Beekeeping.—*Prerequisite:* Sophomore standing.

Credit	Section	Hours	Days	Room	Instructor
1 or 2[1]	Lect.	4	Tu	104 Exp.Zool.Lab.	MILUM
	Lab.	3–5	Th	104 Exp.Zool.Lab.	MILUM

[1]For two hours credit include laboratory.

Entom. 32. Advanced Beekeeping.—*Prerequisite:* Entom. 31 or consent of instructor; sophomore standing.

2	Disc.	10	Th	104 Exp.Zool.Lab.	MILUM
	Lab.	10–12	Tu	104 Exp.Zool.Lab.	MILUM

Courses for Advanced Undergraduates and Graduates

Entom. 6. Special Problems.—*Prerequisite:* Any of the following: 3, 4, 7, 8, 10, 20, 21, 22, or 31; senior standing. (2 to 4).* Saturday morning; additional hours to be arranged. Members of the department.

Entom. 21. Insect Bionomics.—*Prerequisite:* Entom. 1 or 9; senior standing.

3	Lect.	3	MWF	312 Entom.	METCALF

Courses for Graduates

Note: The prerequisite for graduate work in entomology is two years of undergraduate biology, including zoology and entomology.

Entom. 100. Research.—(½ to 4 units).* Arrange.

(a) **Morphology and Embryology of Insects.**—Associate Professor HAYES.
(b) **Economic Entomology.**—Professor METCALF.
(c) **Systematic Entomology.**—Professor METCALF, Assistant Professor BALDUF.
(d) **Biology and Ecology of Insects.**—Professor METCALF.

Entom. 107b. Internal Insect Anatomy.—(1 unit). 10-12 MWF; 312 Entom. Associate Professor HAYES.

GENERAL ENGINEERING DRAWING

Note: All courses in this department require laboratory fees of $1.00.

Courses for Undergraduates

G.E.D. 1. Elements of Drawing.—*Prerequisite:* Plane geometry.

Credit	Section	Hours	Days	Room	Instructor
4	A	8–11	MF	316 T.B.	Department staff
		8–10	W	316 T.B.	
	B	1–4	MF	316 T.B.	
		1–3	W	316 T.B.	

G.E.D. 2. Descriptive Geometry.—*Prerequisite:* Plane and solid geometry.

4	A	8–11	MF	To be assigned at registration	Department staff
		8–10	W		
	B	1–4	MF		
		1–3	W		
	C	8–11	TT		
		8–10	S		
	D	1–4	TT		
		10–12	S		

G.E.D. 4. Advanced Drawing.—*Prerequisite:* At least three years of drawing in high school, or the equivalent in commercial practice, to be determined by the department at registration time.

4	C	8–11	TT	302 T.B.	
		8–10	S	302 T.B.	

G.E.D. 6. Elements of Drawing.—*Prerequisite:* Plane geometry. (For students in chemical engineering).

3	D	1–4	TT	316 T.B.	JORGENSEN

G.E.D. 8. Architectural Projections.—(Continuation of G.E.D. 7). *Prerequisite:* G.E.D. 7. (Students completing G.E.D. 7 and 8 may substitute them for G.E.D. 2).

2	A	8–11	MF	103 T.B.	PORTER and LENDRUM
	B	2–5	MF	103 T.B.	
	C	8–11	TT	103 T.B.	

G.E.D. 10. Pictorial Drawing.—*Prerequisite:* G.E.D. 2. (Required of students in the City Planning Option in Civil Engineering; and "approved elective" in all other curricula of the College of Engineering).

4 or 3[1]	C	8–11	TT	316 T.B.	LENDRUM
		8–10	S	316 T.B.	

[1]For "approved elective" group who will omit 8-10 S hours in registering.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

GEOLOGY AND GEOGRAPHY

Note: Certain courses in this department require laboratory fees varying from $0.50 to $2.00.

A. GEOLOGY

Major: 20 hours in geology, exclusive of Geol. 1, 1a, 43, and 44, and inclusive of at least five hours of courses not open to freshmen or sophomores.

Minors: 20 hours chosen from one or two of the following subjects: astronomy, botany, chemistry, economics, geography, mathematics, physics, zoology, mining engineering, and civil engineering, after consultation with the Department of Geology. At least eight hours must be offered in each subject, if two are chosen.

Note: Certain geology courses are offered only in alternate years: 4, 15, 24, 38, 95, 96, 122, 125, 151, 160, 163.

Students desiring training which leads to executive positions with companies engaged in the development of various mineral industries should select appropriate courses in geology after consulting the head of the department, and also: Accountancy 1a, 1b; Economics 2, 3, and 35; B.O.O. 11; and Business Law 1a, 1b. A minimum of one year's work after graduation should be included in the student's program if possible. Students of petroleum production engineering should select appropriate courses in geology.

Courses for Undergraduates

Geol. 1. General Geology.—Cultural course. Lectures; one half-day field trip.

Credit	Section	Hours	Days	Room	Instructor
3[1]	A	8	MWF	228 N.H.	SHEPARD
[1]Seniors receive only 2	B	10	MWF	247 N.H.	MILLER
hours credit; students	C	1	MWF	228 N.H.	DEWOLF

who have credit for Geog. 1 receive only 1 hour credit for Geol. 1.

Geol. 1a. General Geology Laboratory.—*Prerequisite:* Geol. 1 or concurrent registration in it.

2	Lab. 1	8–10	TT	251 N.H.	WANLESS, MILLER, and assistants
	Lab. 2	10–12	TT	251 N.H.	
	Lab. 3	1–3	TT	251 N.H.	
	Lab. 4	3–5	TT	251 N.H.	
	Lab. 5	1–3	MF	251 N.H.	
	Lab. 6	3–5	MF	251 N.H.	

Geol. 2a. Historical Geology.—*Prerequisite:* Geol. 1.

4[1]	Lect. A	9	TWTF	241 N.H.	SUTTON
[1]Seniors receive only	Lect. B	11	TWTF	241 N.H.	SUTTON

3 hours credit.

Geol. 4. Field Work.—Field observations during the week following the Easter recess, and discussion and quiz one hour weekly. Credit will be given only upon the completion of a satisfactory written report. *Prerequisite:* Geol. 1 taken since Sept., 1932, or Geol. 2a taken earlier. Estimated traveling expense about $25.

2		To be arranged		150 N.H.	WANLESS

Geol. 17. Physiographic Geology.—*Prerequisite:* Geol. 1.

3	A	11	MWF	247 N.H.	SHEPARD

Geol. 43. Engineering Geology.—*Prerequisite:* Sophomore standing in the College of Engineering.

3	Lect. & Quiz	9	MWF	218 U.H.	QUIRKE and assistants

Geol. 44. Agricultural Geology.—*Prerequisite:* Sophomore standing in the College of Agriculture.

3	Lect.	1	MW	247 N.H.	WANLESS
	A Quiz	10	Tu	247 N.H.	
	B Quiz	10	Th	247 N.H.	
	C Quiz	1	F	241 N.H.	
	Lab. 1	3–5	Th	147 N.H.	Assistants
	Lab. 2	10–12	F	147 N.H.	

Courses for Advanced Undergraduates and Graduates

Geol. 16. Stratigraphy.—*Prerequisite:* Geol. 9.

3	Lect.	8	MWF	236 N.H.	SUTTON
	Lab.	To be arranged			

Geol. 49. Microscopic Mineralogy.—*Prerequisite:* Geol. 20 or 47.

5	Lect.	1	TT	254 N.H.	QUIRKE, MILLER, and assistants
	Lab. 1	8–10	MWF	254 N.H.	
	Lab. 2	8–10	TTS	254 N.H.	
	Lab. 3	10–12	MWF	254 N.H.	

Geol. 60b. Introduction to Research.—Limited to seniors majoring in geology.

Credit	Section	Hours	Days	Room	Instructor
2		To be arranged			Members of the department

Geol. 61b. Applied Petroleum Geology.—*Prerequisite:* Geol. 43 and 2a, or consent of the head of the department. Primarily for students in the College of Engineering.

3	A	10	MWF	151 N.H.	DeWolf

Courses for Graduates

Geol. 134. Advanced Studies in Geology.—(½ to 2 units).* Arrange, possibly Saturday. Members of the department.

Geol. 135. Research.—(½ to 4 units).* Arrange, possibly Saturday. Members of the department.

Geol. 143. Stratigraphic Paleontology: Mesozoic and Cenozoic.—(1 unit). Arrange; 134 N.H. Assistant Professor Sutton.

Geol. 151. Advanced Dynamic Geology.—(1 unit). Three times a week. Arrange. Associate Professor Shepard.

Geol. 160. Petroleum Geology.—(1 unit). Three times a week. Arrange. Professor DeWolf.

B. GEOGRAPHY

Major: 20 hours of courses in geography, exclusive of Geography 1, and including at least five hours of courses not open to freshmen.

Minors: 20 hours chosen from one or two of the following subjects: botany, economics, education, geology, history, and zoology. At least eight hours must be offered in each subject, if two are chosen. For those whose major is in geography, or in education with a minor in geography, the following sequences are recommended: Geography 1, 2, 4, 5, 7, 14, 15, or 10 or 11, or 12 or 8 or 53.

Note: Certain geography courses are offered only in alternate years: 6, 9, 10, 14a.

Courses for Undergraduates

Geog. 1. Elements of Geography.—Lectures and discussions.

5[1]	A1	8	MTWTF	247 N.H.	Page
	A2	8	MTWTF	422 N.H.	Burgy
[1]Seniors receive only 4 hours credit; students who have credit for Geol. 1 receive only 3 credits for Geog. 1.	B1	9	MTWTF	247 N.H.	Page
	B2	9	MTWTF	422 N.H.	Booth
	C1	10	MTWTF	422 N.H.	Burgy
	C2	10	MTWTF	435 N.H.	Cozzens
	D	11	MTWTF	422 N.H.	Booth
	E1	1	MWTTF	422 N.H.	Cozzens
	E2	1	MTWTF	435 N.H.	Booth
	F	2	MTWTF	422 N.H.	Cozzens

Geog. 2. Economic Geography.—Lectures and discussion. *Prerequisite:* Geog. 1.

5[1]	A	8	MTWTF	434 N.H.	Blanchard
[1]Seniors will receive only 4 hours credit.	B	9	MTWTF	134 N.H.	Crist
	C	10	MTWTF	434 N.H.	Blanchard
	D	11	MTWTF	434 N.H.	Crist

Geog. 5. Geography of South America.—Lectures and discussions. *Prerequisite:* Geog. 2.

3	A	2	MWF	435 N.H.	Burgy

Courses for Advanced Undergraduates and Graduates

Geog. 10. Geography of Africa.—*Prerequisite:* One regional course.

3	A	3	MWF	435 N.H.	Crist

Geog. 14a. Climates of the Continents.—*Prerequisite:* Geog. 14.

3	A	11	MWF	435 N.H.	Page

Geog. 53b. Advanced Commercial Geography.—*Prerequisite:* One regional course and senior standing.

3	A	1	MWF	434 N.H.	Blanchard

Geog. 60b. Introduction to Research.—Limited to seniors whose major is in geography.

2	A	4	Th	435 N.H.	Burgy

Courses for Graduates

Geog. 134. Advanced Studies in Geography.—(½ to 2 units).* Arrange. Members of the department.

Geog. 135. Research.—(½ to 4 units).* Arrange. Members of the department.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

GERMAN

Major: 20 hours in German, excluding courses 1 and 2, and including six hours in courses with a prerequisite of not less than three years of college German or equivalent.

Minors: 20 hours in not more than two subjects chosen from the following list, with not less than eight hours in each subject: education, English (excluding Rhetoric 1 and 2), French (excluding 1a), Greek, history, Italian, Latin, philosophy, Spanish (excluding 1a).

Note: Seniors receive reduced credit in German 1 and 2.

Elementary and Intermediate Courses

German 1. Elementary Course.—

Credit	Section	Hours	Days	Room	Instructor
4[1]	A1	8	MTWT	114 L.H.	Hammer
	A2	8	MTWT	329 L.H.	Palmer
[1]Seniors will receive only 3 hours credit.	B	9	MTWT	106 U.H.	Dunnington
	C	10	MTWT	302 L.H.	Hammer
	D	11	MTWT	318 U.H.	Schmalz
	E	1	MTWT	120 L.H.	Fehlau
	F	2	MTWT	106 L.H.	Rice
	G	3	MTWT	232 L.H.	Wackerle

German 2. Elementary Course (continued).—*Prerequisite:* German 1 or one year of high school German.

4[1]	A1	8	MTWT	224 L.H.	Farwell
	A2	8	MTWT	238 L.H.	Stubing
[1]Seniors will receive only 3 hours credit.	A3	8	MTWT	306 L.H.	Robertson
	B1	9	MTWT	105 L.H.	Brooks
	B2	9	MTWT	310 U.H.	Planitz
	C	10	MTWT	204a L.H.	Goodman
	D1	11	MTWT	308 Adm.(E)	Skidmore
	D2	11	MTWT	411 U.H.	Von Westen
	E1	1	MTWT	224 L.H.	Robertson
	E2	1	MTWT	206 L.H.	Palmer
	F	2	MTWT	219 L.H.	Jehle
	G1	3	MTWT	105 L.H.	Farwell
	G2	3	MTWT	224 L.H.	Schmalz
	H	4	MTWT	204a L.H.	Goodman

German 4. Intermediate Course.—*Prerequisite:* German 2, or two years of high school German, or equivalent.

4	A	8	MTWT	206 L.H.	Planitz
	B	9	MTWT	227 L.H.	Geissendoerfer
	C	1	MTWT	105 L.H.	Koller
	D	3	MTWT	114 L.H.	Ittner

German 5. Intermediate Course (continued).—Literary reading. *Prerequisite:* German 4, or three years of high school German, or equivalent.

4	A1	8	MTWT	219 L.H.	Fehlau
	A2	8	MTWT	233 L.H.	Geissendoerfer
	B	9	MTWT	235 L.H.	Jehle
	C	10	MTWT	233 L.H.	Von Westen
	D	11	MTWT	302 L.H.	Dunnington
	E	1	MTWT	233 L.H.	Ittner
	F	2	MTWT	233 L.H.	Fehlau
	G	3	MTWT	206 L.H.	Stubing

German 6. Scientific Reading.—(Students may not take both 5 and 6 for more than a total of 4 hours credit without permission of department). *Prerequisite:* German 4, or three years of high school German, or equivalent.

4	A	11	MTWT	306 L.H.	Williams
	B	4	MTWT	206 L.H.	Koller

Courses for Advanced Undergraduates

German 7. Modern Fiction.—*Prerequisite:* German 5 or equivalent.

3	A	2	MWF	227 L.H.	Koller

German 10. Introductory Goethe Course.—*Prerequisite:* German 5 or equivalent.

3	A	11	MWF	321 L.H.	Aron

German 16b. Conversation and Writing.—*Prerequisite:* German 16a or equivalent.

2	A	2	TT	148 L.H.	Koller

German 24b. Nineteenth Century Drama.—*Prerequisite:* German 24a or equivalent.

2	A	3	TT	204a L.H.	Geissendoerfer

German 25. Teachers' Course.—*Prerequisite:* Three years of college German or equivalent.

2	A	10	TT	227 L.H.	Jehle

German 28b. Lyrics and Ballads.—*Prerequisite:* German 28a or equivalent.

Credit	Section	Hours	Days	Room	Instructor
2	A	9	TT	219 L.H.	WILLIAMS

German 29b. Advanced Conversation and Writing.—*Prerequisite:* German 29a or equivalent.

2	A	2	TT	211 L.H.	GEISSENDOERFER

German 30b. Senior Thesis and Honors Course.—*Prerequisite:* Senior standing; three years of college German or equivalent. (2). Arrange. Professor ARON and others.

Courses for Advanced Undergraduates and Graduates

German 19b. Goethe's Faust II.—*Prerequisite:* German 19a or equivalent.

2	A	11	TT	425 Lib.	BROOKS

German 26b. German Literature in the Nineteenth Century.—*Prerequisite:* German 26a or equivalent.

3	A	9	MWF	233 L.H.	ARON

German 32. History of German Civilization.—*Prerequisite:* Three years of college German or equivalent.

3	A	11	MWF	133 L.H.	BROOKS

German 54. Introduction to Comparative Literature.—See English 54.

Courses for Graduates

German 101. Seminar in Modern German Drama.—(1 unit). Twice a week. 9-11 S, or arrange. Professor ARON.

German 102. Thesis.—(½ to 2 units).* Arrange. Professors ARON, BROOKS, WILLIAMS; Assistant Professor GEISSENDOERFER.

German 105. Old High German.—(1 unit). Twice a week. Arrange. Professor WILLIAMS.

German 117. German Literature of the Seventeenth and Eighteenth Centuries.—(1 unit). Twice a week. Arrange. Professor ARON.

German 121. Walther von der Vogelweide.—(1 unit). Twice a week. Arrange. Professor WILLIAMS.

HISTORY

Major: 20 hours, including (a) ten hours in courses having junior standing as a prerequisite, and (b) any other courses offered by the department (except courses taken in the freshman year).

Minors: 20 hours selected from one or two of the following subjects: economics, political science, geography, philosophy, law, sociology, and English and American literature (except such courses as are taken in the freshman year). Courses in one modern language (except such as are primarily designed for freshmen) will be accepted as one of two minor subjects.

Note: Seniors receive reduced credit in History 1 and 2.

Courses for Undergraduates

Hist. 1b. Continental European History, 1815-1937.—

Credit	Section	Hours	Days	Room	Instructor
4[1]	[2]Lect. 1	10	TT	218 U.H.	JONES
	A Disc.	11	TT	335 L.H.	SHAY
	B Disc.	8	WF	335 L.H.	BONE
	C Disc.	9	WF	321 L.H.	MAYHILL
	D Disc.	10	WF	321 L.H.	JONES
	E Disc.	10	WF	308 L.H.	KING
	F Disc.	10	WF	335 L.H.	SHAY
	G Disc.	10	WF	211 L.H.	SHAW
	H Disc.	10	WF	104 L.H.	
	I Disc.	1	WF	326 L.H.	SHAW
	J Disc.	1	WF	335 L.H.	SHAY
	[2]Lect. 2	2	MW	228 N.H.	RONALDS
	K Disc.	10	TT	329 L.H.	RONALDS
	L Disc.	11	TT	326 L.H.	RONALDS
	M Disc.	1	TT	329 L.H.	KING
	N Disc.	1	TT	305 L.H.	RONALDS
	O Disc.	2	TT	321 L.H.	SHAW
	P Disc.	2	TT	335 L.H.	CLAUSSEN
	Q Disc.	2	TT	306 L.H.	
	R Disc.	2	TT	311 L.H.	

[1]Seniors will receive only 3 hours credit.

[2]Students in Lecture 1 must elect a discussion in the A-J group. Students in Lecture 2 must elect a discussion in the L-R group.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hist. 2b. English History, 1688-1937.—

Credit	Section	Hours	Days	Room	Instructor
3[1]	Lect. 1	11	M	L. H. Theatre	Dietz
	Lect. 2	2	M	Morrow Hall	Dietz
[1]Seniors will receive only 2 hours credit.	A Disc.	10	TT	321 L.H.	Dietz
	B Disc.	10	TT	300 L.H.	Claussen
	C Disc.	11	TT	311 L.H.	Mayhill
	D Disc.	11	TT	300 L.H.	
	E Disc.	2	TT	308 L.H.	
	F Disc.	2	TT	224 L.H.	Mayhill
	G Disc.	11	WF	329 L.H.	Shay
	H Disc.	11	WF	224 L.H.	
	I Disc.	11	WF	335 L.H.	
	J Disc.	11	WF	238 L.H.	
	K Disc.	1	WF	303a L.H.	Erickson
	L Disc.	2	WF	335 L.H.	
	M Disc.	2	WF	311 L.H.	Shay
	N Disc.	2	WF	329 L.H.	Claussen
	O Disc.	2	WF	340 L.H.	Shaw

Hist. 3b. History of the United States, 1828-1937.—*Prerequisite:* One year of college work.

3	[1]Lect. 1	8	MF	218 U.H.	Werner
	A Disc.	8	Tu	305 L.H.	Werner
[1]Students in Lecture 1 must elect a discussion in the A-H group. Students in Lecture 2 must elect a discussion in the I-N group.	B Disc.	8	W	305 L.H.	Werner
	C Disc.	8	W	311 L.H.	Braderman
	D Disc.	8	W	303a L.H.	Krenkel
	E Disc.	9	W	308 Adm.(E)	Werner
	F Disc.	10	W	329 L.H.	Werner
	G Disc.	11	W	311 L.H.	Werner
	H Disc.	8	Th	305 L.H.	Werner
	[1]Lect. 2	2	MF	218 U.H.	Hansen
	I Disc.	2	Tu	238 L.H.	Hansen
	J Disc.	1	W	321 L.H.	King
	K Disc.	2	W	224 L.H.	Krenkel
	L Disc.	2	W	321 L.H.	King
	M Disc.	2	W	308 L.H.	Braderman
	N Disc.	1	Th	303a L.H.	

Hist. 5b. The Ancient World.—*Prerequisite:* Sophomore standing.

3	Lect.	2	MF	303 L.H.	Swain
	A Disc.	2	Tu	240 L.H.	Bone
	B Disc.	2	W	240 L.H.	Bone
	C Disc.	2	W	304 L.H.	Swain
	D Disc.	2	Th	240 L.H.	Bone

Hist. 18. The Teaching of History.—*Prerequisite:* One year of college history; senior standing.

2	3	TT	303 L.H.	Werner

Hist. 23b. Puritan Revolution in England and America, 1642-1713.—*Prerequisite:* Junior standing; one year of college history or political science.

2	11	TT	410 U.H.	Pease

Hist. 33b. History of Russia Since 1881; Revolution; the Soviet Union.—*Prerequisite:* Junior standing; one year of college history.

3	10	MWF	219 L.H.	Rodkey

Hist. 34b. Development of Modern Europe, 1789-1848.—*Prerequisite:* Junior standing; one year of college history.

3	11	MWF	204 L.H.	Erickson

Hist. 35. History of Civilization among the Western Slavs.—*Prerequisite:* One year of college history.

2	9	TT	329 L.H.	Rodkey

Hist. 37. The Far East in Modern Times.—*Prerequisite:* One year of college history.

2	8	TT	303 L.H.	Lybyer

Hist. 42. Medieval Civilization, Religious and Intellectual.—*Prerequisite:* One year of college history.

3	2	TT	329 L.H.	Larson

Hist. 43. The British People in the Victorian Age, 1830-1901.—*Prerequisite:* One year of college history.

2	1	TT	204 L.H.	Erickson

Hist. 45b. History of England in the Eighteenth and Early Nineteenth Centuries (1760-1830).—*Prerequisite:* Junior standing; one year of college history.

2	2	TT	303 L.H.	Ronalds

Hist. 51b. Hebrew History: Post-exilic and New Testament Times.—*Prerequisite:* Junior standing.

2	2	TT	305 L.H.	Swain

Hist. 90b. Thesis.—*Prerequisite:* Senior standing.

2 to 4*	To be arranged	Lybyer

Hist. 91b. Honors Course: Pro-seminar in Recent History.—*Prerequisite:* Senior standing.

2 to 4*	To be arranged	Lybyer

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Advanced Undergraduates and Graduates

(Open to juniors and seniors)

Hist. 17b. Social and Economic Forces in the Nineteenth Century (since 1860).—*Prerequisite:* History 3b.

Credit	Section	Hours	Days	Room	Instructor
3		9	MWF	303 L.H.	HANSEN

Hist. 19b. History of American Immigration since the Civil War.—*Prerequisite:* History 3b.

2		9	TT	303 L.H.	HANSEN

Hist. 20b. The South since 1850.—*Prerequisite:* One year of college history.

2		8	TT	321 L.H.	RANDALL

Hist. 22b. History of the West, 1774-1830.—*Prerequisite:* One year of college history.

2		10	TT	410 U.H.	PEASE

Hist. 27. History of Latin America from the Wars of Independence to the Present Time.—*Prerequisite:* One year of college history.

3		2	MWF	305 L.H.	ROBERTSON

Hist. 29. America and Europe: Selected Topics, 1776-1870.—*Prerequisite:* One year of college history.

3		8	MWF	308 L.H.	ROBERTSON

Hist. 32b. Recent European History, 1914-1937.—*Prerequisite:* One year of college history, economics, or political science.

3		8	MWF	L.H. Theatre	LYBYER

Hist. 36b. Imperial and Republican Germany; the National Socialist State, 1862-1937.—*Prerequisite:* One year of college history.

3		9	MWF	308 L.H.	RODKEY

Hist. 38b. Development of the French Monarchy in Early Modern Times, 1285-1648.—*Prerequisite:* History 1a.

3		9	MWF	329 L.H.	JONES

Hist. 44b. Constitutional History of England.—*Prerequisite:* One year of college history or political science.

3		3	MWF	303 L.H.	LARSON

Hist. 46b. Social and Economic History of England, 1848-1937.—*Prerequisite:* One year of college history or economics.

3		9	MWF	335 L.H.	DIETZ

Hist. 56. History of the Roman Republic.—*Prerequisite:* One year of college history.

3		1	MWF	202 L.H.	OLDFATHER

Hist. 57b. Ancient Imperialism: Augustus to Constantine.—*Prerequisite:* One year of college history.

3		11	MWF	303a L.H.	SWAIN

Hist. 60. The United States in the World War.—*Prerequisite:* One year of college history.

3		11	MWF	304 L.H.	RANDALL

Hist. 62b. Political and Constitutional Development of the United States (since 1809).—*Prerequisite:* One year of college history or political science.

3		10	MWF	106 L.H.	RANDALL

Courses for Graduates

Hist. 101b. Seminar in American History: Investigation of Selected Topics.—(1 unit). 4-6 Tu; 321 L.H. Professor RANDALL.

Hist. 102b. Seminar in English History: Studies in the Later Years of Queen Elizabeth's Reign.—(1 unit). 4-6 Th. Professor DIETZ.

Hist. 104b. Seminar in Modern History: Mediterranean Problems since 1798.—(1 unit). 4-6 W. Professor LYBYER.

Hist. 105. Research in Special Topics (Thesis Course).—(1 to 2 units).* Professors LARSON, LYBYER, ROBERTSON, PEASE, JONES, RANDALL, HANSEN, DIETZ; Associate Professors RODKEY, SWAIN; Assistant Professors RONALDS, WERNER.

Hist. 106b. Seminar in the History of the Later Middle Ages.—(1 unit). Arrange. Professor LARSON.

Hist. 117. Social History of the United States since 1865.—Studies in the social aftermath of the Civil War: agrarian unrest, immigration, urbanization, intellectual interests of the American people. (1 unit). 10-12 S. Professor HANSEN.

Hist. 122a. The Westward Movement, 1740-1755.—(1 unit). 4-6 Th. Professor PEASE.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hist. 127. Inter-American Relations: Relations of the Latin-American Nations with each other and with the United States.—(1 unit). Arrange. Professor ROBERTSON.

Hist. 133b. Studies in the History of Europe in the Nineteenth Century (1848-1878).—(1 unit). 9-11 S. Associate Professor RODKEY.

Hist. 138b. Studies in the History of France during the Religious Civil Wars (1547-1598).—(1 unit). Arrange. Professor JONES.

Hist. 150b. Seminar in Ancient History.—(1 unit). 3-5 M; 114 Lib. Associate Professor SWAIN.

HOME ECONOMICS

Note: Certain courses in this department require laboratory fees varying from $0.50 to $16.00.

College of Agriculture

For Curriculum in General Home Economics, see "Directions for Registration," page 49.
For Curriculum in Nutrition and Dietetics, see "Directions for Registration," page 51.

College of Education

For Curriculum in Home Economics Education, see "Directions for Registration," page 54.
For Curriculum in Home Economics Education—Smith-Hughes, see "Directions for Registration," page 54.

College of Liberal Arts and Sciences

Major A.—General Home Economics: 20 hours from courses offered by the department, excluding Home Economics 7 and 58, and including Home Economics 2, 5, 10, 29, 59, and two or more of the following: Home Economics 14, 20, 28, 31, 33, 35, 41, 43a, 43b, 48, 55, 57a, 57b.

Major B.—Nutrition: 20 hours excluding Home Economics 58, and including Home Economics 5, 39a, 39b, 41, 59, and two or more of the following: Home Economics 20, 33, 35, 45, 47.

Minor A.—20 hours chosen from one or two of the following subjects: chemistry, bacteriology. At least eight hours must be offered in each subject, if two are chosen.

Minor B.—20 hours chosen from one or two of the following subjects: economics, sociology. At least eight hours must be offered in each subject, if two are chosen.

For All Colleges

Transfer Students.—To satisfy the requirements for graduation, students transferring home economics credits from other institutions must take five hours in residence from the following: Home Economics 20, 28, 31, 33, 35, 39a, 39b, 41, 43a, 43b, 47, 48, 50, 51, 55, 57a, 57b.

Electives.—In addition to the required subjects in each college, it is expected that students will choose electives in accord with their special interests, as follows:

1. Textiles, clothing, and costume design: Home Economics 19, 30, 31, 42, 43a, 43b, 50, 51.
2. Institution management and hospital dietetics: Home Economics 20, 33, 35, 46, 47, 48, 62.
3. Household management: Home Economics 14, 28, 57a, 57b, and additional courses in economics.
4. House planning and furnishing: Art 11, 12; Architecture 11, 12; Home Economics 3, 43a, 43b, and additional courses in art and history.
5. Nutrition: Chemistry 22, 50a; Zoology 1; Home Economics 20, 33, 35, 39a, 39b, 41, 45.
6. Teaching of home economics: Home Economics 11, 13, 45; Education 6, 10, 25.

Courses for Undergraduates NOT Majoring in Home Economics

Courses 7, 38, 56a, 60, 61, and 70 are open to both men and women and, with the exception of Course 7, are NOT open to students majoring in Home Economics.

Home Econ. 7. Textiles.—See sections listed under Home Econ. 7 in the following group of courses.

Home Econ. 38. Elementary Nutrition.—*Prerequisite:* Sophomore standing.

Credit	Section	Hours	Days	Room	Instructor
2	F Lect.	2	MW	121 W.B.	BARTO
	K Lect.	9	TT	231 W.B.	

Home Econ. 56a. The Child and His Development.—*Prerequisite:* Senior standing or consent of instructor.

2	Lect.	10	MW	210 W.B.	WALLS

Home Econ. 60. Food Problems of Student Groups.—(A course for commissaries). Selection, buying, and managerial problems in the preparation and serving of food for student groups. *Prerequisite:* Sophomore standing; consent of the instructor.

1	Lect.	2	Tu	210 W.B.	SMITH, BARTO

Home Econ. 61. Introduction to Foods.—Standards of selection, preparation, and service of foods; grades, cost; consumers' problems.

Credit	Section	Hours	Days	Room	Instructor
3	Lect.	10	Tu	121 W.B.	Janssen
	Quiz	10	Th	121 W.B.	Janssen
	Lab.	3–5	M	235 W.B.	Janssen

Home Econ. 70. Clothing Selection.—Economic, artistic, psychologic, and hygienic problems in the selection of clothing. Includes no garment construction.

3	Lect.	9	Tu	117 W.B.	Whitlock, Eades
	Lab.	10–12	TT	203 W.B.	Whitehead

Courses for Undergraduates Majoring in Home Economics

Home Econ. 2. Home Architecture.—*Prerequisite:* Art 1a or the equivalent. *Prerequisite or concurrent:* Art 1b.

3	Lect.	1	MW	210 W.B.	Foster, Weaver
	Quiz	1	F	210 W.B.	Weaver
	C Conf.	10	F	309 W.B.	Weaver
	D Conf.	11	F	309 W.B.	Weaver
	F1 Conf.	2	F	309 W.B.	Weaver
	F2 Conf.	2	M	325 W.B.	Weaver
	G Conf.	3	M	325 W.B.	Weaver
	M Conf.	11	S	309 W.B.	Weaver

Home Econ. 3. Home Decoration.—*Prerequisite:* Art 1a and 1b, or the equivalent.

3	Lect.	10	S	210 W.B.	Weaver
	L Lab.	10–12	TT	309 W.B.	
	N Lab.	1–3	TT	309 W.B.	
	P Lab.	3–5	TT	309 W.B.	

Home Econ. 5. Dietetics.—*Prerequisite:* Chem. 33; Home Econ. 58; Physiol. 1 and 1a. *Prerequisite or concurrent:* Home Econ. 59.

4	Lect.	9	M	121 W.B.	Barto
	B1 Quiz	9	W	121 W.B.	Barto
	B2 Quiz	9	F	121 W.B.	Barto
	C Lab.	10–12	MW	229 W.B.	Riley
	N Lab.	1–3	TT	229 W.B.	Riley

Home Econ. 7. Textiles.—Students are required to take the quiz and laboratory in some one section.

3[1]	A Lect.	10	M	117 W.B.	Jacobsen
	1 Quiz	10	W	117 W.B.	Jacobsen
[1]Seniors will receive only 2 hours credit.	Lab.	10–12	F	304 W.B.	Jacobsen
	2 Quiz	10	F	117 W.B.	Jacobsen
	Lab.	10–12	W	304 W.B.	Jacobsen
	3 Quiz	1	Th	117 W.B.	Jacobsen
	Lab.	1–3	Tu	304 W.B.	Jacobsen
	4 Quiz	9	F	304 W.B.	Jacobsen
	Lab.	3–5	Th	304 W.B.	Jacobsen

Home Econ. 9. Home Economics Extension.—*Prerequisite:* Senior standing in home economics; consent of the instructor.

3	Lect.	{3–5	M	117 W.B.	Burns
		\3	W	117 W.B.	

Home Econ. 10. Organization and Management of the Home.—*Prerequisite:* Econ. 1 or 2; Home Econ. 7. *Prerequisite or concurrent:* Home Econ. 59.

3	A Quiz	8	MWF	121 W.B.	Bane, Nichols
	E Quiz	1	MWF	121 W.B.	Bane, Nichols

Home Econ. 11. The Teaching of Home Economics.—*Prerequisite:* Home Econ. 29 and 59; junior standing. One inspection trip (approximate cost, $2.50). Required of all who wish to be recommended to teach home economics.

3	Lect. and Disc.	2	TT	121 W.B.	Robinson

Home Econ. 13. Home Economics in Education.—Not offered in the second semester of 1936-37. Substitute Education 41, Principles of Vocational Education.

Home Econ. 14. Home Management.—Conferences and laboratory work in the home management apartment and laundry. Students reside in home management apartment four weeks during the semester. Required of all students who expect to meet the Smith-Hughes requirements. *Prerequisite:* Home Econ. 5 and 10; consent of the instructor.

3	Conf.	4	Th	117 W.B.	Nichols
	Lab.	To be arranged			

Home Econ. 19. Costume Design.—*Prerequisite:* Art 1a and 1b, or the equivalent.

3	Lect.	1	F	117 W.B.	Eades
	C Lab.	10–12	MW	309 W.B.	
	E Lab.	1–3	MW	309 W.B.	

Home Econ. 29. Clothing.—*Prerequisite:* Art 1a or 1b; Home Econ. 7.

Credit	Section	Hours	Days	Room	Instructor
4	Lect.	9	F	210 W.B.	WHITLOCK
	B Quiz	9	W	117 W.B.	BEAM
	L Quiz	10	Th	117 W.B.	BEAM
	C Lab.	10–12	MW	327 W.B.	BEAM
	E Lab.	1–3	MW	327 W.B.	BEAM
	N Lab.	1–3	TT	327 W.B.	BEAM
	G Lab.	3–5	MW	327 W.B.	WHITEHEAD

Home Econ. 30. Clothing.—*Prerequisite:* Art 1a and 1b; Home Econ. 29. *Prerequisite or concurrent:* Home Econ. 19.

3	Lect.	2	F	121 W.B.	WHITLOCK
	E Lab.	1–3	MW	203 W.B.	
	N Lab.	1–3	TT	203 W.B.	

Home Econ. 40. Home Care of the Sick.—*Prerequisite:* Junior standing in home economics.

1	Lect.	2	M	210 W.B.	BROOKS

Home Econ. 46. Quantity Cookery.—*Prerequisite:* Home Econ. 59.

3	Quiz	4	W	121 W.B.	SMITH, UNDERWOOD, DOSTER
	Lab.	8–11 Two mornings a week to be arranged. Students are advised not to have eleven o'clock classes, as they are required to serve from 11:30 to 12:30 at least two days a week.			

Home Econ. 47. Institution Management.—*Prerequisite:* Econ. 1 or 2; senior standing. *Prerequisite or concurrent:* Home Econ. 46.

3	Lect. and Disc.	2	MWF	117 W.B.	SMITH

Home Econ. 58. Foods.—*Prerequisite:* Chemistry 1 and 5.

5	Lect.	9	MW	210 W.B.	WOODRUFF
	B Quiz	9	F	208, 117 W.B.	JANSSEN, ROGOSHESKI
	D Quiz	11	F	121 W.B.	WOODRUFF
	C Lab.	10–12	MWF	235 W.B.	ROGOSHESKI
	E Lab.	1–3	MWF	235 W.B.	ROGOSHESKI
	N Lab.	1–3	TT	235 W.B.	ROGOSHESKI
		10–12	S	235 W.B.	
	I Lab.	8–10	TTS	235 W.B.	JANSSEN

Home Econ. 59. Food Economics.—*Prerequisite:* Home Econ. 58.

2	Lect.	11	Th	210 W.B.	WOODRUFF
	P1 Lab.	3–5	Tu	229 W.B.	JANSSEN
	G Lab.	3–5	W	229 W.B.	JANSSEN
	P2 Lab.	3–5	Th	229 W.B.	ROGOSHESKI

Home Econ. 90b. Thesis and Honors.—Intended primarily for candidates for honors but open to other seniors. *Prerequisite:* Senior standing; approval of the head of the department.

3 to 5*	To be arranged	Members of the department

Courses for Advanced Undergraduates and Graduates

Home Econ. 31. Clothing.—*Prerequisite:* Home Econ. 30.

3	Quiz	11	F	203-5 W.B.	WHITLOCK
	Lab.	10–12	MW	203-5 W.B.	

Home Econ. 33. Diet in Disease.—*Prerequisite:* Home Econ. 5.

3	Lect.	3	F	121 W.B.	BARTO
	Quiz	3	W	121 W.B.	
	Lab.	3–5	M	229 W.B.	

Home Econ. 39b. Readings in Foods and Nutrition.—*Prerequisite:* Home Econ. 5; senior standing. *Prerequisite or concurrent:* One of the following: Chem. 50a, Home Econ. 20, 33, 35, 41, 62.

1	1 Seminar	4-5:30	Th	203 W.B.	WOODRUFF, OUTHOUSE, BARTO, and HATHAWAY
	2 Seminar	10	S	203 W.B.	

Home Econ. 41. Problems in Nutrition.—*Prerequisite:* Chem. 50a; Physiol. 1 and 1a; senior standing.

3 to 5*	1 Disc.	10	WF	121 W.B.	OUTHOUSE, HATHAWAY
	Lab.	8–10	MWFS	215 W.B.	
	2 Disc.	9	MW	231 W.B.	
	Lab.	10–12	MWFS	215 W.B.	

Home Econ. 43b. Problems in Textiles and Clothing.—*Prerequisite:* Econ. 1 or 2; Home Econ. 30 or 51. Individual problems may involve prerequisites of chemistry and physics.

3	Quiz and Lab.	To be arranged		304 W.B.	JACOBSEN, WHITLOCK, EADES

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Home Econ. 45. Organization and Teaching of Nutrition Classes.—*Prerequisite:* Home Econ. 5; senior standing; consent of the instructor.

Credit	Section	Hours	Days	Room	Instructor
2	Disc.	4	W	117 W.B.	BARTO, KING
	M Lab.	1:30	Th	Leal School	
	N Lab.	2:30	Th	Leal School	

Home Econ. 48. Institution Dietaries and Administration.—*Prerequisite:* Home Econ. 5 and 47; consent of the instructor. Three and one-half day field trip to Chicago (approximate cost, $25).

4	Lect.	9	TT	121 W.B.	SMITH, SILANDER
	Lab.	8–12	S	207 W.B.	

Home Econ. 50. Costume Design.—*Prerequisite:* Home Economics 30 and 42.

3	Lab.	9–12	TT	304 W.B.	EADES

Home Econ. 51. Textiles.—*Prerequisite:* Chem. 5; Econ. 1 or 2; Home Econ. 7; junior standing.

3	Lect.	1	F	304 W.B.	JACOBSEN
	Lab.	1–3	MW	304 W.B.	

Home Econ. 56. The Child and His Development.—*Prerequisite:* Home Econ. 10; Psych. 1; senior standing.

2	1 Lect.	1	MW	117 W.B.	WALLS
	2 Lect.	10–12	S	117 W.B.	WALLS

Home Econ. 57b. Problems in Home Management.—*Prerequisite:* Home Econ. 10; consent of the instructor.

3	To be arranged			107 W.B.	BANE

Courses for Graduates

Home Econ. 101. Home Economics.—(1 unit). Members of department.

Home Econ. 102. Research in Nutrition.—(½ to 3 units).* Associate Professor OUTHOUSE, Dr. HATHAWAY.

Home Econ. 103. Seminar in Nutrition.—(½ unit). Once a week. Associate Professor OUTHOUSE, Dr. HATHAWAY.

Home Econ. 104. Research in Foods.—(½ to 3 units).* Professor WOODRUFF.

Home Econ. 105. Seminar in Foods.—(½ unit). 11-12:30 S, or arrange. Professor WOODRUFF.

HORTICULTURE

Note: Certain courses in this department require laboratory fees varying from $1.00 to $2.50.

Courses for Undergraduates

Hort. 1. Introductory Horticulture.—(No credit allowed to juniors and seniors).

Credit	Section	Hours	Days	Room	Instructor
3	A Disc.	10	TT	127 New Agr.	COLBY, MCMUNN, and WEAVER
	Lab.	10–12	S	H.F. Lab.	
	B Disc.	8	TT	127 New Agr.	
	Lab.	8–10	S	H.F. Lab.	
	C Disc.	10	WF	118 New Agr.	
	Lab.	10–12	M	H.F. Lab.	
	D Disc.	10	MW	127 New Agr.	
	Lab.	10–12	F	H.F. Lab.	

Hort. 2. Small Fruit Culture.—*Prerequisite:* Hort. 1.

2	A	1–3	TT	118 New Agr. until April 1; thereafter 106 H.F. Lab.	COLBY

Hort. 3. Commercial Vegetable Gardening.—*Prerequisite:* Hort. 1 or junior standing.

3	A	1–3	MWF	203 V.G.	LLOYD, WEAVER

Hort. 4. Plant Houses.—

3	A	3	MWF	F.G.	DORNER

Hort. 7. Spraying.—*Prerequisite:* Hort. 1; Chem. 1.

3	Lect. and Quiz	10–12	W	203 V.G.	RUTH
	Lab.	10–12	MF	106 H.F. Lab.	

Hort. 8b. Orcharding.—*Prerequisite:* Hort. 1. (Inspection trip required).

3	A	1–3	MW	106 H.F. Lab.	MCMUNN
		1	F	106 H.F. Lab.	

Hort. 15a. Greenhouse Management.—*Prerequisite:* Hort. 5; Bot. 5.

3	A	10–12	MWF	F.G.	DORNER, HALL

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hort. 15c. Commercial Floricultural Crops.—*Prerequisite:* Hort. 15b.

Credit	Section	Hours	Days	Room	Instructor
3	A	8–10	TTS	F.G.	HALL

Hort. 22b. Investigation with Thesis.—*Prerequisite:* Senior standing with not less than 20 hours pertinent to the thesis problem; approval of the head of the department. This course is continuous through the year; credit is not given for either semester separately. (5). Arrange. Work may be taken in the following subjects:

Pomology.—*Prerequisite:* Hort. 22a. Professors DORSEY, RUTH, COLBY, ANDERSON.
Olericulture.—*Prerequisite:* Hort. 22c. Professor LLOYD.
Floriculture.—*Prerequisite:* Hort. 22e. Professor DORNER, Associate Professor WEINARD.
Plant Breeding.—*Prerequisite:* Hort. 22g. Professor DORSEY.

Hort. 30. Tender Bedding Plants.—*Prerequisite:* Hort. 15a.

3	A	8–10	MWF	F.G.	HALL

Hort. 31. Garden Flowers.—*Prerequisite:* Bot. 5.

3	Lect.	1	MWF	F.G.	DORNER
	Lab.	To be arranged		F.G.	

Hort. 32b. Floral Decoration.—*Prerequisite:* Hort. 32a.

3	A	3–5	TT	F.G.	DORNER
		10–12	S	F.G.	

Courses for Advanced Undergraduates and Graduates

Hort. 44. Current Pomological Literature.—*Prerequisite:* Junior standing.

1	A	11	Th	118 New Agr.	RUTH

Hort. 45. Plant Nutrition.—*Prerequisite:* Bot. 3; Agron. 9 or 28; Hort. 3 or 15a; senior standing.

3	A	2	MWF	F.G.	WEINARD

Courses for Graduates

Hort. 103. Olericulture.—(1 to 2 units).* 10 S, or arrange. Professor LLOYD.

Hort. 108. Pomology.—(1 to 4 units).* 10 S, or arrange.
(a) **Pomological Problems.**—Professor BLAIR.
(b) **Pomology and Fruit Breeding.**—Professor DORSEY.
(c) **Pomological Physiology.**—Professor RUTH.
(d) **Small Fruits.**—Professor COLBY.
(e) **Pomological Pathology.**—Professor ANDERSON.

Hort. 115. Floriculture.—(1 to 2 units).* Arrange.
(a) **Floricultural Problems.**—Professor DORNER.
(b) **Floricultural Physiology and Pathology.**—Associate Professor WEINARD.

Hort. 120. Pomology Seminar.—(¼ unit). Arrange. Professors DORSEY, RUTH, ANDERSON.

Hort. 140. Advanced Small Fruit Culture.—(1 unit). Arrange. Professor COLBY.

HYGIENE

Courses for Undergraduates

Hygiene 2. Essentials of Hygiene and Sanitation.—Required of all undergraduate women during their first year of residence. Those whose names begin with the letters from M through Z should register the second semester.

Credit	Section	Hours	Days	Room	Instructor
2[1]	A1	8	TT	109 L.H.	MILLBROOK
[1]Seniors will receive only 1 hour credit.	A2	8	WF	204 Adm.(E)	MILLBROOK
	B1	9	TT	106 L.H.	ETHEREDGE
	B2	9	WF	214 U.H.	ETHEREDGE
	C1	10	TT	109 L.H.	LYNCH
	F1	2	TT	109 L.H.	COON
	F2	2	MW	202 L.H.	COON
	G1	3	MW	106 L.H.	LYNCH

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Hygiene 5. Elementary Hygiene and Sanitation.—Required of all undergraduate men during their first year of residence. Students who did not complete the course during the first semester should register in the second semester.

Credit	Section	Hours	Days	Room	Instructor
2[1]	A1	8	MW	128 New Agr.	Beard
[1]Seniors will receive only 1 hour credit.	A2	8	TT	128 New Agr.	Judah
	A3	8	WF	214 New Agr.	Judah
	B1	9	TT	128 New Agr.	Beard
	B2 (Pre-Med.)	9	WF	128 New Agr.	Beard
	B3 (Eng.)	9	MW	319 E.H.	Thacker
	B4 (Pre-Med.)	9	TT	127 New Agr.	Lewis
	B5	9	WF	127 New Agr.	Lewis
	B6	9	TT	214 New Agr.	Thacker
	C1 (Pre-Med.)	10	TT	128 New Agr.	Cain
	C2	10	WF	128 New Agr.	Cain
	C3 (Eng.)	10	MF	319 E.H.	Blackstone
	C4 (Eng.)	10	TT	319 E.H.	Blackstone
	C5	10	TT	313 New Agr.	Freeman
	C6	10	MW	214 New Agr.	Freeman
	D1	11	MW	128 New Agr.	Gebhart
	D2	11	TT	128 New Agr.	Gebhart
	F1 (Eng.)	2	TT	319 E.H.	Judah
	F2	2	WF	127 New Agr.	Thacker
	F3	2	MW	128 New Agr.	Lewis
	G1	3	TT	128 New Agr.	Blackstone
	G2 (Eng.)	3	WF	319 E.H.	Freeman
	G3	3	MW	128 New Agr.	Cain

Hygiene 10. Advanced Hygiene.—Especially suited to the needs of teachers, coaches, and social workers. *Prerequisite:* Hygiene 2 or 5.

2	F	3	MW	127 New Agr.	Gebhart

JOURNALISM

Note: Certain courses in this department require laboratory fees varying from $1.00 to $2.00.

Courses for Undergraduates

Journ. 2a. Supervised Publication Work.—For members of the *Daily Illini* reporting staff and the editorial staff workers on the *Technograph*, etc. Four hours of regular staff duty and one 15-minute faculty conference each week. *Prerequisite:* Sophomore standing in the University and 3.5 average.

Credit	Section	Hours	Days	Room	Instructor
1	A	To be arranged		122 U.H.	

Journ. 3. The Press and Public Opinion.—The press and influences at work through the press in relation to public opinion. Open to students in all parts of the University. *Prerequisite:* Sophomore standing in the University.

2	L	10	TT	204 U.H.	Barlow

Journ. 4. Newspaper Reference Studies.—Use of morgue, bibliographical, and reference materials. *Prerequisite:* Freshman standing and pre-journalism or School of Journalism registration.

2[1]	F	2	MW	214 U.H.	

[1]Seniors will receive only 1 hour credit.

Journ. 5. Reporting.—News story form; gathering and writing news. *Prerequisite:* Sophomore standing. Students register for lecture and one laboratory section.

3	Lect. K	9	Th	214 U.H.	Leiter
	Lab. A	8–10	WF	113 U.H.	Leiter
	Lab. G	3–5	MW	113 U.H.	Leiter
	Lab. L	10–12	TT	118 U.H.	Herron

Journ. 6. Reporting.—Continuation of Journ. 5; news of public life and public affairs; general press, radio, and news reel reporting. *Prerequisite:* Journ. 5 or equivalent. Students register for lecture and one laboratory section.

3	Lect. K	9	Tu	315 U.H.	Leiter
	Lab. C	10–12	MW	113 U.H.	
	Lab. L	10–12	TT	113 U.H.	
	Lab. N	1–3	TT	113 U.H.	
	Lab. P	3–5	TT	113 U.H.	

Journ. 8. Sports Writing.—A service course for students in Physical Education. *Prerequisite:* Sophomore standing in the School of Physical Education and Journ. 7.

3	E	1	MWF	318 U.H.	Schooley

Journ. 9a. Printing and Publishing.—Types, publishing, engraving, offset process, news picture processing, cameras, etc. *Prerequisite:* Sophomore standing.

2	Lect. B	9	M	318 U.H.	Barlow and Shere
	Lab. A	8–10	W	126 U.H.	
	Lab. J	8–10	Th	126 U.H.	
	Lab. L	10–12	Th	126 U.H.	

Courses for Advanced Undergraduates

Journ. 11. The Press, the Courts, and the Law.—*Prerequisite:* Junior standing.

Credit	Section	Hours	Days	Room	Instructor
3	C	10	MWF	315 U.H.	SIEBERT

Journ. 13. Copyreading.—*Prerequisite:* Junior standing, or 45 hours credit and consent of the instructor.

3	Lect. C	10	M	203 U.H.	
	Lab. D	10–12	WF	122 U.H.	

Journ. 14. Copyreading.—*Prerequisite:* Junior standing and Journ. 13.

3	Lect. G	3	M	315 U.H.	SIEBERT
[1]Lab. H is for students with desk experience. Consult adviser before registering.	Lab. N	1–3	TT	118 U.H.	SIEBERT
	Lab. E	1–3	WF	118 U.H.	SHERE
	Lab. P	3–5	TT	118 U.H.	SIEBERT
	[1]Lab. H	To be arranged			

Journ. 16. Special and Feature Articles.—*Prerequisite:* Junior standing and credit or registration in another course in Journalism.

2	C	10–12	W	122 U.H.	SHERE
			F	113 U.H.	

Journ. 18. Ethics of Journalism.—*Prerequisite:* Junior standing.

3	D	11	MWF	315 U.H.	MURPHY

Journ. 26. Newspaper Advertising Copy.—*Prerequisite:* Journ. 25.

3	Lect.	10	M	410 U.H.	DICKINSON
	Lab. A	8–10	WF	118 U.H.	
	Lab. C	10–12	WF	118 U.H.	
	Lab. J	8–10	TT	118 U.H.	

Journ. 29. Advanced Reporting.—General news, correspondence, and news photography. *Prerequisite:* Junior standing.

3	Lect. F	2	M	211 U.H.	BARLOW
	Lab. E	1–3	WF	113 U.H.	
	Lab. J	8–10	TT	113 U.H.	

Journ. 34. Newspaper Advertising Layout.—*Prerequisite:* Journ. 33.

3	Lect.-Disc. N	1–3	Tu	126 U.H.	DICKINSON
	Lab. O	1–3	Th	126 U.H.	

Journ. 36. Contemporary Affairs.—*Prerequisite:* Junior standing.

2	M	11	TT	315 U.H.	SIEBERT

Journ. 40. Special Problems.—Open to seniors not writing theses in journalism. *Prerequisite:* Senior standing.

2		To be arranged			SIEBERT

Journ. 41. Business Problems of the Newspaper.—The departmentalized daily. *Prerequisite:* Junior standing.

3	E	1	MWF	404 U.H.	DICKINSON

Journ. 46. Governmental and Political Journalism.—*Prerequisite:* Junior standing, Journ. 5 and 6, and 6 hours of Political Science.

3	D	11	MWF	212 U.H.	BARLOW

Journ. 52. Public Relations Service.—*Prerequisite:* Senior standing in the School of Journalism.

2	C	10	MW	106 U.H.	MURPHY

Journ. 59b. Journalism Lectures.—Required of juniors and seniors in the School of Journalism. Not open to other students. Credit toward graduation.

	H	4	M	218 U.H.	SIEBERT

Journ. 60b. Thesis Course.—Open to seniors with average above 4.2, with the consent of the Director.

2		To be arranged			MURPHY

LANDSCAPE ARCHITECTURE

Note: Certain courses in this department require laboratory fees varying from $0.50 to $2.00.

Courses for Undergraduates

L.A. 32. Elementary Landscape Design.—*Prerequisite:* L.A. 31.

Credit	Section	Hours	Days	Room	Instructor
3	A	8–11	MWF	200 New Agr.	WHITE

L.A. 34. Intermediate Landscape Design.—*Prerequisite:* L.A. 33.

Credit	Section	Hours	Days	Room	Instructor
3	A	9–12	TTS	200 New Agr.	White

L.A. 36. Advanced Landscape Design.—*Prerequisite:* L.A. 35.

5	A	1–5	MWF	203 New Agr.	Lohmann
		9–12	S	203 New Agr.	

L.A. 38. Civic Design.—*Prerequisite:* Senior standing in the City Planning Option.

4	Lect. and Lab.	1–4	MWF	203 New Agr.	Lohmann
		9–12	S	203 New Agr.	

L.A. 44. Landscape Construction.—*Prerequisite:* L.A. 43.

3	Lect.	9	MF	211 New Agr.	White
	Lab.	10–12	MF	200 New Agr.	
		9–12	W	200 New Agr.	

L.A. 46. Office Practice in Landscape Architecture.—*Prerequisite:* L.A. 35.

1	A	8	S	211 New Agr.	Lohmann

L.A. 52. Trees and Shrubs.—*Prerequisite:* L.A. 51. (Open only to students in Landscape Architecture and Floriculture).

3	Lect.	3	W	214 New Agr.	Robinson
	Lab.	3–5	MF	211 New Agr.	

L.A. 54. Planting Design.—*Prerequisite:* L.A. 53.

3	Lect.	1	Tu	211 New Agr.	Robinson
	Lab.	2–5	Tu	203 New Agr.	
		1–5	Th	203 New Agr.	

L.A. 62. Rural Improvement.—*Prerequisite:* Sophomore standing. (Credit not allowed for both L.A. 62 and 64).

2	A	11	TT	214 New Agr.	Peterson

L.A. 64. Appreciation of Landscape Architecture.—For students not specializing in landscape architecture. *Prerequisite:* Sophomore standing. (Credit not allowed for both L.A. 64 and 62).

3	A	11	MWF	127 New Agr.	Peterson

L.A. 72. City Planning.—*Prerequisite:* Junior standing.

2	A	10	TT	214 New Agr.	Bartholomew and Lohmann

L.A. 74. Regional Planning.—*Prerequisite:* Sophomore standing.

3	A	11	MWF	214 New Agr.	Lohmann and others

LAW

Note: Students other than those registered in the College of Law are required to pay fees at the rate of $1.00 per semester hour for courses in law.

First Year Courses

Law 1b. Contracts.—Costigan: *Cases on Contracts* (2d ed.).

Credit	Section	Hours	Days	Room	Instructor
3	A	10	WTF	106 Law	Goble
	B	11	WTF	106 Law	Goble

Law 2b. Torts.—Bohlen: *Cases on Torts* (3d ed.).

2	A	2	ThF	103 Law	Weisiger
	B	3	ThF	103 Law	Weisiger

Law 10. Real Property I. Titles.—Aigler: *Cases on Titles to Real Property* (2d ed.). Bigelow: *Introduction to the Law of Real Property.*

4	A	8	TWTF	103 Law	Summers

Law 12. Equity I.—Cook: *Cases on Equity* (2d one-volume ed.).

3	A	2	MTW	103 Law	Holt
	B	3	MTW	103 Law	Holt

Law 22. Constitutional Law I. The State and the Nation.—Dodd: *Cases on Constitutional Law.*

2	A	10	MTu	106 Law	Casner
	B	11	MTu	106 Law	Casner

Law 45. Use of Law Books.—Weisiger: *Manual for the Use of Law Books.*

1	A	8	M	103 Law	Weisiger
	B	9	M	103 Law	Weisiger

Second and Third Year Courses

Law 6b. International Law.—Law of war and neutrality.

Credit	Section	Hours	Days	Room	Instructor
3	A	10	MWF	303 L.H.	Garner

Law 8. Evidence.—Morgan and Maguire: *Cases on Evidence.*

3	A	11	MWF	103 Law	Harno

Law 15. Bills and Notes.—Britton: *Cases on Bills and Notes* (2d ed.).

3	A	2	MTW	303 Law	Britton
	B	3	MTW	303 Law	Britton

Law 16b. Trusts.—Scott: *Cases on Trusts* (2d ed.).

2	A	2	ThF	303 Law	Schnebly
	B	3	ThF	303 Law	Schnebly

Law 18. Wills and Administration.—Costigan: *Cases on Wills, Descent, and Administration* (2d ed.).

3	A	10	WTF	103 Law	Summers

Law 21b. Credit Transactions II.—Mortgages, pledges, and conditional sales. Sturges: *Cases on Credit Transactions* (2d ed.).

3	A	11	WTF	300 Law	Ferrall

Law 31b. Conflict of Laws.—Lorenzen: *Cases on Conflict of Laws* (3d ed.).

2	A	9	MTu	303 Law	Holt

Law 32. Equity III.—Cook: *Cases on Equity* (2d ed.), Vol. III.

3	A	2	MTW	106 Law	Goble

Law 38. Real Property III.—Future interests and restraints upon alienation. Powell: *Cases on Future Interests*, and selected cases.

4	A	8	TWTF	106 Law	Schnebly

Law 39b. Thesis Course.—This course is open to students who are candidates for the J.D. degree during the academic year next preceding their graduation.

1			To be arranged		Members of the staff

Law 40. Bankruptcy.—Britton: *Cases on Bankruptcy.*

2	A	10	MTu	303 Law	Britton

Law 41. Constitutional Law II. Government and the Individual.—Dodd: *Cases on Constitutional Law.*

3	A	9	WTF	106 Law	Casner

Law 50. Industrial Relations II.—Labor law.

2	A	3–5	W	306 Law	Weisiger

Law 55. Legal Problems II.—Comments on recent decisions. *Prerequisite:* Election to the Student Editorial Board, or one year of law work with at least an average grade of B (4.) in law courses, and consent of the instructor.

1			To be arranged		Ferrall

Law 57. Legal Problems IV.—Comments on recent decisions. *Prerequisite:* Legal Problems I or II, and at least an average grade of B (4.) in law courses, or consent of the instructor.

1			To be arranged		Ferrall

Law 62. Corporation Organization and Finance.—*Prerequisite:* Law 19 or its equivalent.

2	A	11	MTu	300 Law	Johnson

Law 64. Taxation.—Magill and Maguire: *Cases on Taxation* (2d ed.).

2	A	4	ThF	303 Law	Ferrall

LIBRARY SCIENCE

Courses for Freshmen and Sophomores

Lib. Sci. 12. General Reference.—

Credit	Section	Hours	Days	Room	Instructor
2	A	9	TT	118 Lib.	Hardin
	B	10	TT	118 Lib.	Benton
	C	11	TT	118 Lib.	Signor
	D	1	TT	118 Lib.	Wilson
	E	2	TT	118 Lib.	Scheerer

Courses for First-Year Library School Students

Lib. Sci. 2b. Reference.—

3	A	9	MWF	314 Lib.	Singleton
	B	11	MWF	227 Lib.	Singleton

Lib. Sci. 21. Printing and Binding.—

2	A	2	MW	314 Lib.	Singleton, Houchens

Lib. Sci. 33b. Library Administration.—College library problems. *Prerequisite:* Lib. Sci. 34.

Credit	Section	Hours	Days	Room	Instructor
3		8	TTS	314 Lib.	HENKLE

Lib. Sci. 37. Cataloging.—Continuation of Lib. Sci. 31a.

3	A	9–12	TTS	314–306 Lib.	BOND
2	B	9–12	TT	227–306 Lib.	KRIEG

Lib. Sci. 38. Selection of Books.—Continuation of Lib. Sci. 3a.

3	A	11	MWF	314 Lib.	BOYD
	B	9	MWF	227 Lib.	BOYD

Lib. Sci. 47. Subject Bibliography.—*Prerequisite:* Lib. Sci. 2a and consent of instructor.

2		3	TT	314 Lib.	HIGGINS

Courses for Advanced Library School Students and Graduate Students

Lib. Sci. 7. History of Libraries.—(2 semester hours or ½ unit). 2 TT; 314 Lib. Miss SINGLETON.

Lib. Sci. 24b. Book Selection for Special Groups.—*Prerequisite:* Lib. Sci. 24a. (2 semester hours or ½ unit). 11 MW; 328 Lib. Assistant Professor HOSTETTER.

Lib. Sci. 42. State, Municipal, and Foreign Documents.—*Prerequisite:* Lib. Sci. 13a. (3 semester hours or ½ unit). 9 MWT; 328 Lib. Miss HIGGINS.

Lib. Sci. 46. High School Library Administration.—*Prerequisite:* Fifteen hours of library science and consent of instructor. (3 semester hours or ½ unit). 3 MWF; 314 Lib. Assistant Professor HOSTETTER.

Lib. Sci. 48. Library Administration.—Special problems. *Prerequisite:* Lib. Sci. 34.

½ unit	A	10	MWF	314 Lib.	HENKLE
2	B	8	MW	314 Lib.	HENKLE
3	C	8	MWF	314 Lib.	HENKLE

Lib. Sci. 49. Children's Literature.—(2 semester hours or ½ unit). 1 TT; 314 Lib. Assistant Professor HOSTETTER.

Courses for Graduates

Lib. Sci. 101. Thesis.—(1 to 2 units).* Professor WINDSOR and others.

Lib. Sci. 102. Seminar.—

(b) **College and University Library Administration.**—(1 unit). 3-5 Tu; 328 Lib. Professor WINDSOR.

(c) **Individual Problems.**—(½ to 1 unit). To be arranged. Professor WINDSOR and others.

Lib. Sci. 103b. Advanced Reference.—(½ unit). 11 TT; 328 Lib. Miss HIGGINS.

Lib. Sci. 104b. Advanced Cataloging and Classification.—(½ unit). 8–10 F; 328 Lib. Associate Professor BOND.

MATHEMATICS

Major: 20 hours exclusive of Math. 2, 3, 4, 5, 6, 6a, 8a, 8b, and all courses taken during the freshman year, and inclusive of Mathematics 7 and 9, and two semesters of Math. 70, 71, 72.

Note: For undergraduate students intending to take advanced work or a major in mathematics, the following outline of freshman and sophomore work is suggested: Freshman year: first semester, Math. 2 (or 3) and 4 (or 5); second semester, Math. 6. Sophomore year: first semester, Math. 7; second semester, Math. 9. In certain courses Math. 6 may be replaced by Math. 6a, and Math. 7 and 9 by Math. 8a and 8b.

Minors: 20 hours exclusive of courses taken during the freshman year selected from one or two of the following subjects: astronomy, chemistry, physics, statistics (Math. 21, 22, 23, 30, and 31), economics, accountancy, philosophy, theoretical and applied mechanics, surveying. If two subjects are chosen, at least eight hours must be offered in each.

Note: Seniors receive reduced credit in Mathematics 2, 3, 4, 5, 6, or 6a.

Mathematics 32, 35, 36, and 40 are suggested as desirable courses for students preparing to teach high school mathematics.

Courses for Undergraduates

Math. 2. College Algebra.—*Prerequisite:* Entrance algebra, 1½ units; plane geometry, 1 unit.

Credit	Section	Hours	Days	Room	Instructor
3[1]	R1	8	MWF	102 Entom.	BERGMANN
	R2	8	MWF	105 Entom.	PETERS
	S	9	MWF	102 Entom.	WELCH
	T1	10	MWF	208 U.H.	THRALL
	T2	10	TTS	202 U.H.	HANSMAN
	[2]D	11	MWF	312 U.H.	BERGMANN
	W1	1	MWF	139 L.H.	HANSMAN
	W2	1	MWF	109 L.H.	PATE
	X	2	MWF	159 Math.	GENTRY
	Y1	3	MWF	110 L.H.	AMBROSE
	Y2	3	MWF	156 Math.	PATE
	[2]H	4	MWF	103 Entom.	WILSON

[1]Seniors will receive only 2 hours credit.

[2]Sections D and H are for freshman engineers.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Math. 3. Algebra.—*Prerequisite:* Entrance algebra, 1 unit; plane geometry, 1 unit.

Credit	Section	Hours	Days	Room	Instructor
5[1]	R1	8	MTWTF	110 L.H.	Dennis
	R2	8	MTWTF	206 U.H.	Cassity
[1]Students having 1½ entrance units in algebra will receive only 3 hours credit for this course. Seniors will receive only 4 hours credit.	S1	9	MTWTF	105 Entom.	Lindstrum
	S2	9	MTWTF	158 Math.	Rempfer
	T1	10	MTWTF	206 U.H.	Mason
	T2	10	MTWTF	159 Math.	Kibbey
	U1	11	MTWTF	159 Math.	Armstrong
	U2	11	MTWTF	103 Entom.	Teles
	W1	1	MTWTF	202 U.H.	Modesitt
	W2	1	MTWTF	154 Math.	Brown
	X1	2	MTWTF	155 Math.	Hoersch
	X2	2	MTWTF	202 U.H.	Maker
	Y1	3	MTWTF	158 Math.	Turpin
	Y2	3	MTWTF	202 U.H.	Maker

Math. 4. Plane Trigonometry.—*Prerequisite:* Entrance algebra, 1½ units, or registration in Math. 3; plane geometry, 1 unit.

2[1]	R	8	TT	156 Math.	Bailey
	[2]B	9	TT	155 Math.	Netzorg
[1]Seniors will receive only 1 hour credit.	S	9	TT	202 U.H.	Mason
	T	10	TT	155 Math.	Campbell
	[2]D	11	TT	110 L.H.	Dobbie
[2]Sections B, D, and E are for freshman engineers.	U	11	TT	155 Math.	Martin
	[2]E	1	TT	155 Math.	Bourgin
	W	1	TT	206 U.H.	Chanler
	X1	2	TT	158 Math.	Turpin
	X2	2	TT	159 Math.	Tordella
	Y1	3	TT	155 Math.	Hoersch
	Y2	3	TT	156 Math.	Eachus

Math. 6. Analytic Geometry.—*Prerequisite:* Math. 2 (or 3) and Math. 4.

5[1]	S	9	MTWTF	206 U.H.	Pepper
[1]Seniors will receive only 4 hours credit.	X	2	MTWTF	206 U.H.	Chanler
	Y	3	MTWTF	159 Math.	Brown

Math. 6a. Analytic Geometry.—(For chemists, architects, and engineers). *Prerequisite:* Math. 2 (or 3) and Math. 4.

4[1]	[2]A	8	MTWT	154 Math.	Miles
[1]Seniors will receive only 3 hours credit.	R	8	MTWT	158 Math.	Fryer
	[2]B1	9	MTWT	159 Math.	Armstrong
	[2]B2	9	MTWT	103 Entom.	Bristow
[2]Sections A, B1, B2, B3, D1, D2, D3, E1, E2, F1, F2, and G are for freshman engineers.	[2]B3	9	MTWT	208 U.H.	Dobbie
	S	9	MTWT	156 Math.	Campbell
	[2]D1	11	MTWT	208 U.H.	Levy
	[2]D2	11	MTWT	105 Entom.	Peters
	[2]D3	11	MTWT	156 Math.	Brahana
	[3]U1	11	MTWT	202 U.H.	Emch
[3]Sections U1 and W2 are for architects and architectural engineers.	U2	11	MTWT	158 Math.	Hazlett
	[2]E1	1	MTWT	159 Math.	Gentry
	[2]E2	1	MTWT	315 U.H.	Shreve
	W1	1	MTWT	156 Math.	Welker
	[3]W2	1	MTWT	105 Entom.	Tordella
	[2]F1	2	MTWT	103 Entom.	Wilson
	[2]F2	2	MTWT	156 Math.	Eachus
	[2]G	3	MTWT	154 Math.	Netzorg

Math. 7. Calculus.—First course for students of mathematics and engineering. *Prerequisite:* Math. 6 (or 6a).

5	A	8	MTWTF	155 Math.	Moore
	B	9	MTWTF	110 L.H.	Martin
	C	10	MTWTF	158 Math.	Hazlett
	D	11	MTWTF	206 U.H.	Mason
	E1	1	MTWTF	103 Entom.	Wilson
	E2	1	MTWTF	158 Math.	Turpin
	F	2	MTWTF	154 Math.	Bourgin
	G	3	MTWTF	206 U.H.	Chanler

Math. 9. Calculus.—Second course for students of mathematics and engineering. *Prerequisite:* Math. 7.

3	A1	8	MWF	202 U.H.	Emch
	B1	9	MWF	155 Math.	Crathorne
	C1	10	MWF	102 Entom.	Trjitzinsky
	C2	10	TTS	156 Math.	Doob
	D	11	MWF	110 L.H.	Bower
	E1	1	MWF	206 U.H.	Chanler
	E2	1	MWF	155 Math.	Mason
	F	2	MWF	102 Entom.	Bristow

Math. 8b. Calculus.—For students of chemistry and chemical engineering, and insurance. *Prerequisite:* Math. 8a.

Credit	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	103 Entom.	Bower
	A2	8	MWF	159 Math.	Armstrong
	C1	10	MWF	154 Math.	Brahana
	C2	10	MWF	105 Entom.	Peters
	D	11	MWF	102 Entom.	Doob
	E	1	MWF	102 Entom.	Bristow

Math. 9a. Calculus.—Special topics. *Prerequisite:* Math. 7 and 9 (or 8a-8b).

2	C	10	TT	154 Math.	Peters
	D1	11	TT	102 Entom.	Bristow
	D2	11	TT	154 Math.	Moore
	F	2	MF	110 L.H.	Steimley

Math. 23. Mathematics of Finance.—*Prerequisite:* Math. 2; junior standing.

3	A	8	TTS	159 Math.	Kent
	B	9	TTS	154 Math.	Fryer
	C	10	MWF	110 L.H.	Bower
	D	11	MWF	214 U.H.	Shreve
	E	1	MWF	403 U.H.	Kent
	F	2	MWF	158 Math.	Welker
	G	3	MWF	155 Math.	Hoersch

Math. 90b. Undergraduate Thesis.—*Prerequisite:* 24 hours of college mathematics. (2). Arrange.

Courses for Advanced Undergraduates and Graduates

Math. 17. Differential Equations and Advanced Calculus.—*Prerequisite:* Math. 16.

3	A	8	MWF	156 Math.	Bailey
	E	1	MWF	110 L.H.	Steimley

Math. 21. Theory of Probability.—*Prerequisite:* Math. 7 and 9 (or 8a-8b).

3	D	11	MWF	155 Math.	Crathorne

Math. 36. Advanced Aspects of Euclidean Geometry.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9.

3		10–12	S	158 Math.	Moore

Math. 40b. Fundamental Concepts.—*Prerequisite:* 18 hours of mathematics, including Math. 7 and 9.

3	C	10	MWF	202 U.H.	Pepper

Math. 53b. Integral and Operational Equations in Mathematical Physics.—*Prerequisite:* Math. 53a.

3		1	MWF	254 Math.	Bourgin

Math. 70b. Introduction to Higher Algebra.—*Prerequisite:* Math. 7 and 9.

3	B	9	MWF	154 Math.	Miles

Math. 71b. Introduction to Higher Analysis.—*Prerequisite:* Math. 7 and 9.

3	D	11	MWF	154 Math.	Coble

Math. 72b. Introduction to Higher Geometry.—*Prerequisite:* Math. 7 and 9.

3	C	10	MWF	156 Math.	Levy

Courses for Graduates

Math. 100. Seminar and Thesis.—(1 to 2 units).* Arrange.

Math. 104. Topology.—(1 unit). 11 TTS; 254 Math. Dr. Doob.

Math. 113. Linear Differential Equations.—(1 unit). 11 MWF; 366 Math. Professor Carmichael.

Math. 115. Advanced Topics in the Theory of Functions.—(1 unit). 8 MWF; 254 Math. Associate Professor Trjitzinsky.

Math. 129. Theory of Statistics.—(1 unit). 10 MWF; 155 Math. Professor Crathorne.

Math. 131. Advanced Algebraic Geometry.—(1 unit). 10 MWF; 366 Math. Professor Emch.

Math. 135. Differential Geometry.—(1 unit). 10 TTS; 254 Math. Assistant Professor Levy.

Math. 170. Algebra.—(1 unit). 9 MWF; 254 Math. Associate Professor Brahana.

Math. 171. Analysis.—(1 unit). 11 MWF; 254 Math. Dr. Martin.

Math. 172. Geometry.—(1 unit). 10 MWF; 254 Math. Professor Coble.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

MECHANICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $2.50 to $7.00.

Courses for Undergraduates

M.E. 2. Steam Engineering.—*Prerequisite:* Math. 9; Physics 1 and 3.

Credit	Section	Hours	Days	Room	Instructor
3	Z1	8	MWF	217 M.E.L.	
	Z2	11	MWF	217 M.E.L.	

M.E. 6. Steam Engineering.—*Prerequisite:* Registration in M.E. 16.

4	PW	1	MTTF	211 M.E.L.	
	Q	8	TWTS	211 M.E.L.	

M.E. 10. Thermodynamics.—*Prerequisite:* Math. 9; Physics 1 and 3.

3	JKNV	8	MWF	202 T.B.	
	LMT	9	TTS	202 T.B.	

M.E. 15. Heat Engineering.—*Prerequisite:* M.E. 16.

3	PQ	11	MWF	202 T.B.	

M.E. 16. Thermodynamics.—*Prerequisite:* M.E. 13.

2	PW	2	Th	216 T.B.	
		2–4	Tu	216 T.B.	
	Q	10	Tu	216 T.B.	
		10–12	Th	216 T.B.	

M.E. 17. Refrigeration Engineering.—*Prerequisite:* M.E. 16.

3	PQ	11	MW	211 M.E.L.	
		8–10	S	112 T.B.	

M.E. 28 Heating, Ventilating, and Air Conditioning.—*Prerequisite:* M.E. 16 and 65.

4	P	8	TT	107 M.E.L.	
		9–11	Tu	112, 114 T.B.	
		10–12	S	112, 114 T.B.	
	Q	8	TT	107 M.E.L.	
		9–11	Th	112, 114 T.B.	
		10–12	S	112, 114 T.B.	

M.E. 34. Areonautical Engineering.—*Prerequisite:* M.E. 33.

3	PQ	11	MWF	216 M.E.L.	

M.E. 36. Petroleum Production Engineering.—*Prerequisite:* M.E. 35 or consent of instructor.

3		11	MWF	105 T.B.	

M.E. 40. Mechanical Engineering Design.—*Prerequisite:* M.E. 31; T.A.M. 3 and 63.

3	PW	8–11	MWF	216, 201 T.B.	
	QT	1–4	MWF	216, 201 T.B.	

M.E. 52. Power Plant Design.—*Prerequisite:* M.E. 65.

3	P	8–11	MWF	112, 114 T.B.	
	Q	1–4	MWF	112, 114 T.B.	

M.E. 61. Mechanical Engineering Laboratory.—*Prerequisite:* M.E. 1 or 2 or 3.

2	Z	2–5	TT	204 M.E.L.	

M.E. 62. Mechanical Engineering Laboratory.—*Prerequisite:* Junior standing.

3	OX	1	WF	216 M.E.L.	
		1–4	M	204 M.E.L.	

M.E. 64. Mechanical Engineering Laboratory.—*Prerequisite:* Registration in M.E. 6 and 16.

3	PW	8–12	S	204 M.E.L.	
		1–5	W	204 M.E.L.	
	Q	8–12	MF	204 M.E.L.	
	J	8–12	TT	204 M.E.L.	

M.E. 85. Pattern and Foundry Laboratory.—*Prerequisite:* Sophomore standing.

3	PKO	8–11	TT	Pattern Lab.	
	QL	8–11	MF	Pattern Lab.	
	MR	1–4	TT	Pattern Lab.	
	NSVWJ	1–4	MF	Pattern Lab.	

M.E. 87. Machine Laboratory.—*Prerequisite:* M.E. 85 or junior standing.

3	LQ	8–11	MF	Machine Lab.	
	NS	1–4	MF	Machine Lab.	
	P	8–10	WS	Machine Lab.	
		11	MF	Machine Lab.	

M.E. 88. Machine Laboratory.—*Prerequisite:* M.E. 87.

3	PW	8–11	TT	Machine Lab.	
	Q	1–4	TT	Machine Lab.	

M.E. 89. Heat Treatment of Metals.—*Prerequisite:* Senior standing in mechanical or railway mechanical engineering.

Credit	Section	Hours	Days	Room	Instructor
3	PT	2–4	MWF	Forge Lab.	
	Q	8–10	MWF	Forge Lab.	

M.E. 98. Thesis.—*Prerequisite:* Senior standing. (3). Arrange.

Courses for Graduates

M.E. 107. Thermodynamics.—Application of thermodynamics to the solution of physical and engineering problems. (1 unit). Twice a week. Arrange. Professor GOFF.

M.E. 108. The Flow of Fluids and Heat Transfer.—The application of dimensional analysis and other rational formulas. Special problems. (1 unit). Twice a week. Arrange. Professor MACINTIRE.

M.E. 109. Mechanical Engineering Design.—(a) Machine design; (b) power plant design; (c) dynamics of machinery. (1 unit). Twice a week. Arrange. Professors LEUTWILER, HAM.

M.E. 110. Advanced Heating, Ventilating, and Air Conditioning.—Applications of various systems, notable developments, and results of research. Individual problems. (1 unit). Twice a week. Arrange. Professor SEVERNS.

M.E. 112. Laboratory Investigations.—Special problems in: (a) combustion; (b) steam; (c) gas and oil engineering; (d) heating, ventilation, and air conditioning; (e) refrigeration; (f) flow of fluids; (g) heat transfer; (h) mechanical transmission of power. (1½ units). Three times a week. Arrange. Professors POLSON, KRATZ, HAM, MACINTIRE, and GOFF.

M.E. 117. Advanced Refrigerating Engineering.—Advanced theory and special cycles. Design of comfort cooling and other special installations. (1 unit). Twice a week. Arrange. Professor MACINTIRE.

MILITARY BANDS

Note: The following courses are open only to those who have passed the examination for admittance to one of the bands. All new students who play band instruments and who desire to try for places in the bands should make application at the Band Office, in the Band Building, at the earliest possible time. Those who are accepted for membership will be given a slip indicating the band to which they have been assigned, together with their rehearsal days and hours (twice a week). Assignments are made according to proficiency. Service in the bands takes the place of the required military courses. Director HARDING, Assistant Director HINDSLEY, Mr. OVERGARD.

Bands 2. Freshman Band.—(1).

Bands 4. Sophomore Band.—(1).

Bands 6. Junior Band.—(No credit).

Bands 8. Senior Band.—(No credit).

MILITARY SCIENCE

Note: All military courses consist of two parts designated by the same number: a practical course lettered with "a" and a theoretical course lettered with "b". Students who have had training in a senior R.O.T.C. unit are permitted to register for work one year advanced for each year they have had in the senior unit. All students who register for junior and senior courses are required to sign a contract with the Government to take five hours of military per week during two years in the University and to attend one summer camp of six weeks.

Uniform is required for all practical instruction and is optional for classroom instruction.

INFANTRY

Mil. Sci. 2a. Freshman Infantry.—Practice.

Credit	Section	Hours	Days	Room	Instructor
½	1st Bn.	3–5	W	Arm.	STEVENS
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 2b. Freshman Infantry.—Theory.

½	1	1	M	150 Arm.	TABACHNIK
	2	1	Tu	150 Arm.	
	3	2	Tu	150 Arm.	
	4	9	W	150 Arm.	
	5	10	Th	150 Arm.	
	6	11	Th	150 Arm.	
	7	9	F	150 Arm.	

Mil. Sci. 4a. Sophomore Infantry.—Practice.

½	1st Bn.	3–5	W	Arm.	LUMMIS
	2nd Bn.	1–3	Th	Arm.	
	3rd Bn.	10–12	S	Arm.	

Mil. Sci. 4b. Sophomore Infantry.—Theory.

Credit	Section	Hours	Days	Room	Instructor
½	51	10	M	148 Arm.	Lummis
	52	11	M	148 Arm.	
	53	2	M	148 Arm.	
	54	10	Tu	148 Arm.	
	55	1	W	148 Arm.	
	56	9	S	148 Arm.	

Mil. Sci. 6a. Junior Infantry.—Practice. *Prerequisite:* Mil. Sci. 5a.

½	Group I	10–12	W	Arm.	Tabachnik
		4	F	Arm.	
	Group II	3–5	Th	Arm.	
		4	F	Arm.	

Mil. Sci. 6b. Junior Infantry.—Theory. *Prerequisite:* Mil. Sci. 5b.

1	81	3–5	Tu	150 Arm.	Tabachnik
	82	10–12	F	150 Arm.	

Mil. Sci. 8a. Senior Infantry.—Practice.

½		(See 2a and 4a for hours.)			Stevens
		4	F	Arm.	Lummis

Mil. Sci. 8b. Senior Infantry.—Theory.

1	91	9	TT	150 Arm.	Stevens
	92	2	WF	150 Arm.	

FIELD ARTILLERY

Mil. Sci. 12a. Freshman Field Artillery.—Practice.

½	1st Bn.	3–5	M	Arm.	Quigley
	2nd Bn.	10–12	Tu	Arm.	Routheau
	3rd Bn.	1–3	Tu	Arm.	Marr
	4th Bn.	1–3	W	Arm.	Kirkpatrick
	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 12b. Freshman Field Artillery.—Theory.

½	100	9	M	155 Arm.	Routheau
	101	10	M	155 Arm.	Marr
	102	11	M	155 Arm.	Kirkpatrick
	103	2	M	155 Arm.	
	104	8	Tu	155 Arm.	
	105	9	Tu	155 Arm.	
	106	3	Tu	155 Arm.	
	107	8	W	155 Arm.	
	108	9	W	155 Arm.	
	109	10	W	155 Arm.	
	110	11	W	155 Arm.	
	111	3	W	155 Arm.	
	112	8	Th	155 Arm.	
	113	9	Th	155 Arm.	
	114	10	Th	155 Arm.	
	115	11	Th	155 Arm.	
	116	10	F	155 Arm.	

Mil. Sci. 14a. Sophomore Field Artillery.—Practice. (Horse-drawn).

½	1st Bn.	3–5	M	Arm.	Cole
	2nd Bn.	10–12	Tu	Arm.	
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
Motor-drawn.....	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 14b. Sophomore Field Artillery.—Theory. (Horse-drawn).

½	130	9	M	154 Arm.	Cole
	131	10	M	154 Arm.	Kirkpatrick
	132	11	M	154 Arm.	
	133	8	Tu	154 Arm.	
	134	9	Tu	154 Arm.	
	135	9	W	154 Arm.	
	136	10	W	154 Arm.	
	137	11	W	154 Arm.	
	138	8	Th	154 Arm.	
	139	9	Th	154 Arm.	
	140	10	Th	154 Arm.	
	141	11	Th	154 Arm.	
	142	10	F	154 Arm.	
	143	11	F	154 Arm.	

Mil. Sci. 14c. Sophomore Field Artillery.—Practice. (Motor-drawn).

Credit	Section	Hours	Days	Room	Instructor
½	1st-6th Bn. incl	(See 14a for hours.)		Arm.	MILLICE

Mil. Sci. 14d. Sophomore Field Artillery.—Theory. (Motor-drawn).

½	130-143 incl.	(See 14b for hours.)		Arm.	MILLICE

Mil. Sci. 16a. Junior Field Artillery.—Practice.

½	1st Bn.	3–5	M	Arm.	QUIGLEY
	2nd Bn.	10–12	Tu	Arm.	
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 16b. Junior Field Artillery.—Theory.

1	160	9	MW	152 Arm.	QUIGLEY
		4	F	154 Arm.	
	161	10	MW	152 Arm.	
		4	F	154 Arm.	
	162	9	TT	152 Arm.	
		4	F	154 Arm.	
	163	10	TT	152 Arm.	
		4	F	154 Arm.	

Mil. Sci. 18a. Senior Field Artillery.—Practice.

½	1st Bn.	3–5	M	Arm.	BURNELL
	2nd Bn.	10–12	Tu	Arm.	
	3rd Bn.	1–3	Tu	Arm.	
	4th Bn.	1–3	W	Arm.	
	5th Bn.	8–10	F	Arm.	
	6th Bn.	1–3	F	Arm.	

Mil. Sci. 18b. Senior Field Artillery.—Theory.

1	190	10	MW	153 Arm.	BURNELL
		4	F	153 Arm.	
	191	11	MW	153 Arm.	
		4	F	153 Arm.	
	192	9	TT	153 Arm.	
		4	F	153 Arm.	
	193	10	TT	153 Arm.	
		4	F	153 Arm.	

CAVALRY

Mil. Sci. 22a. Freshman Cavalry.—Practice.

½	1A	10–12	M	Arm.	STOVALL
	1B	8–10	Tu	Arm.	GRENER
	1C	8–10	W	Arm.	
	1D	1–3	Th	Arm.	
	1E	10–12	F	Arm.	

Mil. Sci. 22b. Freshman Cavalry.—Theory.

½	201	8	M	146 Arm.	STOVALL
	202	9	M	146 Arm.	GRENER
	203	10	Tu	146 Arm.	
	204	11	Tu	146 Arm.	
	205	1	W	146 Arm.	
	206	2	W	146 Arm.	
	207	8	Th	146 Arm.	
	208	9	Th	146 Arm.	
	209	1	F	146 Arm.	
	210	2	F	146 Arm.	

Mil. Sci. 24a. Sophomore Cavalry.—Practice.

½	2A	1–3	M	Arm.	GRENER
	2B	10–12	Th	Arm.	
	2C	8–10	F	Arm.	

Mil. Sci. 24b. Sophomore Cavalry.—Theory.

½	221	1	M	147 Arm.	DE LORIMIER
	222	2	M	147 Arm.	
	223	8	Tu	147 Arm.	
	224	9	Tu	147 Arm.	
	225	10	W	147 Arm.	
	226	11	W	147 Arm.	
	227	9	Th	147 Arm.	
	228	3	Th	147 Arm.	

Mil. Sci. 26a. Junior Cavalry.—Practice. *Prerequisite:* Mil. Sci. 25a.

Credit	Section	Hours	Days	Room	Instructor
½	3A	1–3	M	Arm.	BATCHELOR
	3B	1–3	Th	Arm.	

Mil. Sci. 26b. Junior Cavalry.—Theory. *Prerequisite:* Mil. Sci. 25b.

1	241	10–12	M	146 Arm.	BATCHELOR
		4	F	146 Arm.	
	242	1–3	Tu	146 Arm.	
		4	F	146 Arm.	
	243	10–12	Th	146 Arm.	
		4	F	146 Arm.	

Mil. Sci. 28a. Senior Cavalry.—Practice. *Prerequisite:* Mil. Sci. 27a.

½	1A-1E incl. 2A-2C incl.	(See 22a and 24a for hours.)	FLINT

Mil. Sci. 28b. Senior Cavalry.—Theory. *Prerequisite:* Mil. Sci. 27b.

1	251	10–12	M	147 Arm.	FLINT
		4	F	147 Arm.	
	252	1–3	Tu	147 Arm.	
		4	F	147 Arm.	
	253	1–3	W	147 Arm.	
		4	F	147 Arm.	

ENGINEERS

Prerequisite for all courses: Registration in College of Engineering or in Architecture.

Mil. Sci. 32a. Freshman Engineers.—Practice.

½	1st Bn.	3–5	W	Arm.	MATTHEWS
	2nd Bn.	3–5	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 32b. Freshman Engineers.—Theory.

½	301	11	Tu	144 Arm.	MATTHEWS
	302	9	W	144 Arm.	
	303	11	W	144 Arm.	
	304	2	W	144 Arm.	
	305	9	Th	144 Arm.	
	306	11	Th	144 Arm.	
	307	1	Th	144 Arm.	
	308	8	F	144 Arm.	
	309	10	F	144 Arm.	
	310	1	F	144 Arm.	
	311	3	F	144 Arm.	

Mil. Sci. 34a. Sophomore Engineers.—Practice.

½	1st Bn.	3–5	W	Arm.	LOTHROP
	2nd Bn.	3–5	Th	Arm.	
	3rd Bn.	8–10	S	Arm.	

Mil. Sci. 34b. Sophomore Engineers.—Theory.

½	321	10	Tu	247 Arm.	LOTHROP
	322	1	Tu	247 Arm.	
	323	2	Tu	247 Arm.	
	324	3	Tu	247 Arm.	
	325	10	W	247 Arm.	
	326	11	W	247 Arm.	
	327	1	W	247 Arm.	
	328	2	W	247 Arm.	
	329	2	Th	247 Arm.	

Mil. Sci. 36a. Junior Engineers.—Practice.

½	1st-3rd Bn. incl.	(See 32a for hours.)	TAYLOR

Mil. Sci. 36b. Junior Engineers.—Theory.

1	341	3	MTu	145 Arm.	TAYLOR
		4	F	145 Arm.	
	342	10	TT	145 Arm.	
		4	F	145 Arm.	
	343	11	TT	145 Arm.	
		4	F	145 Arm.	

Mil. Sci. 38a. Senior Engineers.—Practice.

½	1st-3rd Bn. incl.	(See 32a for hours.)	TAYLOR, MATTHEWS, LOTHROP

Mil. Sci. 38b. Senior Engineers.—Theory.

1	351	8	MW	145 Arm.	TAYLOR
		4	F	145 Arm.	
	352	9	MW	145 Arm.	
		4	F	145 Arm.	
	353	4	MTu	145 Arm.	
		4	F	145 Arm.	

SIGNAL CORPS

Mil. Sci. 42a. Freshman Signal Corps.—Practice.

Credit	Section	Hours	Days	Room	Instructor
½	A	3–5	Tu	Arm.	STICE
	B	3–5	W	Arm.	STURIES
	C	2–4	F	Arm.	

Mil. Sci. 42b. Freshman Signal Corps.—Theory.

½	400	10	M	222 Arm.	STURIES
	401	11	M	222 Arm.	
	402	10	Tu	222 Arm.	
	403	1	W	222 Arm.	
	404	1	Th	222 Arm.	
	405	10	F	222 Arm.	

Mil. Sci. 44a. Sophomore Signal Corps.—Practice.

½	A-C incl.	(See 42a for hours.)			STICE, STURIES

Mil. Sci. 44b. Sophomore Signal Corps.—Theory.

½	410	9	Tu	222 Arm.	STICE
	411	11	Tu	222 Arm.	
	412	9	W	222 Arm.	
	413	9	F	222 Arm.	
	414	11	F	222 Arm.	

Mil. Sci. 46a. Junior Signal Corps.—Practice.

½	A-C incl.	(See 42a for hours.)			STICE, STURIES

Mil. Sci. 46b. Junior Signal Corps.—Theory.

1	420	3–5	M	222 Arm.	STURIES
		4	F	222 Arm.	

Mil. Sci. 48a. Senior Signal Corps.—Practice.

½	A-C incl.	(See 42a for hours.)			STICE, STURIES

Mil. Sci. 48b. Senior Signal Corps.—Theory.

1	431	3–5	M	143 Arm.	STICE
		4	F	143 Arm.	

COAST ARTILLERY (ANTI-AIRCRAFT)

Mil. Sci. 52a. Freshman Coast Artillery (AA).—Practice.

½	1st Bn.	3–5	Tu	Arm.	DUBOIS
	2nd Bn.	1–3	Th	Arm.	MUIR
	3rd Bn.	8–10	S	Arm.	BROWN

Mil. Sci. 52b. Freshman Coast Artillery (AA).—Theory.

½	501	9	M	151 Arm.	MUIR
	502	10	M	151 Arm.	
	503	1	M	151 Arm.	
	504	10	Tu	151 Arm.	
	505	2	Tu	151 Arm.	
	506	9	Th	151 Arm.	
	507	11	Th	151 Arm.	
	508	4	Th	151 Arm.	
	509	11	F	151 Arm.	
	510	1	F	151 Arm.	

Mil. Sci. 54a. Sophomore Coast Artillery (AA).—Practice.

½	1st Bn.	3–5	Tu	Arm.	DUBOIS
	2nd Bn.	1–3	Th	Arm.	WORTMAN
	3rd Bn.	8–10	S	Arm.	CARY

Mil. Sci. 54b. Sophomore Coast Artillery (AA).—Theory.

½	521	2	M	151 Arm.	WORTMAN
	522	9	Tu	151 Arm.	
	523	10	Th	151 Arm.	
	524	3	Th	151 Arm.	
	525	10	F	151 Arm.	
	526	2	F	151 Arm.	
	527	10	S	151 Arm.	

Mil. Sci. 56a. Junior Coast Artillery (AA).—Practice.

½	1st, 2nd, and 3rd Bns.	(See 52a and 54a for hours.)			CARY
		4	F	151 Arm.	

Mil. Sci. 56b. Junior Coast Artillery (AA).—Theory.

1	531	1–3	M	243 Arm.	BROWN
	532	3–5	Th	243 Arm.	
	533	10–12	S	243 Arm.	

Mil. Sci. 58a. Senior Coast Artillery (AA).—Practice.

Credit	Section	Hours	Days	Room	Instructor
½	Group I	1–3	Tu	242 Arm.	DuBois
		4	F	242 Arm.	Cary
	Group II	2–4	F	242 Arm.	
		4	F	242 Arm.	

Mil. Sci. 58b. Senior Coast Artillery (AA).—Theory.

1	541	3–5	M	242 Arm.	DuBois
	542	10–12	Th	242 Arm.	

MINING AND METALLURGICAL ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.00 to $7.50.

A. MINING

Courses for Undergraduates

Mining 2. Mining Principles.—(For students in curricula other than mining engineering). *Prerequisite:* One year of college chemistry; Math. 2.

Credit	Section	Hours	Days	Room	Instructor
3		9	MWF	206 T.B.	Mitchell

Mining 4a. Mining Methods.—*Prerequisite:* Mining 1; Geology 43.

4		9	TTS	206 T.B.	Nicholson
		2	W	206 T.B.	

Mining 6. Mechanical Engineering of Mines.—*Prerequisite:* E.E. 4; Mining 4; M.E. 62; T.A.M. 2.

3		11	TTS	206 T.B.	Callen

Mining 13. Mining Geology.—*Prerequisite:* Mining 12.

3		8	M	206 T.B.	Smith
		1–4	WF	Mining Lab.	

Mining 15. Mine Ventilation.—*Prerequisite:* Mining 4.

2		10	MF	206 T.B.	Callen

Mining 20. Mine Ventilation Laboratory.—*Prerequisite:* Registration in Mining 15.

2		10	S	206 T.B.	Callen
		1–4	F	Mining Lab.	

Mining 21. Examination, Valuation, and Reports.—*Prerequisite:* Mining 4.

3		11	MWF	206 T.B.	Nicholson

Mining 42. Mining Design.—*Prerequisite:* Mining 41.

2		1–4	TT	207 T.B.	Mitchell

Mining 61. Mine Surveying.—*Prerequisite:* G.E.D. 1 or 4; Math. 4.

3		10	Tu	207 T.B.	Nicholson
		2–5	MF	207 T.B.	

Mining 64a. Coal and Ore Preparation Laboratory.—*Prerequisite:* Mining 9.

2		8	F	206 T.B.	Mitchell
		1–5	W	Mining Lab.	

Mining 90. Mining and Metallurgical Reports.—*Prerequisite:* Senior standing in mining or metallurgical engineering.

1		8	W	206 T.B.	Callen

Mining 98. Thesis.—*Prerequisite:* Mining 97. (3). Arrange.

Courses for Graduates

Mining 101. Advanced Mining Practice.—(1 unit). Arrange. Professor Callen.

Mining 102. Advanced Preparation of Coal and Ores.—(1 unit). Arrange. Assistant Professor Mitchell.

Mining 104.[1] **Mining Reports.**—(1 unit). Arrange. Professor Callen.

Mining 105.[1] **Welfare Work and Education among Mine Employees.**—(1 unit). Arrange. Professor Callen.

Mining 106.[1] **Advanced Coal, Ore, and Metallurgical Plant Design.**—(1 unit). Arrange. Assistant Professor Mitchell.

Mining 107.[1] **Advanced Non-Ferrous Metallurgical Projects.**—(1 unit). Arrange. Assistant Professor Mitchell.

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[1]Of courses 104 and 105, only one will be given, according to election of students; the same applies to courses 106 and 107.

B. METALLURGY

Courses for Undergraduates

Met. 5. Ferrous Metallurgy.—*Prerequisite:* Registration in Met. 6.

Credit	Section	Hours	Days	Room	Instructor
3		11	TTS	203 Met. Lab.	WILDER

Met. 6. Metallurgical Calculations.—*Prerequisite:* Met. 4.

2		10	TT	203 Met. Lab.	MITCHELL

Met. 10a. Non-Ferrous Metallography.—*Prerequisite:* Met. 7 and 8.

3		11	W	203 Met. Lab.	WILDER
		8–11	MF	209 Met. Lab.	

Met. 11. Electrometallurgy.—*Prerequisite:* Met. 9.

3		1–4	F	104 Met. Lab.	WILDER
		11	MF	203 Met. Lab.	

Met. 12. Metallography.—(For students in curricula other than metallurgical engineering). *Prerequisite:* Met. 1.

3		1	MW	203 Met. Lab.	WILDER
		2–4	MW	209 Met. Lab.	

Met. 42. Metallurgical Design.—*Prerequisite:* Met. 41.

2		1–4	TT	207 T.B.	MITCHELL

Met. 98. Thesis.—*Prerequisite:* Met. 97. (3). Arrange.

MUSIC

Courses for Undergraduates

Music 2. History of Music.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
2		11	MWF	Lecture Room, 3rd floor, S.M.H.	HILL

Music 4. Theory of Music (Harmony).—*Prerequisite:* Music 3.

3	A	8	MWF	106 S.M.H.	KESSLER
	B	1	MWF	103 S.M.H.	MILES

Music 5b. Theory of Music (Advanced Harmony).—*Prerequisite:* Music 5a.

2		3	TT	103 S.M.H.	KESSLER

Music 6b. Theory of Music (Free Counterpoint).—*Prerequisite:* Music 6a.

2		11	WF	106 S.M.H.	MILES

Music 8. Strict Counterpoint.—*Prerequisite:* Music 7.

3	A	10	MWF	103 S.M.H.	KESSLER
	B	2	MWF	106 S.M.H.	METCALF
	C	11	MWF	103 S.M.H.	KESSLER
	D	3	M	103 S.M.H.	METCALF
		1	TT	103 S.M.H.	

Music 10. Analysis, Musical Form.—*Prerequisite:* Music 9.

2	A	9	MTh	103 S.M.H.	HILL
	B	9	TT	103 S.M.H.	HILL

Music 11b. Composition.—*Prerequisite:* Music 11a.

2		To be arranged			MILES

Music 12b. Advanced Composition.—*Prerequisite:* Music 12a.

4		To be arranged			MILES

Music 14. Music Appreciation.—*Prerequisite:* Music 13 or consent of instructor.

2	A	10	TT	Lecture Room, 3rd floor, S.M.H.	STIVEN
	B (Mus. Ed.)	3	TT	106 S.M.H.	KITCHELL

Music 16. Instrumentation.—*Prerequisite:* Music 15.

1 or 2*		2	TT	Band Building	HARDING

Music 18. Advanced Orchestration.—*Prerequisite:* Music 17.

4		To be arranged			HARDING

Music 20a. Double Counterpoint, Canon, and Fugue.—*Prerequisite:* Music 19a.

3		3	MWF	106 S.M.H.	KESSLER

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Music 22. Ear Training and Sight Singing.—*Prerequisite:* Music 21.

Credit	Section	Hours	Days	Room	Instructor
1	A	9	MW	106 S.M.H.	PERCIVAL
	B	11	MTh	106 S.M.H.	PERCIVAL
	C	8	TT	106 S.M.H.	PERCIVAL

Music 24. Ear Training and Sight Singing.—*Prerequisite:* Music 23.

1	A	9	TT	106 S.M.H.	PERCIVAL
	B	10	MW	106 S.M.H.	PERCIVAL
	C	10	TT	106 S.M.H.	PERCIVAL

Music 25b. Instrumental Methods.—*Prerequisite:* Junior standing in School of Music or consent of instructor.

2		1	MWF	106 S.M.H.	HOLMES

Music 25c. Baton Technique.—*Prerequisite:* Sophomore standing in School of Music or consent of instructor.

1		1	Th	Orchestra Room	HOLMES

Music 26b. Junior High School Methods.—*Prerequisite:* Senior standing in School of Music or consent of instructor.

2		2	MWF	103 S.M.H.	KITCHELL

Music 27. Thesis.—(1). Arrange.

Music 30b. Ensemble.—*Prerequisite:* Music 30a, junior standing, or consent of instructor.

½	A (Piano)	2 11	M or Tu *or* Th	209 S.M.H.	WATT
	B (Vocal group ensemble)	4	MW	210 S.M.H.	HAMP
	C (Chorus)	7 Arrange other hour	Th	Recital Hall	MILES and DEMMING
	D (Opera)	3	TT	215 S.M.H.	SUTHERLIN
	E (Woman's Glee Club)	10	TT	Orchestra Room	DEMMING
	F (Orchestra)	4	TW	Orchestra Room	STIVEN
	G (Men's Glee Club)	4 11 or 1	Tu Th	Lecture Room Lecture Room	HAMP

Music 31b. Ensemble.—*Prerequisite:* Music 31a. (½). Sections same as in Music 30b.

Music 33. Advanced History of Music.—*Prerequisite:* Music 32.

2	A	9	WF	103 S.M.H.	HILL
	B	10	TT	103 S.M.H.	HILL

Music 35. Recital Course in Applied Music.—(Required of seniors in Instrumental major). *Prerequisite:* At least two satisfactory appearances in public students' recitals. (4). Arrange.

Music 36. Recital Course in Applied Music.—(Required of seniors in Voice major). *Prerequisite:* At least two satisfactory appearances in public students' recitals. (3). Arrange.

Music 37. Recital Course in Composition.—(Required of seniors in Theory major). (4). Arrange.

Music 38b. Conducting and Organization.—*Prerequisite:* Music 38a.

2		1–3	MWF	Band Building	HARDING

Music 68b. String Instruments.—*Prerequisite:* Junior standing in School of Music or consent of instructor.

2		9	MTWTF	Orchestra Room	COHEN

Music 98b. Wind Instruments.—*Prerequisite:* Junior standing in School of Music or consent of instructor.

2	A	8	MTWTF	Band Building	HINDSLEY
	B	9	MTWTF	Band Building	HINDSLEY

APPLIED MUSIC COURSES

Note: Students enrolled in the curricula in Music pay a flat fee of $25 per semester for one or more of the courses in Applied Music. Students enrolled in other curricula pay fees of $25 for each two hours of credit for which they register in courses in Applied Music.

Students in music curricula will receive 4 to 5 hours credit for their major subject in Applied Music. They will ordinarily receive 2½ hours credit for their minor subject. Students from other colleges will ordinarily receive 2 hours credit if in accordance with the regulations of their college.

Courses in Applied Music which require one 30-minute lesson per week of recitation and *one* hour daily of preparation receive 2 hours credit.

Courses in Applied Music which require two 20-minute lessons per week of recitation and *one* hour daily of preparation receive 2½ hours credit.

Courses in Applied Music which require two 30-minute lessons per week of recitation and *two* hours daily of preparation receive 4 hours credit.

Courses in Applied Music which require two 30-minute lessons per week of recitation and *three* hours daily of preparation receive 5 hours credit.

Music 42a, b to 47a, b. Piano.—(2 to 5).* Arrange. Professor VAN DEN BERG, Assistant Professors WATT, SCHOONMAKER, HILL; Mrs. SULLIVAN, Miss USRY, Mr. BRANIGAN, Mr. METCALF.

Music 52a-d to 57a-d. Voice.—(1 to 4).* Arrange. Mr. HAMP, Miss SUTHERLIN, Mr. FOOTE, Miss BOWEN, Miss STUART. (Parts a and b in each course indicate individual instruction in Voice (2-3), and parts c and d indicate classes in Singing Diction (1), required of voice major students.)

Music 62a, b to 67a, b. Violin.—(2 to 5).* Arrange. Assistant Professor ROOSA, Mr. COHEN.

Music 72a, b to 77a, b. Violoncello.—(2 to 5).* Arrange. Mrs. SULLIVAN.

Music 82a, b to 87a, b. Organ.—(2 to 5).* Arrange. Associate Professor MILES, Mr. DEMMING.

Music 92a-d to 97a-d. Band and Orchestral Instruments.—(2 to 4).* All these courses are required for major work in this group. Parts a and b in each course are concerned with professional instruments, and parts c and d with supplementary instruments. Arrange. Professor HARDING, Mr. HINDSLEY, Mr. HOLL.

(**Music 95d.**—(2). 1 TT; Band Bldg. Professor HARDING.)

PHILOSOPHY

Major: 20 hours from any courses offered by the department, including Phil. 2, 3, 4, 7. Six hours in psychology may be counted towards a major in philosophy.

Minor: 20 hours in (a) psychology (at least six additional hours if psychology is counted towards a major), and one other subject in the following list; or (b) any two subjects in the same group in the following list: (A) economics, history, political science, education, sociology; (B) English, French, German, Greek, Latin; (C) astronomy, botany, chemistry, mathematics, physics, zoology, geology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Phil. 1. Introduction to Philosophy.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	117 L.H.	NICHOLSON
	B	8	MWF	123 L.H.	
	C	9	MWF	117 L.H.	
	D	10	MWF	117 L.H.	TAWNEY
	E	11	MWF	117 L.H.	MORROW
	F	1	MWF	117 L.H.	NICHOLSON
	G	2	MWF	117 L.H.	NICHOLSON

Phil. 2. Logic.—*Prerequisite:* One year of university work.

3	A	8	MWF	133 L.H.	DELARGY
	B	9	MWF	206 L.H.	DELARGY
	C1	10	MWF	123 L.H.	
	C2	10	MWF	113 L.H.	KUBITZ
	E	11	MWF	123 L.H.	KUBITZ
	F	1	MWF	123 L.H.	
	G	2	MWF	123 L.H.	KUBITZ

Phil. 20. Honors Course.—*Prerequisite:* Senior standing. (2). Arrange.

Courses for Advanced Undergraduates and Graduates

Phil. 4. History of Modern Philosophy.—*Prerequisite:* Three hours in philosophy and junior standing, or senior standing.

4	Lect.	10	TT	L.H. Theatre	GOTSHALK
	A Disc.	11	Th	117 L.H.	GOTSHALK
	B Disc.	11	Th	113 L.H.	NICHOLSON
	C Disc.	11	F	139 L.H.	GOTSHALK
	D Disc.	2	Th	117 L.H.	GOTSHALK
	E Disc.	3	Th	117 L.H.	KUBITZ
	F Disc.	(For graduate students—arrange)			GOTSHALK

Phil. 9. Philosophy of Law and of the State.—*Prerequisite:* Senior standing, or the consent of the instructor.

3	A	9	MWF	123 L.H.	MORROW

Phil. 11b. Philosophy of Religion (Historical).—*Prerequisite:* Three hours of philosophy.

3	A	11	MWF	104 L.H.	TAWNEY

Phil. 16. Metaphysics.—*Prerequisite:* Three hours of philosophy.

3	A	10	MWF	306 L.H.	GOTSHALK

Phil. 22. American Philosophy (Royce, James, Santayana, Dewey).—*Prerequisite:* Three hours of philosophy.

3	A	11	MWF	114 L.H.	DELARGY

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Graduates

Phil. 103. Ethics.—(1 unit). 10-12 S, or arrange. Professor MORROW.

Phil. 112. German Idealism (Kant).—(1 unit). Arrange. Associate Professor GOTSHALK.

Phil. 118. Mediaeval Philosophy.—(1 unit). Arrange. Professor TAWNEY.

Phil. 120. Seminar in Modern Philosophy.—(1 unit). Arrange. Dean McCLURE.

PHYSICAL EDUCATION FOR MEN

Note: Each student registering for a course or courses in physical education is assessed a locker fee of $1.00 for the semester.

Freshmen and Sophomores: Men entering the University as freshmen are required to obtain credit for four semesters of work in physical education; those entering as sophomores, two semesters. They may obtain this credit by courses listed below or by proficiency examinations which are offered at times specified by the department.

Major: For Curriculum in Physical Education for Men, see "Directions for Registration."

Office for freshman and sophomore general courses—Room 201, Men's Old Gymnasium.
Office for professional courses—Room 107, Men's New Gymnasium.

General Courses for Undergraduates

P.E. 20a, 20b, 20c, 20d. Adapted Sports.—Open only to students who fail to pass the health examinations. Students enrolling for the first time should register for P.E. 20a. Students enrolling for the second, third, or fourth time should register for P.E. 20b, 20c, and 20d, respectively.

Credit	Section	Hours	Days	Room	Instructor
1	B	9	MWF	New Gym.	KASCH
	C	10	MWF	New Gym.	WATT
	D	11	MWF	New Gym.	WATT
	F	2	MWF	New Gym.	KASCH
	G	3	MWF	New Gym.	KASCH
	H	4	MWF	New Gym.	KASCH
	K	9	MWF	Old Gym.	WATT
	L	10	MWF	Old Gym.	STAFFORD
	M	11	MWF	Old Gym.	STAFFORD
	O	2	MWF	Old Gym.	FLORIO
	P	3	MWF	Old Gym.	FLORIO
	Q	4	MWF	Old Gym.	FLORIO

P.E. 21a, 21b, 21c, 21d. Special Sports.—Open only to students assigned by the Department of Health Service. Students assigned to this course meet twice a week in connection with P.E. 20a, 20b, 20c, and 20d, Adapted Sports. Students enrolling for the first time should register for P.E. 21a. Students enrolling for the second, third, or fourth time should register for P.E. 21b, 21c, and 21d, respectively.

½		To be arranged			STAFFORD

P.E. 22. Badminton.—

½	C	10	MW	New Gym.	SEATON
	D	11	MW	New Gym.	SEATON
	L	10	TT	New Gym.	JACKSON
	M	11	TT	New Gym.	TREECE

P.E. 23. Volleyball.—

½	J	8	TT	Old Gym.	JORDAN
	K	9	TT	Old Gym.	JORDAN
	L	10	TT	Old Gym.	JORDAN
	M	11	TT	Old Gym.	JORDAN

P.E. 24. Beginning Swimming.—

½	C	10	MW	Old Pool	FLORIO
	D	11	MW	Old Pool	FLORIO
	F	1	MW	Old Pool	TREECE
	L	10	TT	Old Pool	RAWLINSON
	M	11	TT	Old Pool	RAWLINSON
	N	1	TT	Old Pool	WATT
	O	2	TT	Old Pool	WATT
	P	3	TT	Old Pool	WATT

P.E. 25. Individual Tumbling Stunts.—

½	A	8	MW	Old Gym.	TREECE
	B	9	MW	Old Gym.	TREECE
	C	10	MW	Old Gym.	JENNINGS
	D	11	MW	Old Gym.	JENNINGS

P.E. 26. Double Tumbling Stunts.—

½	F	2	MW	Old Gym.	TREECE
	G	3	MW	Old Gym.	TREECE

P.E. 27. Apparatus Stunts.—

Credit	Section	Hours	Days	Room	Instructor
½	L	10	TT	Old Gym.	McCristal
	M	11	TT	Old Gym.	McCristal
	P	3	TT	Old Gym.	Jennings

P.E. 28. Boxing.—

½	B	9	MW	Old Gym.	Law
	C	10	MW	Old Gym.	Kenney
	E	1	MW	Old Gym.	Law
	K	9	TT	Old Gym.	Law
	L	10	TT	Old Gym.	Law

P.E. 29. Wrestling.—

½	C	10	MW	Old Gym.	Monsson
	D	11	MW	Old Gym.	Monsson
	F	2	MW	Old Gym.	Kenney
	G	3	MW	Old Gym.	Kenney
	L	10	TT	Old Gym.	Kenney
	M	11	TT	Old Gym.	Kenney
	P	3	TT	Old Gym.	Law

P.E. 30. Foil Fencing.—

½	G	3	MW	Old Gym.	Craig
	H	4	MW	Old Gym.	Craig
	P	3	TT	Old Gym.	Craig
	Q	4	TT	Old Gym.	Craig

P.E. 31. Soccer.—

½	H	4	MW	New Gym.	Rawlinson
	K	9	TT	New Gym.	Monsson
	L	10	TT	New Gym.	Monsson
	M	11	TT	New Gym.	Monsson
	P	3	TT	New Gym.	Monsson
	Q	4	TT	New Gym.	Rawlinson

P.E. 32. Golf.—

½	E	1	MW	New Gym.	Brown
	F	2	MW	New Gym.	Brown
	K	9	TT	New Gym.	Brown

P.E. 33. Tennis.—

½	E	1	MW	New Gym.	Dixon
	F	2	MW	New Gym.	Dixon
	G	3	MW	New Gym.	Dixon
	J	8	TT	New Gym.	Dixon
	K	9	TT	New Gym.	Dixon
	L	10	TT	New Gym.	Dixon
	M	11	TT	New Gym.	Dixon

P.E. 34. Softball and Skating.—Special fee, $2.50.

½	B	9	MW	New Gym.	Paterson
	C	10	MW	New Gym.	Paterson
	D	11	MW	New Gym.	Paterson
	K	9	TT	New Gym.	Paterson
	L	10	TT	New Gym.	Paterson
	M	11	TT	New Gym.	Paterson

P.E. 35. Tap Dancing.—

½	K	9	TT	New Gym.	Watt
	L	10	TT	New Gym.	Watt
	M	11	TT	New Gym.	Watt

P.E. 36. Clog Dancing.—

½	O	2	TT	New Gym.	Brown
	P	3	TT	New Gym.	Brown

P.E. 37. Individual Athletics.—

½	C	10	MW	Old Gym.	Rawlinson
	D	11	MW	Old Gym.	Rawlinson

P.E. 38. Circus Stunts.—

½	H	4	MW	Old Gym.	Jennings
	Q	4	TT	Old Gym.	Jennings

P.E. 39. Advanced Circus Stunts.—

½	H	4	MW	Old Gym.	Jennings
	Q	4	TT	Old Gym.	Jennings

P.E. 40. Group Sports.—

½	F	2	MW	Old Gym.	Law
	G	3	MW	Old Gym.	Law
	N	1	TT	Old Gym.	Law
	O	2	TT	Old Gym.	Law

P.E. 41. Advanced Swimming.—Open only to students who can swim 100 yards.

Credit	Section	Hours	Days	Room	Instructor
½	D	11	MW	New Pool	Craig
	L	10	TT	New Pool	Craig
	M	11	TT	New Pool	Craig
	N	1	TT	New Pool	Treece
	O	2	TT	New Pool	Treece
	P	3	TT	New Pool	Treece

P.E. 42. Life Saving and Diving.—Open only to students who can swim 200 yards using two different strokes.

½	B	9	MW	New Pool	Craig
	C	10	MW	New Pool	Craig

P.E. 43. Water Polo and Ice Hockey.—Open only to students who can swim 100 yards and who can skate fairly well. Special fee, $2.50.

½	F	2	MW	New Pool	Paterson
	G	3	MW	New Pool	Paterson

P.E. 44. Handball.—

½	A	8	MW	New Gym.	Jordan
	B	9	MW	New Gym.	Jordan
	C	10	MW	New Gym.	Jordan
	N	1	TT	New Gym.	Jordan

P.E. 45. Squash Raquets.—

½	O	2	TT	New Gym.	Dixon
	P	3	TT	New Gym.	Dixon

P.E. 46. Archery.—

½	J	8–10	S	Stock Pavilion	Kenney

P.E. 47. Sabre and Épée Fencing.—

½	O	2	TT	Old Gym.	Craig

Professional Courses for Undergraduates

Note: Certain of these courses require laboratory fees varying from $1.00 to $2.00.

First Year

P.E. 1. Beginning Basketball.—(First half of semester).

2	E	1–3	MTWTF	New Gym.	Roettger

P.E. 2. Tumbling and Calisthenics.—(First half of semester).

2	A	8–10	MTWTF	New Gym.	McCristal

P.E. 4. Beginning Football.—(Second half of semester).

2	E	1–3	MTWTF	Armory Field	Monsson

P.E. 10. Beginning Apparatus Stunts.—(Second half of semester).

2	A	8–10	MTWTF	New Gym.	McCristal

Second Year

P.E. 5. Advanced Football.—(Second half of semester).

2	A	8–10	MTWTF	Armory Field	Mills

P.E. 6. Boxing and Wrestling.—(First half of semester).

2	A	8–10	MTWTF	Wrestling Room	Kenney and Law

P.E. 11. Swimming.—

2	A	8	MTWTF	Old Pool	Manley

P.E. 12. Track and Field.—

2	B	9	MTWTF	Illinois Field and Armory	Seaton

Third Year

P.E. 9. The School Program in Health.—

4	B	9	MTWTF	209 New Gym.	Stafford

P.E. 15. Recreational Sports.—(First half of semester).

2	C	10–12	MTWTF	New Gym.	Treece

P.E. 17. Adult Sports.—(Second half of semester).

2	F	10–12	MTWTF	New Gym.	Brown

FOURTH YEAR

P.E. 3b. Theory of Sports.—

Credit	Section	Hours	Days	Room	Instructor
2	C	10–12	TT	207 New Gym.	WILSON

P.E. 7. Training and First Aid.—

2	K	9	TT	119-122 New Gym.	BULLOCK

P.E. 14. Dancing and Group Sports.—

2	E	1	MTWTF	New Gym.	McCRISTAL

P.E. 18. The Curriculum in Physical Education.—

5	E	1	MTWTF	209 New Gym.	STALEY and JACKSON

PHYSICAL EDUCATION FOR WOMEN

Note: Each student registering for a course or courses in physical education is assessed a locker fee of $1.00 for the semester.

Freshmen and Sophomores: Of the four required semesters in physical education, the department requires: one semester of gymnastics (P.E. 72) or rhythms (P.E. 51); one semester of swimming (P.E. 75, 76, 54); one semester of individual sports (P.E. 60) or seasonal sports (P.E. 73) or team games (P.E. 58); and one semester of an elective.

Proficiency examinations in any courses offered to freshmen and sophomores may be taken at times specified by the department. These will be given each semester.

Major: For Curriculum in Physical Education for Women, see "Directions for Registration."

General Courses for Undergraduates

P.E. 51. Elementary Rhythms.—

Credit	Section	Hours	Days	Room	Instructor
1	B	9	MWF	South Room, W.Gym.	CUTHBERT
	D	11	MWF	North Room, W.Gym.	JOHNSON
	F	2	MWF	South Room, W.Gym.	JOHNSON
	K†	9	TT	South Room, W.Gym.	JOHNSON

P.E. 54. Diving and Swimming.—*Prerequisite:* P.E. 76 or equivalent.

1		11	TT	Pool, W.B.	RENSHAW

P.E. 56. Individual Gymnastics.—Recommendation from the Department of Health Service is necessary for registration in this course.

1	C	10	MWF	Corr. Room, W.Gym.	SCHNAUBER
	D	11	MWF	Corr. Room, W.Gym.	
	F	2	MTT	Corr. Room, W.Gym.	
	G	3	MTT	Corr. Room, W.Gym.	
	L†	10	TT	Corr. Room, W.Gym.	

P.E. 57. Modified Activities.†—Recommendation from the Department of Health Service is necessary for registration in this course.

1		11	TT	129 W.Gym.	HUELSTER

P.E. 58. Team Games.—

1					
Indoor Group Games and Baseball....	K†	9	TT	North Room, W.Gym.	LAWYER
Volleyball and Speedball	M	11	TT	North Room, W.Gym.	ROBERTSON

P.E. 60. Individual Sports.—(Handball, quoitennis, and badminton).

1	D	11	MWF	South Room, W.Gym.	LAWYER
	L†	10	TT	South Room, W.Gym.	HUELSTER
	O†	2	TT	South Room, W.Gym.	HUELSTER

P.E. 66. Elective Athletic Activities.—(Participation in W.A.A. sports; registration on recommendation of department).

1		Two 45-minute periods to be arranged.			HUELSTER

P.E. 72. Gymnastics.—

1	B	9	MWF	North Room, W.Gym.	LAWYER
	C	10	MWF	North Room, W.Gym.	LAWYER

†This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

P.E. 73. Seasonal Sports.—(For Skating, Sections B, C, and O, special fee, $3.00).

Credit	Section	Hours	Days	Room	Instructor
1					
Skating and Tennis.....	B	9	MWF	129 W.Gym.	Robertson
Skating and Tennis.....	C	10	MWF	129 W.Gym.	Robertson
Skating and Tennis.....	O†	2	TT	129 W.Gym.	Robertson
Volleyball and Golf (advanced)....	H†	4	MW	South Room, W.Gym.	Lawson
Volleyball and Golf (elementary)..	M	11	TT	South Room, W.Gym.	Lawson
Indoor Baseball and Golf (elementary)..	Q†	4	TT	North Room, W.Gym.	Lawson

P.E. 75. Elementary Swimming.—

1	B	9	MWF	Pool, W.B.	Renshaw and Mohn
	C	10	MWF	Pool, W.B.	
	D	11	MWF	Pool, W.B.	
	F	2	MWF	Pool, W.B.	
	H	4	MWF	Pool, W.B.	

P.E. 76. Intermediate Swimming.—

1	G	3	MWF	Pool, W.B.	Renshaw and Mohn
	L†	10	TT	Pool, W.B.	
	P†	3	TT	Pool, W.B.	

P.E. 77. Elementary Clog and Tap Dancing.—

1	D	11	MWF	Gym., W.B.	Cuthbert
	G	3	MWF	Gym., W.B.	Huelster
	M	11	TT	Gym., W.B.	Cuthbert

P.E. 78. Intermediate Clog and Tap Dancing.—

1		2	MWF	Gym., W.B.	Huelster

P.E. 79. Elementary Folk Dancing.—

1	C	10	MWF	South Room, W.Gym.	Cuthbert
	F	2	MWF	North Room, W.Gym.	Robertson

Professional Courses for Undergraduates

P.E. 62. Rhythms.†—For juniors in the School of Physical Education.

2		2	TT	North Room, W.Gym.	Johnson

P.E. 70b. Physical Education Practice.—For freshmen intending to specialize in physical education.

2		3	MTWTF	South Room, W.Gym.	Lawyer, Johnson, and Robertson

P.E. 71b. Physical Education Practice.—For sophomores whose major is physical education.

2		3	MTWTF	North Room, W.Gym.	Lawyer, Huelster, and Robertson

P.E. 80. Community Recreation.†—For sophomores in the School of Physical Education.

2		10	TT	North Room, W.Gym.	Freer

P.E. 82. Methods of Teaching Swimming.—For sophomores and juniors in the School of Physical Education.

1		9	TT	Pool, W.B.	Renshaw

P.E. 90a. History of Physical Education.—For seniors in the School of Physical Education.

2		11	MW	128 W.Gym.	Freer

P.E. 90b. Organization and Administration.—For seniors in the School of Physical Education.

2		11	TT	128 W.Gym.	Freer

P.E. 95b. Methods of Teaching.—For juniors in the School of Physical Education.

4		1	MTWTF	129 W.Gym.	Robertson and Lawyer

P.E. 96b. Kinesiology.—For juniors in the School of Physical Education.

3		8	MWF	129 W.Gym.	Huelster

P.E. 97b. Educational Practice.—For seniors in the School of Physical Education.

3		1	MWF	128 W.Gym.	Lawson

P.E. 98. Theory of Individual and Remedial Gymnastics.—*Prerequisite:* P.E. 96a and b.

3		9	MWF	129 W.Gym.	Schnauber

P.E. 99. Methods of Teaching Health.—For seniors in the School of Physical Education.

2		1	TT	129 W.Gym.	Lawson

†This course meets twice a week for 45 minutes; registration is limited to students with free period following this hour.

PHYSICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $10.00.

Major: 20 hours from courses offered in the department. At least five hours must be offered from the group of courses for advanced undergraduates and graduates.

Minors: 20 hours in one or two of the following subjects, with not less than eight hours in each if two are chosen: astronomy, chemistry, education, geology, mathematics, or any one branch of engineering.

For undergraduate students taking advanced work or a major in physics, the following courses are suggested:
Freshman year: Trigonometry and analytic geometry.
Sophomore year: Physics 1a-1b, 3a-3b, and calculus.
Junior year: Physics 14, 23, 44, 60, 61.
Senior year: Physics 30, 62, 71, 72, 78, 80.

Physics 7a-7b and 8a-8b are recommended to students not specializing in physics, mathematics, chemistry, or engineering.

The general physics prerequisite for certain courses may be satisfied by either Physics 1a-1b and 3a-3b or by 7a-7b and 8a-8b. The calculus prerequisite may be satisfied either by Mathematics 7 and 9 or by Mathematics 8a-8b.

Introductory Courses for Undergraduates

Physics 1a. General Physics.—*Prerequisite:* Credit in Math. 2 and 4; registration in Physics 3a.

Credit	Section	Hours	Days	Room	Instructor
4	Lect.	11	W	119 P.L.	Schulz and others
	Quiz A	9	MWF	403, 406 P.L.	
	Quiz B	1	MWF	406 P.L.	
	Quiz C	11	TTS	306, 406 P.L.	

Physics 3a. General Physics Laboratory.—*Prerequisite:* Physics 1a or registration therein.

1	A	2–5	M	306, 406 P.L.	Schulz and others
	B	2–5	Tu	306, 406 P.L.	
	C	1–4	Th	406 P.L.	

Physics 1b. General Physics.—*Prerequisite:* Math. 2 and 4; Physics 1a; registration in Physics 3b.

4	Lect. A	8	W	100 P.L.	Kruger and others
	Lect. B	10	W	100 P.L.	
	Quiz A	8	MWF	305, 306 P.L.	
	Quiz B	9	MWF	104, 305 P.L.	
	Quiz C	10	MWF	108, 305 P.L.	
	Quiz D	11	MWF	104, 305, 306 P.L.	
	Quiz E	8	TTS	208, 302, 305, 306 P.L.	
	Quiz H	11	TTS	108, 302, 305 P.L.	

Physics 3b. General Physics Laboratory.—*Prerequisite:* Physics 1b or registration therein.

1	A	9–12	M	302, 306 P.L.	Kruger and others
	B	2–5	M	302, 305 P.L.	
	C	9–12	Tu	302, 305 P.L.	
	D	2–5	Tu	302, 305 P.L.	
	F	2–5	W	302, 305 P.L.	
	G	9–12	Th	302, 305 P.L.	
	H	1–4	Th	302, 305 P.L.	
	I	8–11	F	406 P.L.	
	J	2–5	F	302, 305 P.L.	
	K	9–12	S	302, 305 P.L.	

Physics 7b. General Physics.—*Prerequisite:* Physics 7a, and registration in Physics 8b.

4	Lect.	11	TT	100 P.L.	Watson, Paton, and others
	Quiz A	8	WF	302 P.L.	
	Quiz B	9	WF	204, 302 P.L.	
	Quiz C	10	WF	208, 302 P.L.	
	Quiz D	11	WF	108, 208, 302 P.L.	

Physics 8b. General Physics Laboratory.—*Prerequisite:* Physics 7b or registration therein.

1	A	9–12	M	204 P.L.
	B	1–4	M	204, 208 P.L.
	D	2–5	Tu	204, 208 P.L.
	G	8–11	Th	204 P.L.
	H	1–4	Th	204, 208 P.L.
	J	1–4	F	204, 208 P.L.

Courses for Advanced Undergraduates and Graduates

Physics 14b. Theoretical Mechanics.—*Prerequisite:* Physics 14a.

3	Lect.	10	TTS	306 P.L.	Mott-Smith

Physics 15. Electricity and Magnetism.—*Prerequisite:* General physics.

3	Lect.	8	MW	202 P.L.	Williams
	Lab.	1–4	W	112 P.L.	

Physics 25. Architectural Acoustics.—*Prerequisite:* General physics.

Credit	Section	Hours	Days	Room	Instructor
2	Lect.	9	MW	119 P.L.	WATSON

Physics 44b. Electric and Magnetic Measurements.—*Prerequisite:* Physics 44a.

3	A	8–11	MF	108, 208 P.L.	KNIPP, WILLIAMS, and others
	B	1–4	MF	104, 108 P.L.	
	C	8–11	TT	104, 108 P.L.	
	D	1–4	TT	104, 108 P.L.	

Physics 51. Practical Optics.—*Prerequisite:* Physics 17 or 71a.

3	Lect.	9	TT	306 P.L.	SCHULZ
	Lab.	1–4	Th	313 P.L.	

Physics 62. Kinetic Theory of Heat and Radiation.—*Prerequisite:* Physics 60.

3	Lect.	8	MWF	204 P.L.	PATON

Physics 71b. Light.—*Prerequisite:* Physics 71a.

2	Lect.	11	TT	104 P.L.	KUNZ

Physics 72b. Light Laboratory.—*Prerequisite:* Registration in Physics 71b.

2	Lab.	2–5	MW	313 P.L.	KRUGER

Physics 78. Radioactivity, Nuclear Physics, and X-Rays.—*Prerequisite:* General physics and calculus.

3	Lect.	9	TTS	204 P.L.	GREEN

Physics 98. Thesis.—(3). Arrange. Professors in the department.

Courses for Graduates

Physics 122b. Dynamics.—(1 unit). 10 TTS; 302 P.L. Dr. GIBBONS.

Physics 123. Dynamical Theory of Sound.—(1 unit). 11 MWF; 204 P.L. Professor WATSON.

Physics 124. Conduction of Electricity Through Gases.—(1 unit). 10 TTS; 119 P.L. Professor KNIPP.

Physics 146b. Electrodynamics.—(1 unit). 8 MWFS; 104 P.L. Professor KUNZ.

Physics 170b. Light.—(1 to 2 units).* 11 TT, 104 P.L.; 2-5 MW, 313 P.L. Professor KUNZ and Associate Professor KRUGER.

Physics 185. Band Spectra and Molecular Structure.—(1 unit). 9 MWF; 202 P.L. Professor LOOMIS.

Physics 186b. Quantum Mechanics.—(1 unit). 10 MWF; 306 P.L. Assistant Professor MOTT-SMITH.

Physics 190. Research.—(1 to 3 units).* Arrange. Professors in the department.

Physics 198. Seminar.—(1 to 2 units).* Arrange. Professors in the department.

Physics 199. Physics Colloquium.—(No credit). 4:45 Th; 119 P.L. Assistant Professor MOTT-SMITH.

PHYSIOLOGY

Note: Certain courses in this department require laboratory fees varying from $2.50 to $3.50.

Major: 20 hours from courses offered in the department, exclusive of Physiology 1.

Minors: 20 hours in not more than two of the following: bacteriology, botany, chemistry, entomology, and zoology. At least eight hours must be offered in each subject, if two are chosen.

Courses for Undergraduates

Physiol. 1. Mammalian Physiology.—A survey of the field of mammalian physiology.

Credit	Section	Hours	Days	Room	Instructor
3[1]	[2]Lect. A	10	TT	228 N.H.	BURGE
	Quiz A1	3	M	425 N.H.	WICKWIRE
	Quiz A2	2	Tu	425 N.H.	
	Quiz A3	4	Tu	425 N.H.	
	Quiz A4	1	Th	425 N.H.	
	[3]Lect. B	11	MW	228 N.H.	STEGGERDA
	Quiz B1	8	M	425 N.H.	STEGGERDA
	Quiz B2	10	Tu	425 N.H.	
	Quiz B3	8	W	425 N.H.	

[1]Seniors will receive only 2 hours credit.
[2]Students in Lect. A must elect an A quiz.
[3]Students in Lect. B must elect a B quiz.

Physiol. 1a. Mammalian Physiology Laboratory.—*Prerequisite:* Physiology 1, or registration therein.

2	Lab. A	1–3	MW	413 N.H.	TAYLOR, KNEER
	[1]Lab. B	3–5	MW	413 N.H.	
	Lab. C	10–12	TT	413 N.H.	
	[1]Lab. D	1–3	TT	413 N.H.	

[1]Open for Home Econ. students only.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Physiol. 3b. Physiological Anatomy.—(For Physical Education students).

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	11	TT	228 N.H.	ELHARDT
	Lab. A	8–10	MW	405 N.H.	HOHEISEL
[1]Seniors will receive only 4 hours credit.	[2]Lab. B	10–12	MW	408 N.H.	NEILD
	Lab. C	1–3	MW	405 N.H.	
	Lab. D	8–10	TT	408 N.H.	
[2]For women.	Lab. E	1–3	TT	405 N.H.	
	Quiz F	8	F	425 N.H.	ELHARDT
	Quiz G	9	F	425 N.H.	
	Quiz H	10	F	425 N.H.	
	[2]Quiz I	11	F	425 N.H.	
	Quiz J	2	F	425 N.H.	

Physiol. 5. Physiology of the Special Senses and Nervous System.—(Recommended for the general student). *Prerequisite:* Physiology 1 or 3a-3b.

5	Lect.	10	MW	423 N.H.	WICKWIRE
	Quiz	10	F	423 N.H.	
	Lab. 4 hours per week.		Arrange	415 N.H.	

Physiol. 8. Thesis.—*Prerequisite:* Senior standing and 15 hours of physiology.

3 to 5*	To be arranged	BURGE

Courses for Advanced Undergraduates and Graduates

Physiol. 7. Advanced Mammalian Physiology of Respiration, Digestion, and Endocrine Glands.—*Prerequisite:* Physiology 1 and 1a, one semester of general chemistry, or consent of instructor.

5	Lecture	9	TT	423 N.H.	STEGGERDA
	Quiz	11	F	423 N.H.	STEGGERDA
	Lab.	8–12	S	415 N.H.	

Courses for Graduates

Physiol. 101. Journal Club.—Review of literature. (¼ unit). Arrange. Members of the staff.

Physiol. 102. Research.—(1 to 2 units).* Arrange, possibly Saturday. Associate Professor BURGE.

Physiol. 103. Experimental Physiology.—(½ to 1 unit).* Arrange. Associate Professor BURGE and Assistant Professor STEGGERDA.

POLITICAL SCIENCE

Major: 20 hours from any courses offered by the department. A major may include three hours of constitutional history (Hist. 44 or 62).

Minors: 20 hours selected from one or two of the following subjects: history, economics, law, sociology, philosophy, and education. At least eight hours must be offered in each subject, if two are chosen.

Courses 1a and 1b give a general survey of national, state, and local government in the United States. Undergraduates beginning the study of political science are advised to take, first, course 1a-1b, and those planning for advanced work should take course 1a and either 1b or 16 in their sophomore year.

Courses for Undergraduates

Pol. Sci. 1a. American Government.—*Prerequisite:* Sophomore standing.

Credit	Section	Hours	Days	Room	Instructor
3	A1	8	MWF	300 L.H.	CASSIDY
	B1	9	MWF	300 L.H.	CASSIDY
	B2	9	MWF	106 L.H.	JOBST
	C1	10	MWF	340 L.H.	MATHEWS
	C2	10	MWF	300 L.H.	BERDAHL
	D1	11	MWF	227 L.H.	KNEIER
	D2	11	MWF	300 L.H.	LENTZ
	E1	1	MWF	204 L.H.	LENTZ
	F1	2	MWF	204 L.H.	JOBST
	G	3	MWF	204 L.H.	JOBST

Pol. Sci. 1b. American Government.—(Continuation of Pol. Sci. 1a; may not be taken independently). *Prerequisite:* Sophomore standing; Pol. Sci. 1a.

3	A1	8	MWF	340 L.H.	KENDALL
	B1	9	MWF	238 L.H.	ISAKOFF
	B2	9	MWF	340 L.H.	KENDALL
	C1	10	MWF	238 L.H.	ISAKOFF
	C2	10	MWF	240 L.H.	SNIDER
	D1	11	MWF	340 L.H.	HYNEMAN
	E1	1	MWF	238 L.H.	ISAKOFF
	F1	2	MWF	238 L.H.	ISAKOFF

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Pol. Sci. 16. Government in Illinois.—*Prerequisite:* Sophomore standing. (Only one hour credit for Pol. Sci. 16 is allowed in the case of students who also take either Pol. Sci. 1a or 1b.)

Credit	Section	Hours	Days	Room	Instructor
2	A	3	TT	304 L.H.	MATHEWS

Pol. Sci. 36b. Thesis and Honors Course.—*Prerequisite:* Senior standing.

2 to 5*	To be arranged	Members of the department

Courses for Advanced Undergraduates and Graduates

Note: Junior standing is required for admission to the following courses.

Pol. Sci. 5. American Constitutional System.—*Prerequisite:* Pol. Sci. 1a; junior standing.

3	A	3	MWF	304 L.H.	MATHEWS

Pol. Sci. 6b. International Law.—(Continuation of 6a). *Prerequisite:* Open to seniors, graduate students, and second-year law students.

3	A	10	MWF	202 L.H.	GARNER

Pol. Sci. 8. International Organization.—*Prerequisite:* Junior standing.

3	A	11	TT	303 L.H.	BERDAHL

Pol. Sci. 9. Principles of Jurisprudence.—*Prerequisite:* Pol. Sci. 1a or equivalent; junior standing.

3	A	9	MWF	204 L.H.	FAIRLIE

Pol. Sci. 11. The Constitution and Industrial Legislation.—*Prerequisite:* Senior standing, or junior standing with five hours of political science or of economics, or of both.

3	A	10	MWF	304 L.H.	HYNEMAN
	B	1	MWF	340 L.H.	HYNEMAN

Pol. Sci. 12. Public Administration.—*Prerequisite:* Pol. Sci. 1 or 3; junior standing.

3	A	11	MWF	106 L.H.	FAIRLIE

Pol. Sci. 22. Continental European Governments.—*Prerequisite:* Graduate or senior standing, or junior standing with six hours of political science; History 32b and 34b recommended.

3	A	11	MWF	303 L.H.	GARNER

Pol. Sci. 32. Principles of Political Science.—*Prerequisite:* Senior standing, or junior standing with six hours of political science.

2	A	2	TT	300 L.H.	FAIRLIE

Pol. Sci. 34. Municipal Problems.—*Prerequisite:* Open to graduate students and to undergraduate students who have had Pol. Sci. 4, or Economics 1, or Sociology 6, or who have senior standing.

3	Lect.	9	TT	L.H. Theatre	KNEIER
	A Quiz	10	Th	306 L.H.	SNIDER
	B Quiz	11	Th	305 L.H.	SNIDER
	C Quiz	2	Th	304 L.H.	KNEIER
	D Quiz	9	F	306 L.H.	KNEIER
	E Quiz	10	F	233 L.H.	KNEIER
	F Quiz	11	F	306 L.H.	SNIDER
	G Quiz	1	F	304 L.H.	KNEIER

Courses for Graduates

Pol. Sci. 102. The Nature of the State.—(1 unit). Twice a week. Arrange. Professor FAIRLIE.

Pol. Sci. 103b. Seminar in Political Science and Public Law.—(1 to 2 units).* Once a week. Arrange. Members of the department.

Pol. Sci. 104. Municipal Administration.—(1 unit). Twice a week. Arrange. Associate Professor KNEIER.

Pol. Sci. 106b. Special Topics in International Law.—(1 unit). Twice a week. Arrange. Professor GARNER.

Pol. Sci. 108. Problems of International Organization.—(1 unit). 10-12 S, or arrange. Professor BERDAHL.

Extra-mural Courses for Graduates

Pol. Sci. E128. Contemporary Governmental Problems.—(1 unit). Arrange. Springfield High School, Springfield. Assistant Professor HYNEMAN.

PSYCHOLOGY

Note: Certain courses in this department require a laboratory fee of $1.00.

Major: 20 hours chosen from courses announced by the department, excepting Psych. 1. At least eight hours must be offered in the advanced group.

Minors: 20 hours chosen from not more than two of the following subjects: education, mathematics, philosophy, sociology, physiology, and zoology. At least eight hours must be offered in each, if two are chosen.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Courses for Undergraduates

Psych. 1. Introduction to Psychology.—*Prerequisite:* One year of university work.

Credit	Section	Hours	Days	Room	Instructor
4	Lect. A	11	MW	218 U.H.	Culler
	Quiz A1	8	TT	403 U.H.	
	Quiz A2	9	TT	403 U.H.	
	Quiz A3	10	TT	404 U.H.	
	Quiz A4	11	TT	403 U.H.	
	Quiz A5	1	TT	403 U.H.	
	Quiz A6	2	TT	403 U.H.	
	Lect. B	9	TT	218 U.H.	Young
	Quiz B1	8	MW	403 U.H.	
	Quiz B2	9	MW	213 U.H.	
	Quiz B3	10	MW	213 U.H.	
	Quiz B4	11	MW	403 U.H.	
	Quiz B5	2	MW	403 U.H.	
	Quiz B6	3	MW	407 U.H.	
	Lect. C	11	TT	218 U.H.	Young
	Quiz C1	8	MW	404 U.H.	
	Quiz C2	9	MW	403 U.H.	
	Quiz C3	10	MW	403 U.H.	
	Quiz C4	11	MW	404 U.H.	
	Quiz C5	2	MW	407 U.H.	
	Quiz C6	3	MW	403 U.H.	

Psych. 2. General Psychology (Survey of the Fields of Psychology).—*Prerequisite:* Psych. 1 or junior standing.

4	Lect.	9	MW	410 U.H.	Higginson and assistants
	Quiz A	8	TT	406 U.H.	
	Quiz B	9	TT	406 U.H.	
	Quiz C	10	TT	407 U.H.	
	Quiz D	10	TT	406 U.H.	
	Quiz E	11	TT	404 U.H.	
	Quiz F	11	TT	406 U.H.	
	Quiz G	2	TT	406 U.H.	

Psych. 3. Laboratory Practice (Elementary).—*Prerequisite:* Psych. 1.

2	Lab. A	10–12	MW	417, 418 U.H.	Higginson and Harrell
	Lab. B	2–4	MW	417, 418 U.H.	
	Lab. C	10–12	TT	417, 418 U.H.	
	Lab. D	2–4	TT	417, 418 U.H.	

Psych. 27b. Thesis and Honors Course.—(Primarily designed for major students and for candidates for honors). *Prerequisite:* Twelve hours of psychology; consent of the instructor.

2		To be arranged		402 U.H.	Woodrow

Courses for Advanced Undergraduates and Graduates

Psych. 10. Mental and Physical Work (Industrial Psychology).—*Prerequisite:* Psych. 1; junior standing.

2	A	11	TT	412 U.H.	Harrell

Psych. 13. Minor Problems (Advanced Laboratory).—*Prerequisite:* Psych. 3; consent of the instructor.

3		To be arranged			Higginson

Psych. 14. Social Psychology.—*Prerequisite:* Psych. 1; junior standing.

3	A	9	MWF	315 U.H.	McAllister
	B	10	MWF	404 U.H.	McAllister

Psych. 18. Perception.—*Prerequisite:* Six hours of psychology.

2	A	10	TT	412 U.H.	Culler

Psych. 20. Systematic Psychology.—*Prerequisite:* Six hours of psychology; senior standing.

2	A	9	TT	412 U.H.	Woodrow

Psych. 21. Character and Personality.—*Prerequisite:* Psych. 1; junior standing.

3	A	11	MWF	410 U.H.	Anderson
	B	2	MWF	410 U.H.	Anderson

Psych. 28. Psychology of Motivation.—*Prerequisite:* Six hours of psychology.

2	A	2	TT	211 U.H.	Young

Courses for Graduates

Psych. 103b. Research.—(½ to 2 units).* Arrange. Professors Woodrow, Young, Culler; Associate Professor Higginson.

Psych. 105b. Seminar.—(1 unit). Once a week. Arrange; 419 U.H. Professor Woodrow.

Psych. 109. Problems in Motivation.—(1 unit). 10-12 S, or arrange. Professor Young.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

RAILWAY ENGINEERING

Note: Certain courses in this department require laboratory fees varying from $1.00 to $4.00.

Courses for Undergraduates

R.E. 4. Locomotives.—*Prerequisite:* R.E. 3; T.A.M. 2 and 3; registration in M.E. 64.

Credit	Section	Hours	Days	Room	Instructor
3	W	11	MWF	104 T.B.	SCHRADER

R.E. 7. Locomotive and Car Design.—*Prerequisite:* R.E. 2.

3	W	1–3 1–5 1–4	M W F	104 T.B.	SCHRADER

R.E. 8. Railway Laboratory.—*Prerequisite:* R.E. 5.

2	W	8–11	TT	104 T.B.	SCHRADER

R.E. 33. Economic Theory of Railway Location.—*Prerequisite:* C.E. 3; T.A.M. 2.

4	U	9 1–4	TTS Tu	117 T.B. 117 T.B.	KING

R.E. 33a. Economic Theory of Railway Location.—*Prerequisite:* C.E. 3; T.A.M. 2. (An abridgment of course 33, for students in departments other than railway engineering.)

3	U	9	TTS	117 T.B.	KING

R.E. 36. Railway Maintenance.—*Prerequisite:* Registration in C.E. 3.

3	U	10 1–4	TT Th	117 T.B. 117 T.B.	KING

R.E. 37. Railway Design Problems.—*Prerequisite:* Registration in C.E. 65.

2	U	11	TT	117 T.B.	KING

R.E. 51. Seminar.—Open to railway students only.

1	U	10	S	117 T.B.	KING

R.E. 60. Electric Railway Principles.—*Prerequisite:* R.E. 59.

2	V	9	TT	105 T.B.	TUTHILL

R.E. 61. Electric Traction.—*Prerequisite:* E.E. 11, 61 or 25, 75.

3	V	9	MWF	117 T.B.	TUTHILL

R.E. 67. Seminar.—Open to seniors in railway courses only.

1	V	9	Th	105 T.B.	SCHMIDT

R.E. 70. Electric Railway Design.—*Prerequisite:* R.E. 64; registration in R.E. 74.

2	V	1–4	TT	117 T.B.	TUTHILL

R.E. 74 Electric Railway Economics.—*Prerequisite:* R.E. 64.

3	V	11	MWF	117 T.B.	TUTHILL

R.E. 98. Thesis.—(3). Arrange.

Courses for Graduates

R.E. 102. Locomotive Design.—(1 unit). Arrange. Professor YOUNG.

R.E. 106. Locomotive Operation.—(1 unit). Arrange. Professor SCHMIDT.

R.E. 110. Railway Location.—(1 unit). Arrange. Professor KING.

ROMANCE LANGUAGES AND LITERATURE

French

Major: 20 hours of French, excluding French 1a, 1b, 2a, 6a, and 6b, and including at least five hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), German, Greek, history, Italian, Latin, philosophy, Spanish, provided that at least eight hours be taken in any subject chosen.

Spanish

Major: 20 hours of Spanish, excluding Spanish 1a, 1b, and 2a, and including at least five hours from the group for advanced undergraduates and graduates.

Minors: 20 hours in not more than two of the following subjects: education, English (excluding Rhet. 1 and 2), French, German, Greek, history, Italian, Latin, philosophy, provided that at least eight hours be taken in any subject chosen.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

A. FRENCH

Courses for Undergraduates

French 1a. Elementary Course.—For students who have no credit in French.

Credit	Section	Hours	Days	Room	Instructor
4[1]	A	8	TWTF	204 U.H.	Ralph
	B	9	TWTF	307 Adm.(E)	Alexander
[1]Seniors will receive only 3 hours credit.	C	10	TWTF	203 U.H.	Zwolanek
	F1	2	MTWT	105 L.H.	Alexander
	F2	2	MTWT	139 L.H.	Klingner

French 1b. Elementary Course (continued).—*Prerequisite:* French 1a, or one year of high school French.

4[1]	A1	8	TWTF	128 L.H.	Reed
	A2	8	TWTF	212 U.H.	Alexander
[1]Seniors will receive only 3 hours credit.	A3	8	TWTF	122 New Agr.	McLaughlin
	A4	8	TWTF	139 L.H.	Edwards
	A5	8	TWTF	232 L.H.	LaSage
	B1	9	TWTF	435 N.H.	Edwards
	B2	9	TWTF	123 New Agr.	Goggin
	C1	10	TWTF	122 New Agr.	Carter
	C2	10	TWTF	330 New Agr.	Amiel
	C3	10	TWTF	103 Entom.	Hilton
	D1	11	TWTF	122 New Agr.	Dismukes
	D2	11	TWTF	116 New Agr.	Wagus
	E1	1	MTWT	211 U.H.	Karraker
	E2	1	MTWT	212 U.H.	Alexander
	F	2	MTWT	212 U.H.	Bussard

French 2a. Modern French.—*Prerequisite:* French 1b, or two years of high school French.

4	A1	8	TWTF	235 L.H.	Giovanelli
	A2	8	TWTF	334 L.H.	Fenoglio
	B	9	TWTF	122 New Agr.	LaSage
	C	10	TWTF	123 New Agr.	Ralph
	F	2	MTWT	105 Entom.	Dismukes

French 2b. Modern French.—*Prerequisite:* French 2a, or three years of high school French.

4	[1]A1	8	TWTF	148 L.H.	Hilton
	A2	8	TWTF	120 L.H.	Goggin
[1]Sections A1, B1, C1, D1, and E are primarily for students who expect to go beyond French 2b. More attention is paid to the hearing and speaking of French.	A3	8	TWTF	116 New Agr.	Pietrangeli
	A4	8	TWTF	104 L.H.	Klingner
	[1]B1	9	TWTF	303a L.H.	Roche
	B2	9	TWTF	204 Adm.(E)	Gullette
	[1]C1	10	TWTF	114 L.H.	Bussard
	C2	10	TWTF	116 New Agr.	Dismukes
	C3	10	TWTF	311 L.H.	Reed
	[1]D1	11	TWTF	123 New Agr.	Bussard
	D2	11	TWTF	116 New Agr.	Carter
	[1]E	1	MTWT	207 U.H.	Pietrangeli
	F	2	MTWT	312 U.H.	Amiel
	G	3	MTWT	139 L.H.	Beadle

French 3b. Introduction to French Literature.—*Prerequisite:* French 2b, or four years of high school French.

3	A	8	MWF	211 L.H.	Jacob
	B	9	MWF	224 L.H.	Will
	C	10	MWF	224 L.H.	Will
	D	11	MWF	334 L.H.	Oliver
(In French).....	E	1	MWF	128 L.H.	Roche
	F	2	MWF	303a L.H.	Jacob

French 6b. Second-Year Composition and Conversation.—*Prerequisite:* French 6a or three years of high school French.

2	K	9	TT	233 L.H.	Hilton
	N	1	TT	113 L.H.	Hilton

French 7b. Intermediate Composition and Conversation.—*Prerequisite:* French 7a or equivalent. (*Note:* Prospective teachers of French are strongly advised to take French 7a and 7b.)

2	J	8	TT	300 L.H.	Amiel
	K	9	TT	300 L.H.	Amiel
	L	10	TT	211 L.H.	Roche
	M	11	TT	211 L.H.	Amiel

French 8b. Advanced Composition and Conversation.—*Prerequisite:* French 8a or equivalent.

2	[1]K	9	TT	302 L.H.	Jacob
[1]Section K is especially for prospective teachers.	O	2	TT	104 L.H.	Roche

Advanced grammar and syntax.

French 28b. Senior Thesis.—For candidates for university honors in French. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in French have the following prerequisites: French 3b or the equivalent, and junior standing; or senior standing and consent of the instructor.

French 10b. Survey of French Literature.—

Credit	Section	Hours	Days	Room	Instructor
3	B	9	MWF	114 L.H.	CARNAHAN

French 17b. French Drama of the Nineteenth Century.—

2	K	9	TT	224 L.H.	WILL
	N	1	TT	235 L.H.	HAMILTON

French 24b. French Drama of the Seventeenth and Eighteenth Centuries.—

3	C	10	MWF	227 L.H.	OLIVER

French 32b. French Novel of the Nineteenth Century.—

3	B	9	MWF	133 L.H.	JACOB

French 35b. Civilisation Française.—(In French).

2	M	11	TT	224 L.H.	MICHAUD

Courses for Graduates

French 101. Old French Literature.—(1 unit). 11 TT; 212 L.H. Professor OLIVER.

French 102. Villon, Rabelais, Montaigne, La Pléiade.—(1 unit). 10 TT; 425a Lib. Assistant Professor WILL.

French 104. Eighteenth Century Literature.—(1 unit). 10-12 S; 204a L.H. Professor OLIVER.

French 127. French Romanticism.—(1 unit). 3 TT; 425a Lib. Professor CARNAHAN.

French 129. Research Problems in French Romanticism.—(1 unit). Arrange. Professor CARNAHAN.

French 132. French Symbolism in Prose and Verse and the English and American Influences.—(1 unit). 3 MW; 238 L.H. Professor MICHAUD.

French 144. Le Réalisme et le Naturalisme Français.—(1 unit). 3-5 F; 120 L.H. Professor MICHAUD.

French 195. Seminar.—Research work in special topics. (1 to 2 units).* Members of the department.

B. ITALIAN

Courses for Undergraduates

Italian 1b. Elementary Course (continued).—*Prerequisite:* Italian 1a, or one year of high school Italian.

4[1]	D	11	TWTF	105 L.H.	VAN HORNE

[1]Seniors will receive only 3 hours credit.

Italian 2b. Intermediate Italian.—*Prerequisite:* Italian 2a.

3	C	10	MWF	318 U.H.	PIETRANGELI

Courses for Advanced Undergraduates and Graduates

Italian 3b. Dante: The Divine Comedy.—*Prerequisite:* Italian 3a; junior standing.

2	P	3	TT	214 L.H.	DISMUKES

Courses for Graduates

Italian 146. Modern Italian Literature.—(1 unit). 1 TT; 214 L.H. Professor VAN HORNE.

Italian 195. Seminar.—Research work in special topics. (1 to 2 units).* Professor VAN HORNE.

C. SPANISH

Courses for Undergraduates

Spanish 1a. Elementary Course.—For students who have no credit in Spanish.

4[1]	A	8	TWTF	214 U.H.	FLORES
	B	9	TWTF	116 New Agr.	KIDDER
[1]Seniors will receive only 3 hours credit.	C	10	TWTF	305 L.H.	YOUNG
	E	1	MTWT	104 L.H.	FLORES
	F	2	MTWT	142 L.H.	LODGE

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Spanish 1b. Elementary Course (continued).—*Prerequisite:* Spanish 1a, or one year of high school Spanish.

Credit	Section	Hours	Days	Room	Instructor
4[1]	A1	8	TWTF	105 L.H.	YOUNG
	A2	8	TWTF	106 L.H.	KILER
[1]Seniors will receive only 3 hours credit.	B1	9	TWTF	434 N.H.	KAAR
	B2	9	TWTF	312 U.H.	YOUNG
	C1	10	TWTF	241 N.H.	ROSALDO
	C2	10	TWTF	105 L.H.	GULLETTE
	D1	11	TWTF	307 Adm.(E)	ROSALDO
	D2	11	TWTF	204a L.H.	KIDDER
	E	1	MTWT	106 L.H.	LODGE
	F	2	MTWT	311 U.H.	UTLEY
	G	3	MTWT	211 L.H.	BUSHART

Spanish 2a. Modern Spanish.—*Prerequisite:* Spanish 1b, or two years of high school Spanish.

4	A	8	TWTF	312 U.H.	WAGUS
	C	10	TWTF	148 L.H.	BUSHART
	F	2	MTWT	232 L.H.	BEADLE

Spanish 2b. Modern Spanish.—*Prerequisite:* Spanish 2a, or three years of high school Spanish.

4	[1]A1	8	TWTF	240 L.H.	BUSHART
	A2	8	TWTF	227 L.H.	BURNER
[1]In section A1, more attention is paid to the speaking and hearing of Spanish.	B	9	TWTF	311 L.H.	UTLEY
	C	10	TWTF	204 L.H.	UTLEY
	D	11	TWTF	233 L.H.	HAMILTON
	E	1	MTWT	204a L.H.	BURNER
	F	2	MTWT	235 L.H.	FLORES

Spanish 3b. Introduction to Spanish Literature.—*Prerequisite:* Spanish 2b, or four years of high school Spanish.

3	B	9	MWF	211 L.H.	BURNER
	D	11	MWF	113 L.H.	BALSEIRO

Spanish 5b. Commercial Spanish.—*Prerequisite:* Spanish 5a or equivalent.

2	K	9	TT	133 L.H.	BURNER

Spanish 7b. Intermediate Composition and Conversation.—*Prerequisite:* Spanish 7a or equivalent. (*Note:* Prospective teachers of Spanish are strongly advised to take Spanish 7a and 7b).

2	B	9	MW	107 U.H.	KILER
	L	10	TT	113 L.H.	KAAR

Spanish 8b. Advanced Composition and Conversation.—*Prerequisite:* Spanish 8a or equivalent.

2	M	11	TT	123 L.H.	FLORES

Spanish 25. Methods of Teaching Spanish.—Discussion and laboratory work in phonetics. *Prerequisite:* 20 hours in Spanish, or 16 hours in Spanish plus 20 in French. Not open to students other than seniors except by permission of the instructor. *Note:* Spanish 25 is given only in second semester of the college year; French 25 only the the first semester. Special fee, 50 cents.

3	F	2	MWF	310 U.H.	GULLETTE

Spanish 28b. Senior Thesis.—For candidates for university honors in Spanish. (2). Members of the department.

Courses for Advanced Undergraduates and Graduates

Note: All advanced courses in Spanish have the following prerequisites: Spanish 3b, or the equivalent, and junior standing; or senior standing and consent of the instructor.

Spanish 10b. Survey of Spanish Literature.—

3	B	9	MWF	240 L.H.	HAMILTON

Spanish 11b. Cervantes: Don Quijote.—

2	O	2	MW	148 L.H.	VAN HORNE

Spanish 17b. Modern Spanish Drama.—

2	L	10	TT	216 L.H.	BALSEIRO

Courses for Graduates

Spanish 131. Spanish Literature in the Seventeenth Century.—(1 unit). Arrange; 425a Lib. Professor VAN HORNE.

Spanish 135. La Novela Española Moderna.—(In Spanish). (1 unit). Arrange. Associate Professor BALSEIRO.

Spanish 139. Spanish Literature in the Middle Ages.—(1 unit). 9 TT; 216 L.H. Associate Professor HAMILTON.

Spanish 195. Seminar.—Research work in special topics. (1 to 2 units).* Members of the department.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

SOCIOLOGY

Major: 20 hours from any courses in the department.

Minors: 20 hours from one or two of the following subjects: economics, history, philosophy, political science, psychology. At least eight hours must be offered in either minor subject, if two are chosen.

Courses for Undergraduates

Sociol. 1. Principles of Sociology.—*Prerequisite:* Junior standing, or sophomore standing with a course in one of the following subjects: economics, history, philosophy, political science, or psychology.

Credit	Section	Hours	Days	Room	Instructor
3	A	8	MWF	304 L.H.	Tylor
	B	9	MWF	302 L.H.	Hiller
	C	10	MWF	326 L.H.	Albig
	D	11	MWF	109 L.H.	Tylor
	E	1	MWF	306 L.H.	Houghton
	F	2	MWF	326 L.H.	Houghton
	G	3	MWF	306 L.H.	Albig

Sociol. 2. Social Factors in Personality.—*Prerequisite:* Sociol. 1.

3	A	8	MWF	202 L.H.	Ahrens
	B	9	MWF	202 L.H.	

Sociol. 90b. Honors Course.—For majors in sociology and other seniors. Consent of instructor required.

2	To be arranged	Members of the department

Courses for Advanced Undergraduates and Graduates

Sociol. 3. Social Evolution.—*Prerequisite:* Sociol. 1; junior standing.

3	A	11	MWF	326 L.H.	Ahrens

Sociol. 5. The Family.—*Prerequisite:* Sociol. 1; junior standing.

3	A	10	MWF	109 L.H.	Timmons

Sociol. 7. Rural Sociology.—*Prerequisite:* Sociol. 1; junior standing.

3	A	9	MWF	326 L.H.	Tylor

Sociol. 8. Charities.—*Prerequisite:* Sociol. 1; junior standing.

3	A	11	MWF	308 L.H.	Timmons

Sociol. 9. Criminology.—*Prerequisite:* Sociol. 2 or Sociol. 1 with senior standing. Open to pre-legal juniors by consent of the instructor.

3	A	9	MWF	334 L.H.	Taft
	B	1	MWF	334 L.H.	

Sociol. 19. Contemporary Society.—*Prerequisite:* Sociol. 1; junior standing.

3	A	9	MWF	204a L.H.	Odum

Sociol. 24. Penology.—*Prerequisite:* Sociol. 9.

3	A	10	MWF	334 L.H.	Taft

Sociol. 27. Community Welfare Organization.—*Prerequisite:* Fourteen credit hours in sociology.

3	A	2	MWF	306 L.H.	Timmons

Sociol. 42. Primitive Societies.—*Prerequisite:* Junior standing.

3	A	2	MWF	334 L.H.	Albig

Sociol. 44. The Negro.—*Prerequisite:* Junior standing.

3	A	10	MWF	139 L.H.	Odum

Courses for Graduates

Sociol. 100. General Sociology.—(1 unit). Twice a week. Arrange. Professor Hiller.

Sociol. 109. Research in Criminology.—(1 unit). Twice a week. 10-12 S; 330 L.H. Professor Taft.

Sociol. 122. Regional Problems and Planning.—(1 unit). Twice a week. Arrange; 127 L.H. Professor Odum.

Sociol. 150. Seminar and Research.—The field, type, and amount of work are to be adjusted to the needs of the student in the respective graduate years. (½ to 3 units).* Members of the department.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

THEORETICAL AND APPLIED MECHANICS

Note: Certain courses in this department require laboratory fees varying from $1.50 to $2.50.

Courses for Undergraduates

T.A.M. 1. Analytical Mechanics (Statics).—*Prerequisite:* Math. 7; registration in Math. 9.

Credit	Section	Hours	Days	Room	Instructor
2	B	8	TT	105 E.H.	
	Ch1	8	TT	316 M.T.L.	
	F	8	TT	310 M.T.L.	
	N	8	TT	202 E.H.	
	X	8	TT	313 M.T.L.	
	G	9	TT	202 E.H.	
	M	9	TT	316 M.T.L.	
	Q	9	TT	313 M.T.L.	
	H	10	TT	316 M.T.L.	
	R	10	TT	313 M.T.L.	
	Ch2	11	TT	310 M.T.L.	
	E	11	TT	305 M.T.L.	
	J2	11	TT	202 E.H.	
	O	11	TT	313 M.T.L.	
	C	1	TT	310 M.T.L.	
	K	1	TT	305 M.T.L.	
	P	1	TT	202 E.H.	
	T	1	TT	313 M.T.L.	
	D	2	TT	313 M.T.L.	
	J1	2	TT	310 M.T.L.	
	L	2	TT	305 M.T.L.	
	S	2	TT	202 E.H.	

T.A.M. 2. Analytical Mechanics (Dynamics).—*Prerequisite:* T.A.M. 1.

3	B	9	MWF	202 E.H.	
	O	11	MWF	310 M.T.L.	
	Z	4	MWF	202 E.H.	

T.A.M. 3. Resistance of Materials.—*Prerequisite:* T.A.M. 1.

3	N	10	MWF	305 M.T.L.	
	O	10	MWF	310 M.T.L.	
	K	11	MWF	305 M.T.L.	
	L	1	MWF	305 M.T.L.	
	M	1	MWF	310 M.T.L.	

T.A.M. 4. Hydraulics.—*Prerequisite:* T.A.M. 1 and registration in T.A.M. 2.

2	E	8	TT	305 M.T.L.	
	F	9	TT	305 M.T.L.	
	O	9	TT	310 M.T.L.	
	G	10	TT	305 M.T.L.	
	U	10	TT	310 M.T.L.	

T.A.M. 18. Strength of Materials.—*Prerequisite:* T.A.M. 17.

3	A	{8	WF	305 M.T.L.	
		{8–10	M	305 M.T.L.	

T.A.M. 63. Resistance of Materials Laboratory.—*Prerequisite:* Registration in T.A.M. 3.

1	L	3–5	M	223 M.T.L.	
	N	1–3	Tu	223 M.T.L.	
	K	3–5	Tu	223 M.T.L.	
	M	3–5	W	223 M.T.L.	
	Y	3–5	Th	223 M.T.L.	

T.A.M. 64. Hydraulics Laboratory.—*Prerequisite:* Registration in T.A.M. 4.

1	J	1–3	M	Hyd. Lab., M.T.L.	
	E	3–5	M	Hyd. Lab., M.T.L.	
	U	3–5	Tu	Hyd. Lab., M.T.L.	
	G	1–3	W	Hyd. Lab., M.T.L.	
	O	3–5	W	Hyd. Lab., M.T.L.	
	F	1–3	Th	Hyd. Lab., M.T.L.	

T.A.M. 98. Thesis.—*Prerequisite:* Senior standing and approval of the head of the department.

1 to 3*		To be arranged	Members of the department

Courses for Advanced Undergraduates and Graduates

T.A.M. 42. Properties of Engineering Materials: Specifications.—*Prerequisite:* T.A.M. 3 and 63. (3.) Arrange. Professor SEELY and Mr. DOLAN.

T.A.M. 43. Laboratory Work in Hydraulics.—*Prerequisite:* T.A.M. 4 and 64. (3). Twice a week. Arrange. Mr. LANSFORD.

T.A.M. 44. Laboratory Work in Testing Materials.—*Prerequisite:* T.A.M. 3 and 63. (3 semester hours or ½ to 1 unit).* Arrange. Professor PUTNAM.

Courses for Graduates

T.A.M. 101. The Development of Basic Ideas in Mechanics.—(1 unit). Twice a week. Arrange. Professor MOORE.

T.A.M. 103. Hydraulics.—(1 unit). Twice a week. Arrange. Professor ENGER and Assistant Professor KITTREDGE.

T.A.M. 107. Laboratory Investigations in Strength of Materials.—(1 to 2 units).* Twice a week. Arrange. Professor MOORE.

T.A.M. 108. Laboratory Investigations in Hydraulics.—(1 to 2 units).* Twice a week. Arrange. Professor ENGER and Assistant Professor KITTREDGE.

T.A.M. 109. Laboratory Investigations in Plain and Reinforced Concrete.—(1 to 2 units).* Twice a week. Arrange. Professor RICHART.

T.A.M. 111. Analytical Study of Experimental Work on Reinforced Concrete: Columns and Slabs.—(1 unit). Twice a week. Arrange. Professor RICHART.

T.A.M. 115. Theory of Elasticity with Application to Engineering Problems.—(Continuation of T.A.M. 114). (1 unit). Arrange. Dr. NEWMARK.

T.A.M. 117. The Properties of Engineering Materials.—(1 unit). Three times a week. Arrange. Professor SEELY.

ZOOLOGY

Note: Certain courses in this department require laboratory fees varying from $0.50 to $4.50.

Major: 20 hours from any courses offered in the department, excluding Zoology 1, and including Zoology 2, 3, 4, 5 (or 7), and 9. At least five hours must be offered from the advanced group.

Minors: 20 hours chosen from one or two of the following subjects: animal husbandry, bacteriology, botany, chemistry, entomology, geology, physics, physiology, psychology. At least eight hours must be offered in each subject, if two are chosen.

Note: Credit for seniors who take Zoology 1 or 2 will be reduced one hour.

Courses for Undergraduates

Zool. 1. General Zoology.—

Credit	Section	Hours	Days	Room	Instructor
5[1]	Lect.	9	MWF	228 N.H.	THOMAS, KUDO, KENDEIGH, BROWN, and assistants
	A Lab. & Quiz	8–10	TTS	310 N.H.	
[1]Seniors will receive only 4 hours credit.	B Lab. & Quiz	8–10	TTS	312 N.H.	
	D Lab. & Quiz	10–12	MWF	310 N.H.	
	E Lab. & Quiz	10–12	MWF	312 N.H.	
	G Lab. & Quiz	1–3	MWF	310 N.H.	
	H Lab. & Quiz	1–3	MWF	312 N.H.	
	K Lab. & Quiz	1–4	TT	310 N.H.	
	L Lab. & Quiz	1–4	TT	312 N.H.	

Zool. 2. Vertebrate Zoology and Comparative Anatomy.—*Prerequisite:* Zool. 1.

5[1]	Lect.	10	MWF	228 N.H.	ADAMS, HALL, and assistants
	A Lab. & Quiz	8–10	MWF	330 N.H.	
[1]Seniors will receive only 4 hours credit.	B Lab. & Quiz	8–10	MWF	314 N.H.	
	C Lab. & Quiz	10–12	TTS	330 N.H.	
	D Lab. & Quiz	8–10	TTS	330 N.H.	
	E Lab. & Quiz	1–3	MWF	330 N.H.	
	F Lab. & Quiz	1–3	MWF	314 N.H.	
	G Lab. & Quiz	1–4	TT	330 N.H.	
	H Lab. & Quiz	1–4	TT	314 N.H.	
	I Lab. & Quiz	8–10	TTS	314 N.H.	

Zool. 3. Vertebrate Embryology.—*Prerequisite:* Zool. 1 and 2.

5	Lect.	1	TT	228 N.H.	SHUMWAY, ADAMSTONE, and assistants
	A Lab.	8–10	MWF	323 N.H.	
[1]Lab. section D and quiz section 4 will not be opened until others are filled.	B Lab.	10–12	MWF	323 N.H.	
	C Lab.	1–3	MWF	323 N.H.	
	[1]D Lab.	3–5	MWF	323 N.H.	
	1 Quiz	8	Tu	423 N.H.	
	2 Quiz	10	Th	423 N.H.	
	3 Quiz	2	Tu	229 N.H.	
	[1]4 Quiz	2	Th	229 N.H.	

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Zool. 4. Invertebrate Zoology.—*Prerequisite:* Zool. 1; sophomore standing.

Credit	Section	Hours	Days	Room	Instructor
3	Lect. or Quiz	3	TT	229 N.H.	VAN CLEAVE and assistant
	A Lab.	10–12	TT	420 N.H.	
	B Lab.	1–3	TT	420 N.H.	

Zool. 5. Heredity.—*Prerequisite:* Sophomore standing. Credit may not be received in both Zool. 5 and Zool. 15.

3	Lect.	9	MW	229 N.H.	LUCE and assistant
	A Quiz	8	F	423 N.H.	
	B Quiz	9	F	423 N.H.	
	C Quiz	9	Th	425 N.H.	

Zool. 6. Vertebrate Histology.—*Prerequisite:* Zool. 3.

3	Lect.	2	Th	323 N.H.	ADAMSTONE
	Lab.	3–5	TT	323 N.H.	

Zool. 10. Field Ecology and Ornithology.—Study in forests, streams, and lakes in the vicinity of Reelfoot Lake, Tenn. Covering Easter vacation. Expenses about $21. *Prerequisite:* Registration in Zool. 9 or 16 or their equivalent; sophomore standing. (1). Professor SHELFORD, Assistant Professor KENDEIGH.

Zool. 16. Bird Study.—*Prerequisite:* Sophomore standing.

2	Lect.	2	Tu	228 N.H.	KENDEIGH and assistant
	Lab., first half of semester, two hours to be arranged each week from 4-6 p.m. M or F, 302 Exp. Zool. Lab.				
	Field, second half of semester, four hours to be arranged each week from 5:30-7:30 a.m. Tu or Th, or 4-6 p.m. M or F, or some Saturdays.				

Courses for Advanced Undergraduates

Zool. 8b. Thesis Investigation.—*Prerequisite:* Two years of zoology.

3 to 5*	To be arranged	Members of the department

Zool. 9. Animal Ecology.—*Prerequisite:* One year of zoology; junior standing.

3 to 4*[1]	Lect.	9	TT	229 N.H.	SHELFORD
[1]For 4 hours credit, additional field work is assigned.	Lab., first half of semester, 9-11		S	202 Exp.Zool.Lab.	
	Field, second half of semester, 9-12		S and two or three all-day trips		

Courses for Advanced Undergraduates and Graduates

Zool. 19b. Vertebrate Ecology.—*Prerequisite:* Zool. 1 and 2. (Zool. 9 or 10 or registration therein also recommended.)

2 or 3*	Lect.	11	TT	202 Exp.Zool.Lab.	KENDEIGH
	Lab. and Field	to be arranged			

Zool. 20b. Current Investigation.—Required of all graduate students majoring in zoology; may be elected by seniors majoring in zoology with consent of instructor. (No credit). Arrange. Members of the department.

Zool. 21b. Introduction to Zoological Research.—May be taken by students who can attend classes only on Saturdays. *Prerequisite:* One year in zoology; senior standing.

2 to 5*	To be arranged	Members of the department

Zool. 23. Comparative Anatomy of Vertebrates.—*Prerequisite:* Zool. 3 and 22.

2 to 4*	Lect.	4	Tu	419 N.H.	ADAMS
	Lab.	1–5	TT	419 N.H.	

Zool. 25. Experimental Genetics.—*Prerequisite:* Zool. 1 and Zool. 5 (may be taken concurrently); junior standing.

3 to 5*	Lab.	1–3	MWF	418 N.H.	LUCE

Zool. 31. Helminthology.—*Prerequisite:* Zool. 1 and 2; junior standing.

2	A	3–5	MW	418 N.H.	THOMAS

Zool. 66. Vertebrate Organogeny.—*Prerequisite:* Zoology 3 or 63.

2 to 5*	A	10	MW	326 N.H.	SHUMWAY
		Other hours to be arranged			

Courses for Graduates

Students entering on graduate study in the Department of Zoology should have had two years of undergraduate work in the subject. When chosen as a minor the courses listed for graduates and advanced undergraduates must be preceded by at least one full year of undergraduate work in zoology. Work done at other institutions will be evaluated on conference with the head of the department.

*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

Zool. 103. Cytology.—Morphology of the animal cell, especially in development. (1 unit). 2 MW; 432 N.H. Professor SHUMWAY.

Zool. 109. Physiological Ecology.—(½ to 1 unit).* 4 WF; 202 Exp. Zool. Lab. Professor SHELFORD.

Zool. 111. Experimental and Field Ecology.—(½ to 2 units).* Arrange. May be taken by students who can attend classes only on Saturdays. Professor SHELFORD.

Zool. 115. Factors of Individual and Racial Development.—(1 unit). 3 WF; 103 Exp. Zool. Lab. Dr. LUCE.

Zool. 117. Invertebrate Taxonomy.—(½ to 1 unit).* Arrange; 420 N.H. Professor VAN CLEAVE.

Zool. 118. Advanced Protozoology.—(1 unit). 9–12 TT; 418 N.H. Associate Professor KUDO.

Individual Research Courses

Note: These courses may be taken by students who can attend classes only on Saturdays.

Zool. 121. Invertebrate Zoology and Parasitology.—(1 to 2 units).* Arrange. Professor VAN CLEAVE, Assistant Professor THOMAS.

Zool. 122. Vertebrate Morphology.—(1 to 2 units).* Arrange. Associate Professor ADAMS.

Zool. 124. Experimental Zoology and Genetics.—(1 to 2 units).* Arrange. Professor ZELENY, Dr. LUCE, Dr. BROWN, Dr. HALL.

Zool. 125. Animal Ecology and Behavior.—(1 to 2 units).* Arrange. Professor SHELFORD, Assistant Professor KENDEIGH.

Zool. 126. Vertebrate Embryology and Cytology.—(1 to 2 units).* Arrange; 432 N.H. Professor SHUMWAY, Assistant Professor ADAMSTONE.

Zool. 128. Protozoology.—(1 to 2 units).* Arrange. Associate Professor KUDO.

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*In registering for a course with variable credit, as 1 to 2 units or 2 to 4 hours, each student puts on his study-list the number of units or hours for which he intends to take the course.

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